Hellenic Open University

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Legal Framework

The HOU was legally founded with article 27, par. 1, pas. a of Act 2083/1992 as an independent and wholly self-governed higher education institute. It operates as a Legal Person of Public Law under the supervision of the Hellenic State, as exercised by the Minister of Education. The institute’s headquarters are in Patras.

The HOU’s mission is to provide distance education at both undergraduate and postgraduate level. For that purpose, it develops and implements appropriate learning material and methods of teaching. The promotion of scientific research as well as the development of the relevant technology and methodology in the area of distance learning fall within the scope of the HOU’s objectives.

Administrative Structure
Studies at the Hellenic Open University

The Hellenic Open University offers undergraduate and postgraduate courses through open and distance education using a variety of methods for distance learning. Undergraduate students are allowed to register for a maximum of three (3) modules per academic year while postgraduate students are allowed to register for a maximum of two (2) or three (3) modules depending on the course, be it a regular registration or a registration for examinations. Students are provided with various learning materials that can be used from home to study: printed course material, set books, audio and video material, cd-roms/software, specially prepared for distance learning. Students are advised to study for approximately 10 hours per week for each course module. The syllabus is approximately 800 pages per undergraduate course module and 1.000 pages per postgraduate course module. Students must plan their own time to study course material, work on course activities, and hand in assignments by the due date. Course Material is accompanied by a Study Guide, that provides guidance on studying course materials, information on the aims, the syllabus, and study plan of each course module. It is important for students to follow this Study Guide and meet assignment deadlines. Students are continuously supported by the Academic Staff and are contacted regularly. The ratio of Tutor/Advisor to student is approximately one to thirty. Students participate in five to six Contact Sessions during the academic year. Each Contact Session is coordinated by the Tutor. There are approximately 30 students per tutorial group. These four hour tutorials are held in Athens, Peiraeus, Patras, Larissa, Thesaloniki, Heraklion, Chania, Ioannina, Komotini and Ksanthi for undergraduate courses, and in Athens, Patras and Thessaloniki for postgraduate courses. Although the contact sessions are not compulsory they are strongly recommended. Tutorials provide students with the opportunity to solve problems and clear up misunderstandings, improve student understanding and performance, and promote tutor-student and student-student communication. Module courses require 4 to 6 written assignments of 6 to 10 pages, according to the subject area, and are evaluated by the tutor. Written assignments are compulsory for all students and must be sent to the tutor by the due date referred on the study plans. Students also take a final course module examination at the end of each 10 month academic year.

Course Module Final Grade

Each course has a number of written assignments and a final examination. A student’s final grade is a weighted sum of these two components. Students may take the final course module examination if they have successfully completed the written assignments with an average grade of at least 50 percent. Students who do not successfully complete assignments are not entitled to take the final course module examination. Written Assignments constitute a 30 percent of each student’s grade. It is a requirement for every course module that students pass the final module examination, with a grade equal or higher than 5, in order to pass the course, regardless of the assignment grades. After all assignments and the final examination are successfully completed, the final

Study Guide 2018-2019
course grade is determined. The final exam grades constitute a 70 percent of the students' final course grade.

The Qualifications the HOU Offers

Undergraduate degrees
Applicants to a course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio) or an equivalent Greek or Foreign High School Certificate. Students are awarded a degree upon the successful completion of twelve course modules.

Postgraduate degrees (Masters)
Applicants to a postgraduate degree at the HOU must possess a undergraduate degree in a relevant field from a Greek Public University or an equivalent Greek or foreign degree. Individual detailed course requirements apply for each course. Students are awarded a Masters degree upon the successful completion of four course modules and a dissertation, which has to comply with the university regulations for dissertation preparation and submission.

Doctoral Degree
Applicants to a Ph.D. program at the HOU must possess a Master's degree in a related field, from a Greek Public University or an equivalent degree. Doctoral theses are supervised and constructed according to the Provision of Public Higher Education and the HOU Ph.D. study regulations.

Tuition Fees – Scholarships

Tuition Fees
The students at the HOU are liable for fees relating to the cost of the necessary learning, information and evaluation material they receive from the University, as well as the communication costs inherent in the distance education system. The amount of fees payable as well as the social and performance criteria applicable for a scholarship are determined by a Decree issued by the Minister of Education.

Scholarships
Student scholarships are offered, on the provision that certain economic, social and academic criteria are met. The scholarships awarded by the HOU cover either the full amount or part of the fees payable by the students for the academic year they apply for a scholarship and provided that a combination of economic, social and academic criteria are met.
School of Humanities

Undergraduate Courses

Studies in European Civilization

Description

The course focuses on the many aspects of European development and the nature of European civilization and culture. It is an innovative course offered by the School of Humanities of the Hellenic Open University, which opens new ground in Greek Higher Education. Interdisciplinary in nature, it incorporates a variety of established and modern subjects and aims at analyzing the basic elements, processes and agents, which have interacted over time to make up what is understood today as Europe. The course: provides knowledge and skills; builds up critical ability; contributes to historical and comparative analysis; helps highlight the multi-faceted kaleidoscope of Europe. The books (study-guides) specially written by HOU for the course are complemented both by general textbooks and by a series of shorter texts, all of which are also stocked and provided by the University Library. They refer to central themes and debates formulated by disciplines such as history, philosophy, art, geography, all of which highlight processes of continuity and change, of identity and nation-building, of supra-nationalism, across most of what is today considered Europe in geographical terms. The course is based on over twelve modules among which, central ones are: European General History (IX-XX c.), European Economic and Social History (IX-XX c.), Philosophy, Social Science, History of Art, European Literature, Geography, Medieval and Byzantine culture. Completion of this course allows students to deepen their knowledge of European civilization and culture and to specialize in one or more of the many aspects discussed. At the same time, they acquire basic skills necessary in any work environment. A European citizen should be the educated citizen, who would have equal opportunities in a united Europe. This course provides such fundamentals.

Requirements

Applicants to the European Cultural Studies course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio), a b’ level Technical Vocational Educational School (TEE) or an equivalent Greek or Foreign High School Certificate. Basic computer and Internet skills and good knowledge of English are necessary for the successful participation in HOU courses.

Minimum study duration

4 academic years

ECTS credit points

240
Learning Material

Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact

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Course Structure

1st Year
EPO10 General History of Europe (C¹, 20 ECTS)
EPO21 History of European Literature (C, 20 ECTS)
EPO31 The Natural and Human Sciences in Europe (C, 20 ECTS)

2nd Year
EPO11 Social and Economic History of Europe (C, 20 ECTS)
EPO12 Geography, Human Geography and Material Culture of Europe (C, 20 ECTS)
EPO22 Philosophy in Europe (C, 20 ECTS)

3rd Year
EPO20 The History of Arts in Europe (C, 20 ECTS)
EPO30 Byzantine and the Western World (O², 20 ECTS)
EPO32 Institutions Shaping European Civilization (O, 20 ECTS)
EPO33 Formation and Development of European Communities (O, 20 ECTS)
EPO42 Special Topics in European Civilization (O, 20 ECTS)
EPO43 Political ideologies in 20th century Europe (O, 20 ECTS)

4th Year
EPO41 Developments in European Civilization in the 20th Century (C, 20 ECTS)
EPO30 Byzantine and the Western World (O, 20 ECTS)
EPO32 Institutions Shaping European Civilization (O, 20 ECTS)
EPO33 Evolution and Governance of the European Union (O, 20 ECTS)
EPO42 Special Topics in European Civilization (O, 20 ECTS)
EPO43 Political ideologies in 20th century Europe (O, 20 ECTS)

Notes:
C¹: Compulsory
O²: Optional
(Students can select up to 3 modules every academic year)
The degree is awarded on completion of 12 course modules.
**Course Modules**

**EPO10 General History of Europe**

**Module code:** EPO10  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1\(^{st}\)  
**Language:** Greek

**Learning Outcomes:** After completing this module, students are expected to be able:
- To describe and identify the major historical developments that shaped Europe and its cultural identity between the end of antiquity and contemporary times.
- To explain and assess the historical events that led to the emergence of the various political institutions, religious systems and intellectual phenomena in Europe between the Middle Ages and contemporary times.
- To produce substantive arguments elucidating or explaining such events and developments, their causes, effects and long-term repercussions.
- To identify and discuss similarities and differences between the various historical trajectories in European history.
- To identify and discuss the most significant continuities and discontinuities in European history.

**Subjects covered:**
- Introduction to the History of Europe  
- General overview: 6th to 20th century CE.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EPO21 History of European Literature**

**Module code:** EPO21  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1\(^{st}\)  
**Language:** Greek

**Learning Outcomes:** On completion of his/her studies, the student will be in a position to:
- Know the main periods and discern the cultural trends/ artistic movements that constitute the milestones in the European history of literature from the 12th to the 20th century.
- Know the leading authors and works forming the "canon" of European literature from the 12th to the 20th century and the main literary genres that emerged in various periods in the history of European literary history from the 12th to the 20th century, their expression and transformation in time.
- Analyze literary texts on the basis of genre, thematic material, style and ideological ramifications.
- Compare and contrast literary texts of the same or different traditions and trends on the basis of their thematic material, their genre and stylistic features, as well as the ideas they deal with.
- Compose papers where it will be possible to combine successive literary elements, pertaining to specific literary genres or works, with their morphological and ideological analysis.

**Subjects covered:**
- Introduction to the history of literature
- History of European Literature from the 6th to the 20th century CE

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EPO31 The Natural and Human Sciences in Europe**

**Module code:** EPO31  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Learning Outcomes:** Upon the completion of this module, students are expected to be able to:
- Recall the major events of history of science and describe the most important epistemological debates, which determined the current state of science.
- Explain how science came to be considered the most trustworthy way of knowing, but also analyze the contradictions immanent in this epistemological pattern as far as the certainty of knowledge is concerned.
- Sketch the role of science and technology in shaping European culture
- Perceive, analyze and discuss social problems arising from scientific and technological developments.
- Contribute to resolving matters of scientific and technological policy.

**Subjects covered:**
- History and Theory of Sciences during the Middle Ages
- History and Theory of Sciences in modern Europe
- Positivism and its Overcome

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EPO11 Social and Economic History of Europe**

**Module code:** EPO11  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:** After completing this module students are expected to:
- Differentiate between general history and economic history.
- Assess and compare approaches of economic and social history theoretically and empirically.
- Grasp, understand and explain basic macro processes of economic development: transition from feudalism to capitalism and its different paths, the various phases of the industrial revolution, the occurrence of economic crises.
- Develop synthetic and analytical skills to: a. analyze and compare patterns of development in the North, South and East, b. discern forms of globalization.
- Critically assess their impact on social, entrepreneurial and business structure and change.
- Acquire the foundations for post-graduate studies in Economic, Social and Business History, in Business Studies and Economics, also in European Studies.

Subjects covered:
- Introduction to the Social and Economic History of Europe
- Social and Economic developments from the 6th to the 20th century.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO12 Geography, Human Geography and Material Culture of Europe

Module code: EPO12
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Learning Outcomes: On the successful completion of ΕΠΟ12, the students are expected to develop abilities:
- To understand the meaning of "Europe" since its inception during antiquity, to recognize its boundaries at different historical periods and recall the transformations of borders around and within Europe, their relocations and hierarchies from 16th century and the periods of colonialism and globalization, until the European unification and the present EU crisis.
- To examine the science of Geography as taught in the European Universities as an important science, based on the ancient Greek scientific tradition, and to understand its shrinkage in modern Greece; to discern between the complex and interdisciplinary approach and the descriptive one, as taught at school.
- To comprehend the role of Geography in the formation of European material, virtual and spiritual culture, and vice versa; to perceive the processes of European and national identity formation, appreciate and evaluate the primary role of spatiality in European culture and grasp the cultural changes in relation to their spatial contexts.
- To recognize and critically assess the "Paradigm shifts" in Geography and grasp the differences in narratives, methods and ways of interpretation of fundamental socio-economic phenomena in space; to understand the interaction of space and human
activity mediated by epistemological shifts and geographical imaginations, which play a central role in European culture.

- To analyze uneven development in geographical space from the global to the local scale, the multiple divisions and disparities among European regions, the contribution of specific places in European cultural, scientific and socio-economic development, and to comprehend spatial interaction, networking and cosmopolitanism of innovative activities and processes.

- To analyze processes of spatial differentiation and restructuring in contemporary Europe and its regions from the era of the industrial revolution to that of globalization - i.e. from 19th to 21st century - and more concretely: urbanization, urban landscapes from human ecology until postmodernity, migration, industrial restructuring, technological development, socio-economic transformation, political developments and social movements in European space.

- To understand and interpret cartographical data after familiarization with the maps and the thematic cartography of Europe.

Subjects covered:
- Geography
- Human Geography and Material culture of Europe

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO22 Philosophy in Europe

Module code: EPO22
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Learning Outcomes: On the successful completion of EPO 22 students are expected to develop various skills, such as:

- The ability to recognize, understand and critically assess key-concepts and significant philosophical theories and to comprehend their socio-historical context.

- The ability to critically assess, analyze and discuss various and even conflicting philosophical arguments, approaches and traditions.

- The development of independent critical thinking and analytical skills, which are crucial factors in forging integrated personalities and, consequently, responsible citizens.

- The ability to study and interpret original philosophical texts as well as to critically assess secondary literature on philosophical issues.

- The ability to form and successfully employ logically sound and convincing arguments.

- The ability to write academic essays in the field of philosophy.

- The ability to link various aspects of philosophical thinking and related debates with current social and political issues.

Subjects covered:
- Philosophy from the 6th to the 16th century
- The Enlightenment (17th - 18th century)
- Modern and Contemporary Philosophical trends (19th - 20th century)

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EPO20 The History of Arts in Europe**

**Module code:** EPO20

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 3rd

**Language:** Greek

**Learning Outcomes:** Upon completion of the module students will be expected to be able to:

- Name artistic features, important artists, architectural elements, key examples of works of visual arts and of music, artistic innovations, historical factors, artistic programs, categories of artistic subjects, principal characteristics of music genres
- Display similarities/ differences between works of visual arts, orientations in architecture in relation to technology and aesthetics
- Distinguish artistic styles, differences between artistic styles, iconographical components, particular architectonic characteristics, particular musical characteristics, features of style, contribution of musical genres to the evolution of music, innovation in music
- Understand distinctive artistic expressions, musical terms, methods of music, transition in music genres, evolution in visual arts and music, use and potentiality of new materials in art
- Describe works of visual arts and of music, artistic occurrences, innovations in style, artistic technics, architectural construction problems, use of musical instruments, musical forms, use of musical forms
- Analyze the relation between history and art, the meaning of artistic production, artistic features, artistic terms, artistic movements, musical forms, iconographical subjects
- Examine changes in art, differences between styles, evolution of musical genres, transition in music history, artistic objectives, artistic technics, the function of works of visual arts, musical achievements, particular issues of form, artistic categories and trends
- Correlate/ Juxtapose works of visual arts and of music, theories of art, artistic styles
- Specify personal artistic components

**Subjects covered:**
- Fine Arts from the Middle Ages to the Late Renaissance
- Fine Arts from the late Renaissance (Mannerism 1530) to the end of the 20th century Music in Europe

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EPO30 Byzantine and the Western World**

**Module code:** EPO30  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 3rd or 4th  
**Language:** Greek  
**Learning Outcomes:** Upon completion of the unit the students will be able to:

- to recall and identify key events which marked the course of the Byzantine East and the Latin/Italian West as well as their relations.
- to describe and interpret phenomena of convergence, divergence and conflict between the two worlds, using good examples.
- to analyze the factors which had a decisive influence on the relations between the two worlds, and distinguish their results and implications.
- to reflect critically on individual topics concerning the complex relations between East and West, and compose essays based on material from published sources.
- to assess the fluctuations in the relations of both worlds and express their opinion with coherent and sophisticated arguments, demonstrating a comprehensive understanding of the issues involved.
- to utilize the learning material for the better understanding of the East-West relations in the modern and contemporary times.

**Subjects covered:**

- Byzantine and Western Civilization: Convergence and divergence
- Renaissance and Humanism
- Reformation and Counterreformation

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EPO32 Institutions Shaping European Civilization**

**Module code:** EPO32  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 3rd or 4th  
**Language:** Greek  
**Learning Outcomes:** Students, upon completion of course are expected to:

- To appreciate the significance of Education, as one of the main institutions that affect (the) social formations and transformations
- To elaborate their ethnocentric attitudes on Education and reconsider them in the light of the european and global paradigms
- To understand the ways in which educational developments relate to broader social and political issues
To comprehend the history of educational systems as a two-way process, from the past to the present and vice-versa.

Subjects covered:
- Education
- Church and Monasticism

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO33 Formation and Development of European Communities

Module code: EPO33
ECTS Credit Points: 20
Module Type: Optional
Year: 3rd or 4th
Language: Greek

Learning Outcomes: On the successful completion of EΠΟ33, students are expected to develop abilities to recognize and analyze with an interdisciplinary and critical approach:

- The changing concept of "Europe" and the basic dimensions of the creation and development of the EU (EC, EEC in the past) of 27 and soon 28 member states, the construction of European Economic Space, the European Neighbourhood Policy, changes and hierarchies of borders, distinctions between the EU, the Eurozone, and other subdivisions in different periods, as well as their cultural impact in the meaning of nation state, citizenship, cultural identity and cosmopolitanism in the course of unification since the past century

- The composition and the impact of consecutive accessions and the transitions and transformations of European cultures created by them, as well as the uniqueness of the European unification venture, which constitutes a particular form of cooperation among nation states, common organization of institutional frameworks, and development of policies, which constitutes a unique contribution of European culture.

- The current dynamics of the broader European space and the europeaxization process as a controversial cultural venture, in juxtaposition with cultural particularities of each nation state in the framework of more general trends developing during the unification process. The EU includes different, sometimes contradictory, cultural discourses, which are imprinted in institutional organization on the one hand, and difference among civil societies on the other, which students of EΠΟ33 are led to understand.

- The political and institutional dimensions of European culture wherein the phenomenon of European unification transformed policy and diplomacy as well as economic, social and cultural life in Europe: the structure, institutional composition and policies of the contemporary EU of the 27 member states, oriented towards modernity as a culture and system of institutions and practices developed by social and political agents, as well as the establishment of a peculiar directorate within the EU under the hegemony of neoliberalism, which is conducive to and unable to manage the crisis during the 21st century.
Subjects covered:
- The postwar formation of the European Communities and their development.
- Formation of Institutions, policies and successive expansions until today.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO42 Special Topics in European Civilization

Module code: EPO42
ECTS Credit Points: 20
Module Type: Optional
Year: 3rd or 4th
Language: Greek

Learning Outcomes: The students of the course module, upon its completion, should be able to:

- To recall, formulate and reproduce the basic arguments related to the emergence and evolution of the capitalist system, which emerged and developed in the context of European civilization.
- To search and recompose chains of arguments concerning the construction of the modernization paradigm in the context of European civilization. Moreover, the students should be able to justify and ascertain the factors and the mechanisms that have an impact on the expansion of capitalism in countries outside the Western world.
- To converse with the theoretical material of the course, and also to be able to analyze and compare the use of theoretical concepts by various scientists and researchers.
- To understand and utilize the theoretical concepts they were taught in the context of the course (e.g. social structure, social action, social capital, civil society, etc.) and have the capacity to juxtapose those concepts against the social reality within which they live and act.
- To comprehend the differences between the theoretical concepts/tools, the observations made on the basis of these theoretical concepts and the empirical reality that they experience. On such basis, they should be able to understand the use and the limits of theory for the study of social, economic, political and cultural phenomena.
- To evaluate and interpret the contemporary social phenomena by placing them in the appropriate historical, sociopolitical and cultural context. Moreover, they should have the capacity to construct interpretations for these phenomena based on the argumentation which can be formulated on the basis of observations as well as the use of empirical or statistical material.

Subjects covered:
- Weber’s protestant work ethic thesis
- Liberal radicalism and revolutionary movements during the 19th century
- Colonialism and rivalry

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EPO43 Political ideologies in 20th century Europe**

*Module code:* EPO43  
*ECTS Credit Points:* 20  
*Module Type:* Optional  
*Year:* 3rd or 4th  
*Language:* Greek  

**Learning Outcomes:** After completing this module, students will be expected to:

- Demonstrate a good understanding of the concept of ideology and its multiple role in political and social life.  
- Be able to assess issues concerning the relationship between ideology and theory and engage themselves in the end of ideology debate.  
- Be familiar with the main features liberalism, socialism, conservatism, fascism, anarchism, nationalism.  
- Be able to present and analyse the underlying principles of each ideology and critically assess their mutual criticisms.  
- To assess the ideological origins of alternative public policy choices.

**Subjects covered:**

- European political ideologies during the 20th century: with emphasis on the most recent ideological currents, especially during the post-Soviet period

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EPO41 Developments in European Civilization in the 20th Century**

*Module code:* EPO41  
*ECTS Credit Points:* 20  
*Module Type:* Compulsory  
*Year:* 4th  
*Language:* Greek  

**Learning Outcomes:** Students, upon completion of course ΕΠΟ 41, should be able to:

- recall, outline and describe basic aspects of social thought in relation to the question of modernity  
- discuss, compare and analyze the observed differentiations between thinkers and schools of thought in relation to modernity  
- insert these theoretical quests with all their significant practical repercussions in the broad current of European civilization and its ongoing globalization.

**Subjects covered:**

- Wittgenstein and the linguistic turn  
- The Human Sciences

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
Studies in Greek Civilization

**Description**

The Program of Studies “Greek Civilization and Culture” is the sole program of interdisciplinary and diachronic study of the dimensions, expressions and contributions of the Greek civilization and culture within the Greek academic environment. With this program, which is now a well-established undergraduate course, the Hellenic Open University set up academic studies of an original and alternative character in regard to conventional Greek universities.

The Program combines

- the study of history as background knowledge,
- the study of intellectual creativity (literature, philosophy, sciences),
- the study of the arts (visual arts, urban planning, theater, dance, music, cinema, etc.) and of social life (political organization, public and private life, the diasporic phenomenon, acceptance and incorporation of the past within modern Greek reality), while encouraging the co-examination of cultural phenomena which emerged, and are emerging, in the Greek space, seen as part of the wider European and global context.
- The specific units which constitute this program are twelve (12) and respond to important and globally established dimensions of the contribution of the Greek civilization/culture. Students acquire theoretical education on the concepts of civilization and culture, following which they study history, art, architecture and urban planning, learn aspects of Greek public and private life, ancient as well as modern, Greek literature from the Homeric epics to the 20th century, philosophy and science, ancient theater, modern theater and cinema, music and dance, archaeology and museology, as well as the global foci of the Greek diaspora. More specifically, the purpose of the program is to offer wide-ranging knowledge, and critical understanding of the cultural explorations and expressions which were developed during consecutive periods of Greek history, ancient, Byzantine and modern, giving prominence to the pertinence of cultural processes (continuities, discontinuities, revivals, explorations of identity, the issue of cultural heritage, etc.) within the given historical and social conditions.
- The Program cultivates critical and synthesizing thought on both material and immaterial aspects of the Greek civilization and culture, on their contribution towards the global cultural becoming, and on the ongoing interaction between past and present, while simultaneously studying exchanges with other civilizations which are always relevant/possible due to the Greek geographical position.

**Learning Outcomes**

Successful completion of the Program advances and cultivates the following abilities or dexterities:
- Overview of the extremely multi-dimensional Greek cultural inter-temporality which is enriched with the capacity for deeper examination.
- Critical thinking.
- Ability for abstract, combining and comparative thought towards the analysis, synthesis and interpretation of both internal and external processes involved in the Greek cultural becoming and its diachronic transformations.
- Aesthetic education.
- Consciousness of the diachronic convergence between Greek culture and other cultures.
- Awareness of the development potential of culture.

Also,
- Competence of written communication and the writing of quality academic essays.
- Dexterity in using technologies of communication, information and representation, as well as in the productive management of time.

Requirements
Applicants to the Hellenic Cultural Studies course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio) or an equivalent Greek or Foreign High School Certificate.
Basic computer and Internet skills and good knowledge of English are necessary for the successful participation in HOU courses.

Minimum study duration
4 academic years

ECTS credit points
240

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
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Course Structure
1st Year
ELP10 Introduction to Greek Civilization (C¹, 20 ECTS)
ELP11 Greek History (C, 20 ECTS)
ELP12 Arts I: Hellenic Fine Arts, Review of the Greek Architecture and Town Planning (C, 20 ECTS)

2nd Year
ELP20 Public and Private Life in Greece I: From Antiquity to Post-Byzantine Times (C, 20 ECTS)
ELP21 Literature I: Ancient Greek and Byzantine Literature (C, 20 ECTS)
ELP30 Letters II: Modern Greek Literature (19th and 20th c.) (C, 20 ECTS)

3rd Year
ELP22 Greek Philosophy and Science from Antiquity to the Twentieth Century (C, 20 ECTS)
ELP31 Ancient Greek Theatre (C, 20 ECTS)
EPO20 History of Arts in Europe (O², 20 ECTS)
EPO21 History of European Literature (O, 20 ECTS)
EPO22 Philosophy in Europe (O, 20 ECTS)

4th Year
ELP40 Arts II: Overview of Greek Music and Dance (O, 20 ECTS)
ELP41 Public and Private Life in Greece II: Modern Times (O, 20 ECTS)
ELP42 Archaeology in Greece (O, 20 ECTS)
ELP43 The Greeks of Diaspora (O, 20 ECTS)
ELP44 Modern Greek Theatre (1600 - 1940) - Cinematography (O, 20 ECTS)
ELP45 Modern Greek Literature, from the Beginning to the 18th Century (O, 20 ECTS)
EPO20 History of Arts in Europe (O, 20 ECTS)
EPO21 History of European Literature (O, 20 ECTS)
EPO22 Philosophy in Europe (O, 20 ECTS)

Notes:
C¹: Compulsory
O²: Optional
(Students can select up to 3 modules every academic year)
The degree is awarded on completion of 12 course modules.

Course Modules

ELP10 Introduction to Greek Civilization
Module code: ELP10
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek
Learning Outcomes: Upon successful completion of this module students will be able to:
- grasp the main points of the theoretical reflection on the fundamental concepts of civilization, culture, mass culture and high art
- know the concept of archaeological culture and its basic components, as well as the concept of tradition and cultural heritage
- know the major achievements and the key role of archaeological research in the reconstruction and management of the past in Greece from the 18th to the 20th century
- describe the historical development of the Greek language in its five key periods: Mycenaean, Ancient Greek, Hellenistic Koine, Byzantine and Modern Greek
- understand fundamental aspects of the ancient Greek and Byzantine civilization from the perspectives of history, literature and archaeology, such as: values of public and private life, political organization and political theory, philosophy, science, art and architecture, theatre, religion, law
- draw data from literary works and art monuments of the ancient Greek and Byzantine civilization and to combine them with their theoretical knowledge
- apply the above knowledge to diachronic questions concerning the relationship between ancient Greek and Byzantine civilization
- compare data between different cultural eras and make well-grounded hypotheses about potential developments in the past or the present
- prepare academic essays applying their critical thinking and utilizing a variety of literature
- proceed to the deepening of the acquired knowledge in the subsequent modules of the Program "Greek Civilization".

Subjects covered:
- The concepts of culture and civilization: Aspects of Greek civilization
- Milestones in Greek civilization

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ELP11 Greek History

Module code: ELP11
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: Upon successful completion of module ELP11, which is a foundational module of the ELP course, students will have gained knowledge on the following topics of Ancient, Byzantine and Modern Greek History:

A.
- Social and political organization and forms of communication in the Greek area during prehistoric times.
- Transition from palatial societies to the "city-state"
- The institution of the "city-state 'origin and development"
- Kingdom of Macedonia, Macedonians’ hegemony, Alexander’s conquests
- Hellenistic kingdoms, political - economic - social structures of the Hellenistic world.
- The Greek world under Roman rule.

B.
- Aspects of the history of institutions of the Byzantine Empire (origin, evolution, organization and function).
- Relations between Byzantium and the Muslim and Slavic peoples.
- History of Greek areas of the empire during the Latin and Ottoman domination.

Γ.
- Terms and conditions (political, ideological, social) of the formation and development of New Hellenism in the broader context of Europe and the Ottoman Empire in the 18th century and early 19th century.
- The Modern Greek Enlightenment and the ideological preparation of the Revolution.
- Organization and conduct of the Greek Revolution of 1821
- Constitution of the modern Greek State (institutions, political and social structures, economy).
- National ideology and national historiography.
- Overview of the political history of the 19th and 20th centuries.
- They will also have acquired the following skills and abilities:
  - To study further in depth all the issues that have been taught and other aspects of Greek history with reference to the relevant bibliography.
  - To pose questions and analyze them by leveraging sources and information
  - To produce work of academic standards.
  - To be familiar with and understand key historical terms and concepts as well as some basic methodological issues of historical research.

Subjects covered:
- The Ancient Greek World
- Byzantium and Hellenism
- Modern and Contemporary Greek History

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ELP12 Arts I: Hellenic Fine Arts, Review of Greek Architecture, Urban Planning, and Urban Design

Module code: ELP12
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: Upon successful completion of ELP12, students will be able to:
- Recognize the dominant role of art in the formation of Greek culture and civilization, more precisely the function, character, form, influence, symbolic role and "multidimensional content of Greek art, architecture and urban planning/design per category, period (prehistoric, classical, Byzantine, post-Byzantine/learned and popular, modern and contemporary from the 19th century until the present), and currents of thought.
- Understand in synthetic manner the central points of aesthetic outlooks, ancient, Byzantine and contemporary, Greek but also Western and Eastern, through the contribution of aesthetic theory and philosophy of art.

- Perceive critical approaches and dimensions of the relation between art, space, the urban and regional landscape and society as much from the standpoint of the historical background pertaining at each time as from the standpoint of the present through the contribution of the appropriate theory.

- Recognize the gaze as the beginning (artist), the fulfillment (through the social body) and as narrative representation of the creative praxis.

- Be aware of basic elements of the visual arts from all periods of the Greek art, thematic axes, techniques and materials, ancient and modern, including technologies of the present time.

- Be aware of the local and international contribution of modern Greek creators and theoreticians of art, architecture and urban design-planning with reference to artistic trends and styles and their social and theoretical contribution.

- Locate continuities and mutual influences among the arts in various depths of the Greek temporal stratification and on various spatial scales, from the scale of the isolated artwork to the architectural and the urban design-planning, considered as artistic and temporal convergences in the Greek space and, after Byzantium, as such convergences among Greece, the wider Mediterranean space and the West.

- Compare art, architectural and urban planning-design works of different periods in regard to their form, content and function.

- Understand the social, aesthetic and developmental components of the protection of artworks and monuments, of monumental complexes and monumental networks. Also, the influence of the above and of the management of visual memory towards the production of new artistic, architectural and urban planning-design works.

- Prepare academic essays applying their critical faculties, make competent use of the right terminology, pursue originality and employ varied bibliographical resources as well as visual materials of various kinds (images, videos, digital materials, etc.) in a critical manner.

- Apply acquired foundational and critical skills and abilities as well as their aesthetic education in subsequent modules of the Study Program in synthetic manner.

**Subjects covered:**
- Principles, values and ideal of the Greek art, categories, periods, essential elements of the figurative work, themes, techniques and materials, function and character per period.

- Aesthetic outlooks, "ekphraseis"* from antiquity to the present time.

- The postwar profile of Greek art, the international presence of Greek artists. Periods of Greek urban planning/urban design and architecture (prehistoric, classical, Byzantine and popular architecture, modern and contemporary architecture 19th-20th century).

*An ekphrasis (ekphraseis in pl.) is the aesthetic experience of qualified spectators acquired by means of a trajectory through space, enclosed or open.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ELP20 Public and Private Life in Greece I: From Antiquity to Post-Byzantine Times**

**Module code:** ELP20  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:** Upon successful completion of module ELP20 students will be able to understand:

I
- The characteristics of the ancient Greek city-state and the status of the (free) citizen who participated in its authorities and government.
- The social and political organization of Athens and Sparta and the institutions associated with the marriage, the oikos, and the family of the citizen.
- The ritual character, the polytheistic system and the central role of ancient Greek religion within the ancient Greek city.

II
- The institution and role of the Byzantine emperor and his court, the organization of the state mechanism, and the manner of administration of the Byzantine Empire.
- The nature and features of the Byzantine society and economy, and the urban development of Byzantine cities in the early, middle and late Byzantine period.
- The religiosity of the Byzantine people, the phenomena and manifestations of religious life, the history of the Church and the clergy.

III
The manner in which the Ottoman state was handling its Greek subjects and the Ecumenical Patriarchate, and the living conditions of the enslaved Greeks during the Ottoman domination will have acquired the skills and abilities:
- to distinguish primary from secondary historical sources.
- to understand translated passages from ancient Greek and Byzantine sources, in which they can trace and analyze institutions, practices, traditions, concepts and theories, based on the knowledge they have acquired.
- To compose a written paper with scholarly claims, drawing information from various sources, and to present certain conclusions.

**Subjects covered:**
- The concept of the "free citizen"
- Ancient public life
- Ancient private life
- Public and private life in the Byzantine Empire
- Religious life in Byzantium
- Everyday life in Post-Byzantine Times

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ELP21 Literature I: Ancient Greek and Byzantine Literature**

**Module code:** ELP21  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:** Upon successful completion of module ELP21, students:
- Will know the historic trajectory, the key representatives, the main works and the cultural impact of the written evidence of the ancient Greek and Byzantine culture  
- Will comprehend the basic particularities that define and distinguish the time periods, the authors, their works and reception  
- Will apply the appropriate methodology for the study of written texts of each period, the key representatives and the pieces of work they composed, will examine their impact on the following historical periods and will utilize their interpretation  
- Will be able to analyze both in written essays and/or oral accounts the essential components of a literary, historical, philosophical, rhetorical or scientific text of the ancient Greek and Byzantine periods, will combine the findings of their analysis and will incorporate these findings within the social and cultural context of each period  
- Will be able to compose orally and in writing data resulting from the analysis of different texts, explain their existence based on the context and the particularities of their time and be able to distinguish and classify the general cultural streams within which these works have been created and of which they represent exemplary theoretical and experiential tools of thought.  
- Will be able to evaluate the pros and cons of written texts with sufficient knowledge and judgment, to infer their value and importance for culture, and to identify their aesthetic, underlying thoughtfulness and function in the contemporary cultural moment.

**Subjects covered:**  
- Ancient Literature  
- Medieval Literature

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ELP30 Letters II: Modern Greek Literature (19th and 20th c.)**

**Module code:** ELP30  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:** Upon successful completion of module ELP30, students:
- Will have acquired a basic knowledge about authors, literary works and the general pattern of the history of modern Greek literature (19th-20th centuries).
- Will have acquired an understanding of the features of fundamental aesthetic trends (romanticism, symbolism, naturalism, etc.) and movements (e.g. Surrealism) in 19th- and 20th-century art.
- Will have acquired a basic understanding of the main literary schools and tendencies of modern Greek literature in the 19th and 20th centuries (e.g. Ionian school, generation of the 1880s, generation of the 1930s, etc.).
- Will have acquired an understanding of the basic narrative modes and morphological characteristics operating in literary texts.
- Will have developed an intellectual mode of thinking, on the basis of the above learning outcomes, on issues of literary history and literary theory.
- Also, students will have acquired the required skills and abilities,
  - For comprehension and critical reading of literary texts (poetry and prose) of modern Greek literature (19th-20th centuries).
  - For comprehension and critical reading of literary criticism and scholarly writing.
  - To place a literary work in its historical and cultural context.
  - To compose an essay in a systematic manner and to present their findings from the analysis of literary texts and careful study of relevant academic material in a competent and meaningful way.

Subjects covered:
- Greek Romanticism: Poetry of the Ionian and the Athenian School
- Memoirs
- The 1880s generation
- Cavafy - Sikelianos - Kazantzakis – Karyotakis
- The 1930s generation
- Postwar and contemporary literature

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ELP22 Greek Philosophy and Science from Antiquity to the Twentieth Century
Module code: ELP22
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek

Learning Outcomes: After having successfully completed module ELP22:
A. Students should be able to understand:
  - The historical evolution of the philosophical and scientific activity developed in the wider Greek geographical area from the period of the Pre-Socratic philosophers until the 20th century.
- The similarities and the differences of the main arguments of Greek philosophical and scientific theories in their process of evolution through the development of the respective movements, schools, and traditions.
- The content of Ancient Greek philosophical and scientific thought and its contribution to the development of Western civilization.
- The components that render Byzantium a historically interesting period from a philosophical and a scientific perspective.
- The grounds which render Neohellenic Enlightenment a period of productive philosophical and scientific activity that made a substantial contribution to the formation of Greek national identity.
- The particulars of continuity and discontinuity of the intellectual production during the main periods of Greek history.

B. Students should acquire the following capacities and skills:
- To acquaint themselves with the use of the main methodological research tools in the fields of the history of philosophy, the history of science, and the history of ideas.
- To compose written work meeting the academic standards, drawing upon sources and secondary literature and concluding with well-substantiated claims.
- To utilize the findings of contemporary research in the field of Greek philosophy and science in order to facilitate their further engagement with particular subject areas within this module.

Subjects covered:
- Principles of Greek Philosophy. Differences from other ancient civilizations, such as those of India and China. Questions and evolution of ideas.
- The Presocratic Philosophers, Plato and Aristotle.
- Hellenistic philosophy: Epicurus and the Stoics.
- Philosophy and Theology. The Fathers of the Church.
- Neoplatonism and Aristotelism during the Byzantine Era.
- Science in Antiquity: Mathematics, Astronomy, Physics, Medicine, Geography, Art of War.
- Continuity of Thought during the Byzantine Period. Byzantine concept of the Law.
- The Greek diaspora-modern Greek enlightenment.
- Modern Philosophy.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ELP31 Ancient Greek Theatre
Module code: ELP31
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek
Learning Outcomes: Successful completion of this course will equip students with the ability to:
- Place ancient Greek drama within the broader context of ancient Greek culture.
- Describe the structure of the ancient theatre building and its development, as well as further developments regarding theatrical masks, costumes and scenography.
- Be familiar with both the history of ancient drama and its genres (tragedy, comedy and satyr drama) and its modern theatre reception.
- Study comparatively the genres of ancient drama and to point out their similarities and differences.
- Analyze and critically compare the key concepts, ideas and techniques in the plays of Aeschylus, Sophocles, Euripides, Aristophanes and Menander.
- Be well-grounded and critical readers and spectators of ancient Greek plays.
- Successfully apply for and participate in MA studies in Greek theatre.

Subjects covered:
- Introduction to Ancient Greek Theatre
- Ancient and modern theoretical approaches
- The origins of Ancient Greek Tragedy
- Aeschylus - Sophocles - Euripides - Minor Tragedians
- The Old Comedy and Aristophanes
- Middle and New Comedy. Menander. Phlyax plays
- Satyr play. Mime
- Ancient Drama since the Hellenistic period. Ancient Greek Theatre and the Romans. The textual tradition. Commentaries
- Modern Greek translations of ancient Greek tragedies and comedies
- Directors' approaches to Ancient Greek Drama in Modern Greece.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO20 History of Arts in Europe
Module code: EPO20
ECTS Credit Points: 20
Module Type: Optional
Year: 3rd / 4th
Language: Greek
Learning Outcomes: Upon completion of the module students will be expected to be able to:
- Name artistic features, important artists, architectural elements, key examples of works of visual arts and of music, artistic innovations, historical factors, artistic programs, categories of artistic subjects, principal characteristics of music genres
- Display similarities/ differences between works of visual arts, orientations in architecture in relation to technology and aesthetics
- Distinguish artistic styles, differences between artistic styles, iconographical components, particular architectonic characteristics, particular musical characteristics, features of style, contribution of musical genres to the evolution of music, innovation in music
- Understand distinctive artistic expressions, musical terms, methods of music, transition in music genres, evolution in visual arts and music, use and potentiality of new materials in art
- Describe works of visual arts and of music, artistic occurrences, innovations in style, artistic technics, architectural construction problems, use of musical instruments, musical forms, use of musical forms
- Analyze the relation between history and art, the meaning of artistic production, artistic features, artistic terms, artistic movements, musical forms, iconographical subjects
- Examine changes in art, differences between styles, evolution of musical genres, transition in music history, artistic objectives, artistic technics, the function of works of visual arts, musical achievements, particular issues of form, artistic categories and trends
- Correlate/ Juxtapose works of visual arts and of music, theories of art, artistic styles
- Specify personal artistic components

Subjects covered:
- Fine Arts from the Middle Ages to the Late Renaissance
- Fine Arts from the late Renaissance (Mannerism 1530) to the end of the 20th century
- Music in Europe

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EPO21 History of European Literature

Module code: EPO21
ECTS Credit Points: 20
Module Type: Optional
Year: 3rd / 4th
Language: Greek

Learning Outcomes: On completion of his/her studies, the student will be in a position to:
- Know the main periods and discern the cultural trends/ artistic movements that constitute the milestones in the European history of literature from the 12th to the 20th century.
- Know the leading authors and works forming the "canon" of European literature from the 12th to the 20th century and the main literary genres that emerged in various periods in the history of European literary history from the 12th to the 20th century, their expression and transformation in time.
- Analyze literary texts on the basis of genre, thematic material, style and ideological ramifications.
- Compare and contrast literary texts of the same or different traditions and trends on the basis of their thematic material, their genre and stylistic features, as well as the ideas they deal with.
- Compose papers where it will be possible to combine successive literary elements, pertaining to specific literary genres or works, with their morphological and ideological analysis.

**Subjects covered:**
- Introduction to the history of literature
- History of European Literature from the 6th to the 20th century CE

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EPO22 Philosophy in Europe**

**Module code:** EPO22  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 3rd / 4th  
**Language:** Greek

**Learning Outcomes:** On the successful completion of EPO 22 students are expected to develop various skills, such as:
- The ability to recognize, understand and critically assess key-concepts and significant philosophical theories and to comprehend their socio-historical context.
- The ability to critically assess, analyze and discuss various and even conflicting philosophical arguments, approaches and traditions.
- The development of independent critical thinking and analytical skills, which are crucial factors in forging integrated personalities and, consequently, responsible citizens.
- The ability to study and interpret original philosophical texts as well as to critically assess secondary literature on philosophical issues.
- The ability to form and successfully employ logically sound and convincing arguments.
- The ability to write academic essays in the field of philosophy.
- The ability to link various aspects of philosophical thinking and related debates with current social and political issues.

**Subjects covered:**
- Philosophy from the 6th to the 16th century  
- The Enlightenment (17th - 18th century)  
- Modern and Contemporary Philosophical trends (19th - 20th century)

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**ELP40 Arts II: Overview of Greek Music and Dance**

**Module code:** ELP40  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 4th
Language: Greek

Learning Outcomes: Upon successful completion of the module, students:

A. will be able to understand:

- The role and importance of music as an educational and cultural good during the ancient period.
- The distinction between the Pythagorean and Aristoxenic vision of music and its effects on subsequent Greek philosophers.
- The correlation between music and the official functions as well as the everyday life of ancient Greeks on the basis of songs and instrumental music, be it related to worship or not.
- The distinction between the Byzantine music and the music of the Byzantine Empire and their interactions.
- The different genres of folk song and the special features of the Kleftiko song, urban-folk song and rembetiko song as well as their ideological components.
- The special features of heterolingual and minority groups and their interactions with the native musical tradition.
- The perceptions of the music of the Eptanisian and the (Greek) ‘National Music School’.
- The work of the Pioneers and the Greek “Avant-garde”
- The commercialization of the song and music as a result of technological evolution, from the appearance of discography to date.
- The different position of dance with reference to the classical and Byzantine period.
- The variety and diversity of the Greek music-dance tradition, with reference to individual geographical regions of Greece.
- The perception of dance as a symbol of identity, as a ritual and a spectacle.
- The specific characteristics of the western dance as an art form and its individual genres.
- The characteristics and social dimensions of European, Latin American, modern and "popular" dances.

B. will have acquired the skills and abilities to:

- understand complex concepts such as identity, tradition, folk culture, and make adequate use the relevant terminology
- critically assess the relevant literature and to be able to select suitable references in support of their positions and arguments.
- adequately employ their writing skills and to produce essays on issues related to the content of the module.

Subjects covered:

- Mathematical theory of ancient music (Byzantine theory, dialectical correlations with the East, Greek and Western music in the modern world, modern trends)
- Theoretical approach to the rhythmology of Greek dance

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ELP41 Public and Private Life in Greece II: Modern Times

Module code: ELP41
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes:
- Learning and comprehension of the subject of study and development of skills relating to it.
- The objectives of Module ELP41, entitled Public and Private Life in Greece II, are the establishment and development of the discipline of folklore in Greece, the study of aspects of traditional culture and the organization of society in Greece from the Late Ottoman period (18th century) to the present. Upon successful completion of the module, students will be in the position to:
  - Possess a general knowledge of the historical and cultural concepts and circumstances (historical, philosophical, political, social and cultural) within which folklore was established and developed in Greece.
  - Have a general overall knowledge of the subject of Greek folklore.
  - Recognize and interpret the elements of traditional culture.
  - Participate actively and institutionally in the development, promotion and management of issues relating to traditional Greek culture.

In particular, as regards the field of study no. 2 above, upon successful completion of the module, students will have sufficient knowledge and be able to interpret in a critical spirit the following issues and effects relating to traditional Greek culture:
- They will be aware of the subject, methods and historical formation and development of the discipline of folklore in Greece and Europe.
- They will recognize the different forms of kinship organization and establishment of the Greek family, and interpret the symbols and rituals associated with it.
- They will understand and interpret the pre-industrial processes and customary practices of primary production activities, namely of agriculture and animal husbandry.
- They will describe and explain beliefs and practices associated with the three main stations of human life (birth, marriage, death) as rites of passage.
- They will be aware of the economic, historical, social and cultural factors that determined the diet of the Greek rural population and will be able to interpret their dietary habits, both in daily life and on festive occasions and rites of passage (birth, marriage, death).
- They will familiarize themselves with a historical approach to the study of institutions such as monasteries; will be aware of their contribution to the constitution of society and to the maintenance and promotion of Hellenism; and will understand their function as guardians of education, culture and the arts.
- They will be acquainted with and be able to interpret the historical development of forms of social organization found in Greece (such as communities and guilds) and will understand their transformations caused by the urbanization of population.

- They will know and will be able to explain the reasons (e.g. social, environmental, etc.) for the configuration and development of various manufacturing (such as pottery-making, building, flour production, etc.) and artistic activities (such as painting, sculpture, etc.) and describe the major traditional architectural types of houses in Greece, the types of ceramics and pottery, the techniques and designs of sculptures and paintings.

- They will understand the concept of oral literature, its types and theories explaining their formation and classification; will be able to distinguish a tale, a tradition, a proverb, a riddle, and will explain how these forms of oral speech are connected to the life and to the culture of the community that produces and reproduces them.

- They will be aware of how Greek folk songs were created, transformed and disseminated, and of their link with various aspects of the history and ways of life of the community which created and reproduced them; will be able to distinguish a folk song, to classify it and to evaluate it as a collective cultural expression of the community made up of text, music and frequently dance.

**Subjects covered:**
- Moral existence and the cohesive role of community: Popular philology. Traditional folk song and its importance.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**ELP42 Archaeology in Greece**

**Module code:** ELP42  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 4th  
**Language:** Greek  

**Learning Outcomes:** Upon successful completion of module ELP 42, students will be able to:

- be aware of the historiographical development of the science of Archaeology in general and particularly in Greece, as well as the definition, basic principles, and subject-matter of the scientific field of archaeology.

- Ib. recognize the direct as well as the indirect contribution of the science of archaeology to the knowledge of the prehistoric and historic past, its contribution to the evolution of the Greek state, but also to be aware of contemporary parameters and problems concerning aspects of archaeology in present-day social reality.
- Ic. be aware of the notion of Museology as a science and its links with the recording, protection, and aesthetic enhancement of Greek antiquities.
- Id. cultivate their sensibility to, and involvement – both personal and social – in, issues related to the understanding and protection of the cultural heritage of any field in which they are actively engaged in.

**Subjects covered:**
- A historiography of the discipline of Archaeology in Greece.
- Greek Archaeology: Definition, subjects and basic principles.
- Main scientific fields in Greek archaeology and their cultural value.
- Museology. Preserving antiquities.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**ELP43 The Greeks of Diaspora**

**Module code:** ELP43  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 4th  
**Language:** Greek

**Learning Outcomes:** Upon the successful completion of ELP 43 (Hellenism of Diaspora), students will be able,
- to understand and handle scholarly issues concerning:
  - the history of the Greek diaspora from 1600 BC until today
  - the features of modern Greek diasporic flows and diasporic stock
  - the causes and factors leading to the creation and continuity of the Greek diaspora
  - contemporary economic, social, political and cultural mobility of the Greek diaspora, as well as problems its members face
  - how the process of migration has affected the members of the Greek diaspora, the host countries and the homeland
  - Greek diasporic public policy and the multifaceted relations between the diaspora and the ancestral homeland

**Subjects covered:**
- History of Greek diaspora. Immigration - Refugees - Return migration - Political, social, economic and cultural dimensions.
- Greek populations in the Balkans and the Danube countries. Vlachs of Moschopolis, Sarakatsani
- Greeks in the Caucasus and Black Sea countries
- Greek communities in the central European and Mediterranean urban centers
- The Hellenism of North and South America. Historical development and their contemporary role
- Greeks of South Africa and Australia. Historical development and their contemporary role
- Greek-speaking and ethnic Greeks (S. Italy, Spain, Syria, Palestine, Sea of Azov)
**Evaluation**: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

<table>
<thead>
<tr>
<th>ELP44 Modern Greek Theatre (1600 - 1940) - Cinematography</th>
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<tbody>
<tr>
<td><strong>Module code</strong>: ELP44</td>
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<tr>
<td><strong>ECTS Credit Points</strong>: 20</td>
</tr>
<tr>
<td><strong>Module Type</strong>: Optional</td>
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<tr>
<td><strong>Year</strong>: 4th</td>
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<tr>
<td><strong>Language</strong>: Greek</td>
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<tr>
<td><strong>Learning Outcomes</strong>: Upon successful completion of module ELP44, students will be able to,</td>
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<tr>
<td>- evaluate and analyze the whole typological features and fundamental concepts of the studied objects</td>
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<tr>
<td>- describe their historical evolution</td>
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<tr>
<td>- handle the study objects (as well as the relative literature) in a critical and original manner</td>
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<tr>
<td>- identify and highlight the vital and essential components of these</td>
</tr>
<tr>
<td>- compare and analyze different periods of the subject-matters under consideration</td>
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<tr>
<td>- compare and analyze the two subject-matters of this module (similarities, differences, interaction, etc).</td>
</tr>
<tr>
<td>- sufficiently understand and analyze the main differences / similarities between concepts such as drama / theatre / performance, and the differences / similarities between concepts such as performance / representation, image, live presence, art / technology</td>
</tr>
<tr>
<td>- carry out comparisons and analyses employing aesthetic and sociological criteria</td>
</tr>
<tr>
<td>- link the past of modern Greek theatre and cinema with their present and future.</td>
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<tr>
<td>- have experiential contact with the subject-matter (transition from theater to cinema and attendance of performances and films)</td>
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<tr>
<td>- know how institutions can affect the final result (grants, interferences, practices)</td>
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<tr>
<td>- discuss, based on the knowledge gained, terms such as folk and high art, high and popular taste</td>
</tr>
<tr>
<td>- produce a written paper that is well documented from a scientific point of view, up-to-date and well structured.</td>
</tr>
</tbody>
</table>

**Subjects covered**:  
- The modern theatre until the 2nd World War  
- Greek cinematography  

**Evaluation**: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

<table>
<thead>
<tr>
<th>ELP45 Modern Greek Literature, from the Beginning to the 18th Century</th>
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<tbody>
<tr>
<td><strong>Module code</strong>: ELP45</td>
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<tr>
<td><strong>ECTS Credit Points</strong>: 20</td>
</tr>
</tbody>
</table>
Module Type: Optional
Year: 4th
Language: Greek
Learning Outcomes: After successful completion of ELP 45, the students will have achieved the following,
- they will be familiar with the basic stages in the historical development of early Greek literature from its beginnings (12th c.) until the period of Enlightenment (18th c.).
- they will know the most important stylistic, thematic and ideological characteristics of Late Byzantine literature in the vernacular language, the literature of the Renaissance in the vernacular (Cretan, Cyprus, Ionian) and the literature of the post-Byzantine and Greek Diaspora until the period of Enlightenment (prose, Phanariote poetry, folk song)
- they will be able to integrate literary works into their historical and cultural environment on the basis of their language, form and particular stylistic and thematic traits.
- they will be able to understand the connections between the literary and the wider cultural phenomenon in the centuries that preceded the establishment of the Greek state.
- they will be able to recognize the Byzantine, eastern and western (European) origins of the early modern Greek literature and its particular existence. Students will gain ability to understand and critically read the works that make up the early Greek literature and will acquire an understanding of their role in shaping the modern Greek culture as well as the crystallization of modern Greek consciousness.
- will be in a position to compose a well-written essay, presenting their findings from the analysis of the literary texts from a different period of time through their careful study of the relevant bibliography.

Subjects covered:
- At the turning point of modern times: Ethics, Love poetry, Satire, Dreams.
- Greek literature during occupation by the Franks: Eptanissa, Cyprus.
- From the fall of Crete to the Greek Revolution (1669 - 1821): Diaspora, Eptanissa,
- Fanariotes Modern Greek Enlightenment, Folk music

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Hispanic Language and Civilisation Studies

Description
The course aims to provide knowledge and understanding of the Spanish Language, its evolution and the rich, multidimensional culture of Hispanic people

Learning Outcomes
Our Program of Studies allows students to acquire broad knowledge in the basic fields of Hispanic Civilization and Culture. Our specific goals are:

- To provide our students with the necessary theoretical and practical knowledge of the structure and functions of the Spanish language in order to enable them to use it fluently for general and academic purposes,
- To study the major literatures and cultures of the Spanish speaking world,
- To develop their skills in critical analysis and evaluation of literary texts through the use of the proper theoretical tools and methodology research.

Requirements

Applicants to the Hispanic Culture Studies course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio), either a recognised Hispanic High School Certificate or an equivalent Greek or Foreign High School Certificate.

All candidates must provide evidence of an intermediate / B2 Level in Hispanic or any qualifications recognised by the Hispanic embassy or the Instituto Cervantes as equivalent to the B2 level.

Basic computer and Internet skills and good knowledge of English are necessary for the successful participation in HOU courses.

Minimum study duration

4 academic years

ECTS credit points

240

Learning Material

Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact

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Course Structure

1st Year
ISP10 Spanish Language LEVEL I (C1, 20 ECTS)
ISP11 Spanish Language LEVEL II (C, 20 ECTS)
ISP12 Understanding the Language and Civilization: From Latin to Modern Spanish (C, 20 ECTS)

2nd Year
ISP20 Spanish Language LEVEL III (C, 20 ECTS)
ISP21 History of Spain (C, 20 ECTS)
ISP22 Civilisation of Spain (C, 20 ECTS)

3rd Year
ISP30 Spanish Literature I (C, 20 ECTS)
ISP31 Latin American Civilisation (C, 20 ECTS)
ISP32 History of Latin American Countries (C, 20 ECTS)

4th Year
ISP40 Spanish Literature II (C, 20 ECTS)
ISP41 Latin American Literature I (C, 20 ECTS)
ISP42 Latin American Literature II (C, 20 ECTS)

Note:
C¹: Compulsory
(Students can select up to 3 modules every academic year)
The degree is awarded on completion of 12 course modules.

Course Modules

ISP10 Spanish Language LEVEL I
Module code: ISP10
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek & Spanish
Course objectives – Syllabus: Students develop their oral and written language skills through:
- The use of authentic teaching material and audio-visual means (videos, internet, interactive whiteboard etc.),
- Exercises on morphosyntactic structures.
Learning outcomes: After completion of the course, students are expected to:
- Have basic knowledge of different morphosyntactic phenomena,
- Have broadened their vocabulary,
- Comprehend simple written texts and to summarize their central idea.
Subjects covered:
- Integration of reading, writing, speaking and listening skills through simple authentic texts
- Communication methodology through an integrated teaching of grammar, structure and pronunciation
- Study and drills in the Spanish language
Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### ISP11 Spanish Language LEVEL II

**Module code:** ISP11  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek & Spanish

**Course objectives-Syllabus:** The main objectives of the course are:
- To understand more complex morphosyntactic phenomena and improve the comprehension and expression skills in oral and mainly written discourse through texts with complex vocabulary as well as authentic teaching material and audiovisual means (videos, internet, interactive whiteboard, etc.).
- Teaching and constant practice of the morphosyntactic phenomena.

**Learning outcomes:** Upon completion of the course students are expected to use Spanish with relative ease, given that:
- They have acquired extended knowledge of the morphosyntactic rules of Spanish,
- They can use a wide range of vocabulary and understand idiomatic expressions,
- They are able to produce, in an adequate and cohesive manner, written or oral discourse on current or cultural topics related to the Spanish-speaking countries and can generally express their points of view with clarity.

**Subjects covered:**
- Integration of reading, writing, speaking and listening skills through more complex authentic texts
- Communication methodology through an integrated teaching of grammar, structure and pronunciation
- More extensive use of the Spanish language in studying and carrying out the exercises required

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### ISP12 Understanding the Language and Civilization: From Latin to Modern Spanish

**Module code:** ISP12  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek & Spanish

**General Description of the Module:** The aim of ISP12 is:
- To introduce students to the scientific study of the language and explore the ways in which society and culture interact with linguistic structure,  
- To research the origins of modern Spanish and study its diachronic evolution.
Learning Outcomes: After completing this module, students are expected to be able:
- To understand key-terms of Linguistics, investigate various types of linguistic data and recognize major constituents of linguistic structure,
- To familiarize with various levels of linguistic analysis (e.g. phonetics, phonology, syntax etc.),
- To comprehend research methods related to Sociolinguistics and use them to explain in which society, culture and social networks interact and exert influence to various communication parameters,
- To describe the linguistic rules involved to explain language change from Latin to Modern Spanish.

Subjects covered:
- Introduction to linguistics
- Language evolution from Latin to Modern Spanish
- Introduction to the understanding of civilizations
- Latin literature influences to Spanish literature

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP20 Spanish Language LEVEL III
Module code: ISP20
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek & Spanish

Course objectives – Syllabus: To become acquainted with the entire range of morphosyntactic phenomena of Spanish and to develop the techniques of assimilation and production of spoken and especially written language through:
- Authentic material about the Hispanic Civilization,
- Presentation and teaching of morphosyntactic structures using audio-visual means (videos, internet, interactive whiteboard).

Learning outcomes: After completion of the course, students are expected to be able to use Spanish proficiently, given that:
- They will have acquired a thorough knowledge of the Spanish grammatical system,
- They will be able to comprehend complex written texts of various kinds as a whole and also to comprehend secondary ideas both explicitly and implicitly expressed,
- They will be able to use fluently the spoken language and be able to produce cohesive and coherent texts of various topics.

Subjects covered:
- Integration of reading, writing, speaking and listening skills through high level authentic texts. Vocabulary is now very extensive.
- Communicating through an integrated teaching of grammar, structure and pronunciation
- Instructions, study and drills in Spanish
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ISP21 History of Spain**

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<thead>
<tr>
<th>Module code: ISP21</th>
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<tr>
<td>ECTS Credit Points: 20</td>
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<tr>
<td>Module Type: Compulsory</td>
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<td>Year: 2nd</td>
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<tr>
<td>Language: Greek &amp; Spanish</td>
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**General Description of the Module:** Survey of the historical, social, political and economic development of Spain through the centuries. Students are becoming familiar with selected representative works on Spanish history in order to be able to understand and interpret the major events of each historical period.

**Learning Outcomes:** After completing this module, students are expected to be able:
- To have acquired a general knowledge of Spain's historical, political, cultural, economic development, from the early beginning to the present,
- To identify and describe the major historical developments that shaped Spain and its cultural identity, from the prehistoric period to the present,
- To explain and evaluate the historical events that led to the emergence of various political institutions, religious systems and intellectual phenomena in Spain from the Middle Ages to contemporary times.

**Subjects covered:**
- From the Prehistoric times to the end of the Middle Ages, Arab Kingdoms.
- From Renaissance to the 19th century.
- From the 19th century to date.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ISP22 Civilisation of Spain**

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<tr>
<th>Module code: ISP22</th>
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<tr>
<td>ECTS Credit Points: 20</td>
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<tr>
<td>Module Type: Compulsory</td>
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<tr>
<td>Year: 2nd</td>
</tr>
<tr>
<td>Language: Greek &amp; Spanish</td>
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</tbody>
</table>

**General Description of the Module:** Introduction to the Spanish civilization and culture from the prehistoric period to the present.

**Learning Outcomes:** After completing this module students are expected to be able to:
- To have acquired a general knowledge of Spain’s social and cultural development from the prehistoric period to the present,
- To identify and describe the major social developments that shaped Spain and its cultural identity from the prehistoric period to the present,
- To understand the historical events that led to the emergence of various political and religious systems and intellectual phenomena in Spain from the Middle Ages to contemporary times,
- To understand fundamental aspects of the Spanish civilization related to the values of public and private life, political organization, philosophy, science, art, architecture and religion from the Middle Ages to contemporary times.

Subjects covered:
- From the ancient times to the Arab Kingdoms
- From Renaissance to the 19th century
- From the 19th century to modern times.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP30 Spanish Literature I
Module code: ISP30
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek & Spanish
General description: Study of the Spanish Literature from its origins to the emergence of Romanticism.
Learning Outcomes: After the fulfilment of the course students:
- Will have knowledge and understanding of the historical development of the Spanish literature from its origins to the 18th century.
- Will have a comparative knowledge of the literary production of that period.
- Will be familiarized with literary language, style variations, literary genres and the most significant authors and works as well as important artistic and literary movements of the specific period,
- Will be capable of a critical evaluation of the relation between literature of that period and the broader social and historical context,
- Will be able to analyze, comprehend, interpreter and compare literary texts using appropriate methods and tools of the contemporary literary criticism.

Subjects covered: Spanish Literature: from the Middle Ages until the 19th century (poetry, prose, theatre)
Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP31 Latin American Civilisation
Module code: ISP31
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek & Spanish

Learning Outcomes: “Latin American Civilization” is an obligatory course of the Curriculum of the Undergraduate Program of Studies "SPANISH LANGUAGE AND CIVILIZATION", composed of:

- the cultural development of Latin American Countries from the period of precolombian civilizations to the 20th century,
- the basic historical and social events that influenced the cultural tradition of Latin America.
- The course aims:
- To provide the student with a comprehensive knowledge of the cultural development of Latin America from the precolombian period until the end of the 20th century,
- To familiarize the student with the most important achievements of the Arts of each period (Literature, Plastic Arts, Architecture, etc.),
- To equip the student with rudimentary knowledge of economy, geography and society of Latin American countries and their development over time,
- To familiarize the student with the study and understanding of important essay works of various periods in order to promote comprehension of the social and cultural phenomena in Latin America.

Subjects covered:
- Pre-Colombian Civilisations (Majas, Aztec, Incas)
- The Colonial Period: 16th - 19th century
- Modern period: 19th century to date

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP32 History of Latin American Countries
Module code: ISP32
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek & Spanish

The course aims:
- To provide the student with a comprehensive knowledge of the historical development of Latin American countries from the precolombian period until the end of the 20th century.
- To familiarize the student with the most important historical events as well as their effects on the historical development of the countries.
- To familiarize the student with the study and understanding of important essay works of various periods in order to promote comprehension of the historical phenomena in Latin America.
Learning Outcomes: The “History of Latin American Countries” is an obligatory course of the Curriculum of the Undergraduate Program of Studies "SPANISH LANGUAGE AND CIVILIZATION", composed of:

- the historical development of Latin American Countries from the period of precolombian cultures to the 20th century
- the basic political and social phenomena that influenced the historical development of these countries.

Subjects covered:
- The Pre- Columbian Period (Majas, Aztec, Incas)
- The Colonial Period: The struggle for independence
- 19th century to date. Formation and development of the member countries.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP40 Spanish Literature II

Module code: ISP40
ECTS Credit Points: 20
Module Type: Compulsory
Year: 4th
Language: Greek & Spanish

Module general description: Survey of the Spanish Literature from the beginning of the 19th century to the present day.

- Learning Outcomes: After completing this module, students are expected to be able:
- To obtain a global view of the entire Spanish literature of the last two centuries,
- To get acquainted with the literary language, the dominant stylistic varieties and the themes of the various stages of modernity and postmodernity,
- To get familiar with the major literary authors of each period and their most representative works,
- Through the study of the original texts, as well as the relevant comments concerning those texts, included in the compulsory reading material, they will obtain direct contact with the Spanish literary canon of the last two centuries,
- Above all, they will obtain a deeper knowledge of the particular relations existing between literature and society, as they are registered in the corpus of literary texts.

Subjects covered:
- Spanish Literature: 19th century to date (poetry, prose, theatre)

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ISP41 Latin American Literature I

Module code: ISP41
ECTS Credit Points: 20
Module Type: Compulsory  
Year: 4th  
Language: Greek & Spanish  
Module general description: Survey of Spanish American Literature from the Pre-Colombian period to the 19th century.  
Learning Outcomes: After completing this module, students are expected to be able:  
- To understand and development t of Spanish American Literature from the Pre-Colombian period to the 19th century,  
- To know the main periods and the artistic/literary movements and trends that influenced and shaped the Spanish American literature from the Pre-Colombian period to the 19th century,  
- To familiarize with major authors and their representative works of this period.  
- To analyze literary texts of all literary genres by using the appropriate methodology and terminology of contemporary literary criticism,  
- Compare and contrast literary texts of the same or different movements/currents and authors by using the appropriate methodology and terminology of the contemporary literary criticism.  
Subjects covered:  
- Latin American Literature: from the colonial period until the 19th century (poetry, prose, theatre)  
Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.  

ISP42 Latin American Literature II  
Module code: ISP42  
ECTS Credit Points: 20  
Module Type: Compulsory  
Year: 4th  
Language: Greek & Spanish  
Module general description: Survey of Spanish American Literature from the beginning of the 20th century to the present day.  
Learning Outcomes: After completing this module, students are expected to be able:  
- To understand the development of Spanish American Literature from the begging of the 20th century to the present day,  
- To know the main periods and the artistic/literary movements and trends that influenced and shaped the Spanish American literature from the beginning of the 20th century to the present day,  
- To familiarize with major authors and their representative works of this period,  
- To analyze literary texts of all literary genres by using the appropriate methodology and terminology of contemporary literary criticism,  
- Compare and contrast literary texts of the same or different movements/currents and authors by using the appropriate methodology and terminology of the contemporary literary criticism.
Subjects covered:
- Latin American Literature: from the 19th century to the modern times (poetry, prose, theatre)

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
School of Humanities

Postgraduate Courses

Education (Med)

Description
The purpose of the M.Ed., which is directed primarily at teachers of both levels (primary and secondary) and university and Technological Educational Institutes (TEI) graduates already employed or intending to be employed in education are:

- the provision of specialised pedagogical and didactic knowledge and the development of relevant skills,
- the cultivation and development of scientific thought and educational research skills, and
- the development of educational staff that is well-trained and capable of being employed in education.

Learning Outcomes
- Updating knowledge and skills in fields of Educational Sciences.
- Acquisition of knowledge and skills in research methodology.
- Development of critical awareness in social and cultural issues in education.
- Acquisition of academic reading and writing skills.
- Acquisition of digital literacy skills.

Requirements
Applicants to the Master in Education must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree. The equivalency to a Greek qualification is recognized by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center / DOATAP), which verifies the validity and equivalence of the acquired degree with those awarded by Greek institutions of higher education. Applicants must possess documents issued by DOATAP. A list of recognised degrees is available from DOATAP, and a prerequisite course list for applicants to HOU courses may be given by the HOU’s registration department.

Applicants to the course must have received their degree at least five years prior to draw date. All candidates must provide evidence of their ability in a foreign language, preferably English.

Minimum study duration
2 academic years

Type of Postgraduate Programme
Master of Education, M.Ed.

**ECTS credit points**
120

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

*Student Records:*
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*General Information:*
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**Course Structure**

1st Year
- EKP51 Educational Research in Action (C¹, 30 ECTS)
- EKP50 Child Development in Families, Schools and Society (C, 30 ECTS)

2nd Year
- EKP60 Education: Cultural Diversities and Social Inequalities (CE², 20 ECTS)
- EKP61 Language Society and Education (CE, 20 ECTS)
- EKP63 Science Education (CE, 20 ECTS)
- EKP67 Education for the Environment and Sustainability (CE, 20 ECTS)
- EKP62 Management of educational organizations (O³, 20 ECTS)
- EKP64 Introduction to Adult Education (O, 20 ECTS)
- EKP65 Open and Distance Learning (O, 20 ECTS)
- DISSERTATION (O, 20 ECTS)

*Notes:*
C¹: Compulsory
CE²: Compulsory Elective
O³: Optional

**Course Modules**

**EKP51 Educational Research in Action**

*Module code:* EKP51
*ECTS Credit Points:* 30
*Module Type:* Compulsory
*Year:* 1st
Language: Greek

Learning Outcomes: Upon completion of the course the student will be able to:
- Identify a certain aspect of an educational subject to be studied through empirical research
- State the appropriate research questions or research hypotheses
- Specify the theoretical framework of the study
- Perform a thorough literature review to substantiate (a) the necessity and the originality of the study, (b) the study’s theoretical framework and (c) the methodological choices
- Adopt the appropriate approach (quantitative and/or qualitative) to draw inferences from the empirical data
- Construct the appropriate research design for the empirical study
- Discuss the research findings with respect to the existing literature and the adopted theoretical framework
- Determine the limitations of the study
- Offer suggestions for further study
- Put in writing a report of the empirical study suitable for publication in a scientific journal

Subjects covered:
- Educational research (Research Design, Qualitative and Quantitative Research Approaches in Educational Research, Examples of Educational Research, Writing Educational Research)

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

EKP50 Child Development in Families, Schools and Society

Module code: EKP50
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: Upon completion of this course, the student should be able to:
- Demonstrate an understanding of the core issues related with human development from the prenatal period to adolescence.
- Recognize the major milestones in every stage and sub-stage of children’s development as well as in all the domains of human growth and development (biological and motor, cognitive, language, socio-emotional, and moral development).
- Evaluate the role and significance of the formal and informal educational environments in children’s development such as family, preschool contexts (day care centres, kindergartens), and school
- Critically assess the theories and evidence on the ways children learn to think, develop language competencies, manage social interactions and relationships, and gain knowledge.
- Utilize the theoretical propositions and empirical findings from published research studies in the evaluation and management of situations that are related with children’s development.
- Evaluate the efficiency of developmental theories and assumptions in understanding and interpretation of issues related with children’s development in different socio-cultural environments.
- Demonstrate an understanding of the importance of socio-cultural context in human development.

Subjects covered:
- Cognitive, language, social, emotional development during infancy, toddlerhood, childhood, and adolescence
- Children’s and adolescents' relationship with significant individuals in social contexts of human development (family, peers, school, neighborhood-community, ethnic group etc).

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EKP60 Education: Cultural Diversities and Social Inequalities**

*Module code:* EKP60  
*ECTS Credit Points:* 20  
*Module Type:* Compulsory Elective  
*Year:* 2\(^{nd}\)  
*Language:* Greek

**Learning Outcomes:** Following the completion of the Thematic Unit the student will be able to:
- Distinguish amongst diverse social groups do the reduction of social behaviors and positions/ attitudes to the classification of individuals in social groups, to grasp the concept of ‘social identities’ of the relativist theory and its influence in the formation of beliefs, in order to acquire a view of society which encounters the historical dimension, therefore realising the continuous movement, changes and evolution.
- Acquire a view of the stratification of society, where the division of possessions/ or wealth and privileges are not equally distributed so to distinguish between the ‘nature’ and society therefore be able to place all kinds of beliefs about society and social groups to their social dimension. Hence, be capable to recognise that various subordinations are attributed to individuals not because of ‘nature’ but formatted through hierarchies and stereotypes that derive from the position of individuals in the social scale.
- Comprehend that all social discriminations regarding to gender, social class and consequently result in social groups of different national/ ethnic, religious or cultural identities are build upon arbitrary, non- scientific classifications and prejudices. Those hierarchies are not legitimate in the scientific context, according to the valid documentation which is overwhelmingly recognised as scientific by the vast majority of academics in the international, contemporary scientific discourse.and scientific knowledge so
- Approach the educational institution in line with the above theoretical framework to avoid interpreting difference in achievement of students from different social backgrounds with appeals on the presence or absence of inherence of intellectual capacity and consequently, to recognise the influence of social factors on the excellent or deficient performance to the cognitive demands of school.
- Be aware of the differences between the versions of national language and its official form, which acquaintance is closely linked with achievement as well as to understand the relation between first and second language in cases of bilingual students and its importance for the formation of the ‘academic language’. Furthermore, to know that the academic performance of students of different ethno-cultural characteristics does not exclusively relates to those, but is highly linked with overall social inequalities
- Recognise the significant impact of educational institution on the formation of ideas of the oncoming generations and understand that the knowledge that is transmitted from school it is not neutral i.e. is not exclusively based upon scientific criteria and therefore changes from time to time, according to each periods’ ideological factors and its relation with ‘social control’.

**Subjects covered:**
- Social Identities/Social Differences
- Social Inequalities
- Bilingualism and Education
- Ethnic and Cultural Diversities in Education

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EKP61 Language Society and Education**

**Module code:** EKP61

**ECTS Credit Points:** 20

**Module Type:** Compulsory Elective

**Year:** 2nd

**Language:** Greek

**Learning Outcomes:** On successful completion of the unit, students will be able to:
- View language analysis from different perspectives: structuralist and generative linguistics, sociolinguistics, ethnography and critical discourse analysis
- Understand the nature of oral and written language and how they differ to each other and be able to view the notion of "text" from a modern and wider perspective.
- Know the social, cultural and political processes that govern language use by native and non-native speakers
- Gain an understanding of the theoretical ideas and educational applications of the notion of "literacy", drawing particularly on multilingual and multicultural environments.
- Apply all acquired knowledge to language teaching and learning.
- Carry out theoretical and/or empirical research in issues regarding language and its relation to society and education, by combining theory with practice.
- Critically evaluate ideas and practices regarding language and its relation to society and education.
- Apply advanced skills in academic writing and qualitative research methods.

**Subjects covered:**
- A modern approach to the use of oral and written language within the contexts of educational practice and policy

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**EKP63 Science Education**

**Module code:** EKP63

**ECTS Credit Points:** 20

**Module Type:** Compulsory Elective

**Year:** 2nd

**Language:** Greek

**Subjects covered:**
- Significance of the systematic exploration of science teaching
- Conceptual framework of Science Education
- Contemporary methods of science teaching: general characteristics of science teaching, criteria for the selection of content, learning processes, pacing of teaching and assessment, design and development of teaching material

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ΕΚΠ 67: Education for the Environment and Sustainability**

**Module code:** EKP67

**ECTS Credit Points:** 20

**Module Type:** Optional

**Year:** 2nd

**Language:** Greek

**Description:** Upon completion of this course, students will be able to understand and discuss issues such as:
- The concept of the Education for the Environment and Sustainability (EdES).
- The concept of the environment.
- The concept of sustainability.
- Issues related to the environment and sustainability in contemporary societies (climate change, pollution, the energy issue, degradation of environmental systems/ecosystems, poverty, hunger, immigration, inequalities, etc).
- Basic principles of the structure, function and sustainable management of both natural and man-made environmental systems.
- The rationale, conceptual framework and aims of EdES
- The pedagogical framework of EdES.
- Teaching and learning in formal, non-formal education, adult education and professional development on the environment and sustainability.
- Pedagogical strategies and techniques of experiential learning.
- Basic principles for the development of educational materials.
- The sustainable school and sustainable educational structures
- Legal framework and Institutions for the Education for the Environment and Sustainability (EdES).

**Learning Outcomes:** After completing this module the student should be able to:
- Define the environment as an interactive system of both natural and societal processes.
- Understand sustainability as a regulative and emerging concept.
- Understand all aspects of sustainability (political, ideological, economical and cultural) as well as the value system that supports them.
- Understand and describe the structure and function of both the natural and the man-made environment as well as the interdependence of natural phenomena and the relationship between human society and nature.
- Understand the significance of both the natural and the man-made environments’ management with the perspective of sustainability.
- Systematically identify and critically discuss environmental problems, in the view of sustainability, by recognizing their diverse aspects (social, ecological, economical and political).
- Understand major societal issues, such as poverty, hunger, inequalities, health, democracy, peace, human rights etc, as well as their relation to the quality of the environment and human life.
- Define the conceptual framework and EdES’s rationale on the environment and on sustainability.
- Set EdES’s aims and characteristics.
- Critically evaluate and implement contemporary pedagogical approaches and learning techniques of experiential learning towards a holistic and critical exploration of environmental and sustainable issues.
- Understand the pedagogical framework of EdES and, more specifically, pedagogical approaches, concepts and notions such as interdisciplinary grounding, the systemic approach, critical and creative thinking, collaborative learning, values, ability to act, participation, democracy, active citizenship, etc
- Comprehend the significant role that trainees’ level of understanding regarding environmental issues plays in teaching and learning process.
- Understand the basic teaching and learning principles of EdES in formal, non-formal education, adult education as well as vocational training.
- Implement EdES’ pedagogical practices, concepts and teaching strategies for developing environmental educational programs aimed at pupils, the general public and specific occupational groups (e.g. farmers, workers in industries etc)
- Understand and apply the basic principles of design and development of educational materials for the EdES.
- Understand the concept and the dimensions of the sustainable school
- Evaluate EdES and the environmental interventions in relation to their institutional framework
- Update their skills and knowledge about the environment and sustainability.

**Subjects covered:**

(a) Education for the Environment and Sustainability: concepts and issues:

I. The concept of the environment: structure and functioning of natural and man-made systems
II. The concept of sustainability
III. Issues related to the environment and sustainability in contemporary societies (climate change, pollution, energy related issue, degradation of environmental systems/ecosystems, poverty, starvation, environmental migration, environmental injustice, etc).

(b) Education for the Environment and Sustainability: the pedagogical framework:

I. Basic characteristics: interdisciplinarity, holistic and systemic approach, critical and creative thinking, collaborative learning, values, ability to act, participation, democracy, active citizenship, etc.
II. Teaching and learning in the context of formal, non-formal education, adult education and professional training for the environment and sustainability
III. Pedagogical strategies and teaching techniques for active/experiential learning
IV. Sustainable school and sustainable educational structures
V. Design and development of educational environmental interventions
VI. Basic principles for development of educational material.

**Teaching Method:** Distance education /Distance Learning with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitutes 30 percent (30 %) of each student's grade, provided that a passing mark is obtained in the final or repetitive examination. Final exam grades constitute 70 percent (70 %) of the students' final course grade.

**Prerequisites:** None

**EKP62 Management of educational organizations**

**Module code:** EKP62

**ECTS Credit Points:** 20

**Module Type:** Optional

**Year:** 2\textsuperscript{nd}

**Language:** Greek

**Learning Outcomes:** The learning outcomes of the module ‘Management of Educational Organizations’ are the development of students’ knowledge, skills and attitudes concerning the scientific management of educational organizations, and students’ preparation in order to take managerial roles implementing the managerial functions.

- After successful completion of the process of learning, students are expected to be able to:
- realize the special peculiarities of the educational organizations in all educational levels ( elementary, secondary, higher ) and understand the meaning and the span of
managing educational organizations, within the framework of the national and European educational system.

- Coordinate, define, implement and develop educational policy and educational innovations.
- Effectively carry out the management functions of planning, organizing, administrating, and controlling in educational organizations.
- Manage the human resources by adopting effective policies and practices concerning motivation, personnel development and performance appraisal.

Subjects covered:
- Educational Management and Policy
- Human Resources Management
- Social and European Dimension of Educational Management

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

EKP64 Introduction to Adult Education

Module code: EKP64
ECTS Credit Points: 20
Module Type: Optional
Year: 2nd
Language: Greek

Learning Outcomes: Upon the successful completion of this Course students should be able to acquired knowledge, develop skills and competences as well as adopt attitudes on issues related to:
- the main theoretical approaches to adult education
- the way in which adults learn
- basic theories of adult learning
- the role of adult educator
- Factors that have contributed in the growth of adult education in Greece from 19th century until today
- the contribution of adult education in the socio-economic and cultural development of Greece
- the process of planning, organization, implementation and evaluation of adult education programs
- the process of planning and concretization evaluation of adult education programs
- basic educational methods and techniques used in adult education programs
- types and function of curriculum and teaching materials in adult education
- the importance of educational space and the obstacles encountered
- the basic principles of communication in coaching an educational group
- the dynamics of relations developed in an educational group
- programs of Continuing Professional Training implemented in Greece, and the role of trainers and organizers in these
- good practices in the planning, implementation and evaluation of adult education programs

**Subjects covered:**
- The field, the learning principles and the stakeholders of adult education
- The social and economic function of adult education
- Planning, organisation and evaluation of adult education programmes
- Teaching methods - the learning group
- The provision of education for adults in Greece

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EKP65 Open and Distance Learning**

**Module code:** EKP65  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 2nd  
**Language:** Greek

**Subjects covered:**
- Familiarizing the students with Open and Distance Education Systems
- The role of the tutors
- Development of learning material (either printed or based on modern technology), suitable for distance learning

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Master’s in Adult Education**

**Description**

The course aims to provide specialized knowledge and skills sufficient to enable them to design, organise and evaluate adult educational programmes as well as to teach adults using modern and distance education methods.

**Learning Outcomes**

After the completion of the master course, graduates will be able to:
- Understand the socio-economic function of adult education at national and European context.
- Deepen in the most important, contemporary theories of adult education.
- Be aware of the applicability of the principles and methods of adult education, facilitation of the learning group, planning, organization and evaluation of adult education programs.
- Apply the basic theories of adult education in essays, microteaching held during face-to-face meetings, and through their participation in a wide range of seminars, conferences, workshops, national programs of training the trainers and European programs.
- Implement innovative methods of training and facilitating the learning group.
- Understand the methodology of educational research, in order to be able to prepare their essays and thesis, as well as using research data and developing research activities in the context of their professional duties.
- Have acquired the skills for the development of critical and creative thinking.

Requirements
Applicants to the Master in Adult Education must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree. The equivalency to a Greek qualification is recognized by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center / DOATAP), which verifies the validity and equivalence of the acquired degree with those awarded by Greek institutions of higher education. Applicants must possess documents issued by DOATAP. A list of recognised degrees is available from DOATAP, and a prerequisite course list for applicants to HOU courses may be given by the HOU’s registration department.
All candidates must provide evidence of their ability in a foreign language, preferably English.

Minimum study duration
2 academic years

Type of Postgraduate Programme
Master of Education, M.Ed.

ECTS credit points
120

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
Student Records:
Tel.: ++30-2610 367325. Fax: ++30-2610 367110. E-mail: eke@eap.gr

General Information:
Tel.: ++30-2610 367300. Fax: ++30-2610 367110. E-mail: info@eap.gr
Course Structure

1st Year
EKE50 Methodology of adult education (C¹, 20 ECTS)
EKE51 Planning, management and evaluation of adult education programmes (C, 18 ECTS)
EKE 53 Management of educational organizations/Εκπαιδευτική Ηγεσία (C, 22 ECTS)

2nd Year
EKE52 Contemporary Approaches on Adult Education (C, 30 ECTS)
EKE54 Adults in Open and Distance Learning (O², 30 ECTS)
DISSERTATION (O, 30 ECTS)

Notes:
C¹: Compulsory
O²: Optional

Course Modules

EKE50 Methodology of adult education
Module code: EKE50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek
Learning Outcomes: Students who complete EKE 50 will:
- know the principles and the theoretical framework of adult education
- know the methods that are appropriate for adult education
- be able to apply these principles and methods in various educational contexts
- know and be able to apply the principles and coordination methods to learners' group

Subjects covered:
- Theories and Preconditions of Learning
- Educational methods
- Learning basic skills
- Communication and group dynamics
- Case studies

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EKE51 Planning, management and evaluation of adult education programmes
Module code: EKE51
ECTS Credit Points: 18
Module Type: Compulsory
Year: 1st
Language: Greek
Learning Outcomes: Upon completion of the Course, students will be able to:
Analyze the evolution of Adult Education in Greece, in respect to the relevant socio-economic circumstances.

Define the characteristics of main Adult Education institutions in Greece and the relevant educational policies, in comparison with the European ones.

- Present the steps of educational needs analysis procedures.
- Apply the steps for planning and design adult education programs.
- Analyze the managerial and administrative characteristics of an adult education organization.
- Define the ways in which basic principles and procedures of educational management are applied towards the effective operation of adult education organizations.
- Program the activities implemented in the framework of an adult education organization.
- Analyze the steps for the recruitment of employees and the decision making procedures in an adult education program.
- Identify the content of evaluation types and models
- Present the steps of the evaluation procedures in an adult education organization.

Subjects covered:
- Socio-Economic Purpose and Institutional Framework of adult education
- Management of adult education units
- Evaluation of adult education programmes

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EKE53: Educational Administration/Educational Leadership

Module code: EKE53

ECTS Credit Points: 22

Module Type: Compulsory

Year: 1st

Language: Greek

Learning Outcomes: The aims of the module “Educational Administration” are:

- To develop students’ knowledge, skills and attitudes regarding the management of educational units and organizations in the field of adult education/lifelong learning.
- To prepare them for taking up roles and operating as management executives in the field of adult education, exercising effectively the functions of management.

With the completion of the module, students will be able to:

- Recognize the basic characteristics of adult education organizations and understand the importance, potential, scope and conditions of their management.
- Formulate, interpret, implement and coordinate educational policy and educational innovations of these organizations, taking into account both National and European context.
- Implement effectively the individual functions of planning, decision making, management and monitoring/evaluation, as these can be applied to adult education organizations.
Rule effectively human resources by adopting modern approaches and practices in leadership, motivation, professional development, and evaluation of educators.

**Subjects covered:**
- Educational Administration and Policy. Administration in Adult Education.
- Management of Human Resources. Leadership in Adult Education.
- Organizational Behavior in Adult Education. Social and European dimension of Educational Administration.

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EKE52 Contemporary Approaches on Adult Education**

**Module code:** EKE52

**ECTS Credit Points:** 22

**Module Type:** Compulsory

**Year:** 2nd

**Language:** Greek

**Learning Outcomes:** Students who complete EKE 52 will:
- know in depth the theoretical approaches of the field of adult education and especially the latest ones
- be able to distinguish in depth the similarities and differences between the ideas of the main founders of adult education (Freire, Mezirow) and ways to apply these ideas in practice
- will know the recent concerns and trends developed within the Transformative Learning theory's framework

**Subjects covered:**
- Contemporary Foundational Views of adult education
- The Critical Approach to adult education
- Transformative Learning theory
- Trends and Developments in adult education in Greece

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**EKE54: Adults in Open and Distance Learning**

**Module code:** EKE54

**ECTS Credit Points:** 30

**Module Type:** Optional

**Year:** 2nd

**Language:** Greek

**Subjects covered:**
- Familiarizing students with the Open and Distance Learning Systems.
- The role of the tutors.
- Development of teaching materials, compatible with distance learning, using modern technology.
- Open and Distance Learning in adult education.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**The Teaching of English as a Foreign /International Language (Starting from the academic year 2018-2019)**

**Description**

The main purpose of the M.Ed. in TEFIL is to provide specialised knowledge and skills to anyone teaching or interested in teaching English as a foreign/international language. It follows the specifications and requirements of state-of-the-art educational science and responds to the needs of the teaching market in Greece and internationally. The language of instruction of the M.Ed. is English.

**Programme Scope**

The M.Ed. in TEFIL is addressed at anyone interested in pursuing postgraduate studies in the domain of teaching English as a foreign language and, in addition, integrates the emerging dimension of English as an international language of communication. In particular, the M.Ed. in TEFIL integrates all aspects of English language teaching, from the teaching of the “four skills” (i.e., the production and perception of spoken and written language), the design, development and evaluation of curricula and courseware, the testing and assessment of the language skills, the integration of educational technology, the integration of intercultural approaches to teaching, the teaching English to children and adults, teacher education and training, to addressing learning difficulties. The distance learning methodology adopted in the M.Ed. in TEFIL, in conjunction with the support provided by the tutors, who act as mentors, enables teachers to attend the M.Ed. without leaving their classes and learners. This is achieved through innovative distance learning activities that prompt teachers to apply what they study in actual practice, by designing, teaching and evaluating original lessons, thereby experimenting with and deeply understanding education in all its complexity.

**Learning Outcomes**

Upon completion of the M.Ed., students are expected to be able to:

- analyse, perform and communicate teacher research related to English language teaching and learning;
- comprehend and demonstrate specialized knowledge and skills in the teaching of the English language and its elements; in terms of language teaching, they should consider, choose and use appropriate methods for the effective learning of all language skills...
(production and perception of written and spoken language) while teaching the elements of English (culture, grammar, vocabulary, pronunciation) to examine, evaluate and produce appropriate materials;

- critically analyse research in language acquisition and teaching, and apply it to classroom contexts;
- design, develop and evaluate curricula and materials for English language teaching;
- create, analyse and interpret effective measures of language ability of their students;
- locate and select appropriate teaching resources to use computer technology to assist their learners’ needs;
- comprehend and apply the principles of English for specific purposes instruction relative to the linguistic background and work environment of their students;
- demonstrate an understanding of intercultural approaches in language teaching;
- identify, design and implement effective English language teacher training and development programmes.

Classification according to UNESCO’S ISCED-2013

Based on the field of Education: 0114 – Teacher training with subject specialization

Classification according to UNESCO’S ISCED-2011

Based on the level of Education: 7

Type of Postgraduate Programme

Master of Education, M.Ed.

ECTS of M.Ed

The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.Ed. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Duration of Study

The minimum time required for the completion of the M.Ed. is two (2) years, or four (4) semesters.

Language of the M.Ed

The official language of the M.Ed. is English. This means that the language in which all materials content, written assignments, postgraduate dissertation and oral presentations is English.

Course Structure

Programme Layout

The M.Ed. in TEFIL includes a total of eleven (11) six-month (semester) Modules and a six-month Dissertation. For the completion of the M.Ed., students can follow one of the following two routes:

- **EITHER Route A**—successful attendance of six thematic units as well as successful completion of a Postgraduate Dissertation;
- OR Route B—successful attendance of eight thematic units, without the completion of a Postraduate Dissertation.

As already stated, the M.Ed. requires the completion of 120 credits (ECTS). Each ECTS is equal to 25 hours of study. The completion of each Module requires 15 ECTS. These correspond to 375 hours of study, which are allocated to the study of the teaching materials, the processing of the educational activities, the participation in the Contact Sessions and production of two written assignments (each of different size and weight). The ECTS of the Postraduate Dissertation (in Route B) are 30, which correspond to 750 hours of work.

More specifically, the two possible routes of the M.Ed. in TEFIL are as follows:

**Route A’ (includes the production of a postgraduate written dissertation)**

<table>
<thead>
<tr>
<th>Semester</th>
<th>ECTS</th>
<th>Course</th>
</tr>
</thead>
</table>
| 1st      | 30   | AGG11  Introduction to the m.ed. Teaching oracy skills (C¹, 15 ECTS)  
AGG12  Teaching literacy skills (C, 15 ECTS) |
| 2nd      | 30   | AGG21  Course development (C, 15 ECTS) |
| 3rd      | 30   | AGG41  Research methodology (C, 15 ECTS) |
| 2nd-3rd  |      | AGG22  Language assessment (E², 15 ECTS)  
AGG31  New technologies in teaching (E, 15 ECTS)  
AGG32  Early foreign language education (E, 15 ECTS)  
AGG33  Teaching english for specific purposes (E, 15 ECTS)  
AGG34  Teacher education for elt (E, 15 ECTS)  
AGG35  Intercultural approaches to elt (E, 15 ECTS)  
AGG36  Learning difficulties (E, 15 ECTS) |
| 4th      | 30   | AGGDN  Postgraduate dissertation (C, 30 ECTS) |

**Notes:**

C¹: Compulsory  
E²: Elective

**Route B’ (without the production of a postgraduate written dissertation)**

<table>
<thead>
<tr>
<th>Semester</th>
<th>ECTS</th>
<th>Course</th>
</tr>
</thead>
</table>
| 1st      | 30   | AGG11  Introduction to the m.ed. Teaching oracy skills (C¹, 15 ECTS)  
AGG12  Teaching literacy skills (C, 15 ECTS) |
2nd Semester: 30 ECTS
AGG21 Course development \[(C, 15 \text{ ECTS})\]

2nd Semester - 3rd Semester - 4th Semester: Elective Modules
AGG22 Language assessment \[(E^2, 15 \text{ ECTS})\]
AGG31 New technologies in teaching \[(E, 15 \text{ ECTS})\]
AGG32 Early foreign language education \[(E, 15 \text{ ECTS})\]
AGG33 Teaching english for specific purposes \[(E, 15 \text{ ECTS})\]
AGG34 Teacher education for elt \[(E, 15 \text{ ECTS})\]
AGG35 Intercultural approaches to elt \[(E, 15 \text{ ECTS})\]
AGG36 Learning difficulties \[(E, 15 \text{ ECTS})\]
AGG41 Research methodology \[(E, 15 \text{ ECTS})\]

Notes:
\[C^1\] : Compulsory
\[E^2\] : Elective

Guidelines on Module selection (Route A’)
You can select either ONE (1) or TWO (2) Modules per semester.
In the first semester, if you wish to select only one Module, in order to familiarize yourself with the Distance Learning methodology and the workload that it entails, you should select the compulsory Module titled ENG11. If you wish to choose two Modules, you should select the compulsory Modules ENG11 and ENG12.
In the second semester, if you wish to select only one Module, you should select the compulsory Module titled ENG21. If you wish to choose two Modules, you should select the compulsory Module ENG21 and then any other Elective Module.
In the third semester you will have to select the compulsory Module titled ENG41, which aims to provide you with the required knowledge and the research tools you will need in order to develop the postgraduate written dissertation. If you wish to choose two Modules, then you should select the compulsory Module ENG41 and any other Elective Module. Finally, in the fourth semester, you will have to produce the postgraduate dissertation.

Guidelines on Module selection (Route B’)
You can select either ONE (1) or TWO (2) Modules per semester.
In the first semester, if you wish to select only one Module, in order to familiarize yourself with the Distance Learning methodology and the workload that it entails, you should select the compulsory Module titled ENG11. If you wish to choose two Modules, you should select the compulsory Modules ENG11 and ENG12.
In the second semester, if you wish to select only one Module, you should select the compulsory Module titled ENG21. If you wish to choose two Modules, you should select the compulsory Module ENG21 and then any other Elective Module.
In the following two semesters you can select any one of the Elective Modules. In any case, you should not select more than two Modules per semester.
Admission Requirements

The Programme accepts graduates of Greek Universities or equivalent International Universities with certified knowledge (a) of English, at level C2 pursuant to the Common European Framework of Reference for Languages and (b) of any European, Asian or African language, at level B2.

**Important Note:**
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (Α80)”.

**Certification of English proficiency at level C2**

Proficiency in English (Mastery or proficiency C2, Effective Operational Proficiency or advanced C1, Vantage or upper intermediate B2) is proven according to article 1, Presidential Decree 146/2007, "Amendment provisions of Presidential Decree 50/2001. Assessment for determining qualifications for appointment in the public sector as they exist (Greek Government Gazette 185/3.8.2007/A) in combination with the last subparagraph of paragraph 1, article 1 of Presidential Decree 116/2006 “Amendment to article 28 Presidential Decree 50/2001” (Greek Government Gazette 115/9.6.2006/A), as follows:

a) National Foreign Language Exam System (KPG) equivalent level of Law 2740/1999, as replaced by paragraph 19, Article 13, of Law 3149/2003.

or

(b) certificates of an equivalent level of CAMBRIDGE or MICHIGAN Universities

or

(c) certificates of other institutions (not only universities) of an equivalent level, irrespective of their legal form, provided they are certified or recognized by the relevant authority of the country concerned for conducting examinations and issuing certificates of proficiency in English at the appropriate level. If there is no certification or recognition body in the country concerned, a certificate from the relevant Ministry or Embassy of Greece is required confirming that the certificates issued by the above bodies to third parties for which English isn’t their mother tongue are accepted in public services of that country as valid evidence of English at the
appropriate level. The term “country concerned” implies the country in which the native or official language is English.

On the basis of the above, as well as the documents submitted to the Supreme Council for Civil Personnel Selection (ASEP) by the relevant bodies, apart from the National Foreign Language Exam System (KPG) the following certificates are also accepted:

**Mastery of Proficiency (C2):**

- CERTIFICATE OF PROFICIENCY IN ENGLISH (CPE), Cambridge University.
- BULATS English Language Test, score of 90-100, Cambridge University.
- International English Language Testing System (IELTS), Cambridge University Local Examinations Syndicate (UCLES) - The British Council - IDP Education Australia IELTS Australia with an 8.5 score and above.
- ECPE-EXAMINATION FOR THE CERTIFICATE OF PROFICIENCY IN ENGLISH, MICHIGAN UNIVERSITY (Cambridge Michigan Language Assessments - (CaMLA)
- LONDON TESTS OF ENGLISH LEVEL 5 -PROFICIENT COMMUNICATION-. EDEXCEL, or PEARSON TEST OF ENGLISH GENERAL LEVEL 5 -PROFICIENT COMMUNICATION, EDEXCEL or EDEXCEL LEVEL 3 CERTIFICATE IN ESOL INTERNATIONAL (CEFR C2).
- ISE IV INTEGRATED SKILLS IN ENGLISH LEVEL 3 CERTIFICATE IN ESOL INTERNATIONAL του TRINITY COLLEGE LONDON.
- CITY & GUILDS LEVEL 3 CERTIFICATE IN ESOL INTERNATIONAL (reading, writing and listening) - MASTERY- and CITY & GUILDS LEVEL 3 CERTIFICATE IN ESOL INTERNATIONAL (Spoken) - MASTERY- (They are cumulatively submitted for evidence of proficiency) or CITY & GUILDS CERTIFICATE IN INTERNATIONAL ESOL-MASTERY- and CITY & GUILDS CERTIFICATE IN INTERNATIONAL SPOKEN ESOL -MASTERY- (They are cumulatively submitted for evidence of proficiency).
- EDI Level 3 Certificate in ESOL International JETSET Level 7 (CEF C2) or PEARSON EDI Level 3 Certificate in ESOL International (CEF C2) or PEARSON LCCI LEVEL 3 CERTIFICATE IN ESOL INTERNATIONAL (CEF C2).
- PEARSON LCCI EFB LEVEL 4 (Modules: Reading, Writing, Listening, Speaking, awarded with “Distinction” or “Credit”).
- Ascentis Level 3 Certificate in ESOL International (CEF C2).
- ESB Level 3 Certificate in ESOL International All Modes (Council of Europe Level C2).
- Test of Interactive English, C2 Level (ACELS) or Test of Interactive English, C2 Level (Gatehouse Awards).
- NOCN Level 3 Certificate in ESOL International (C2).
- AIM Awards Level 3 Certificate in ESOL International (C2) (Listening, Reading, Writing and Speaking Skills).
- LRN Level 3 Certificate in ESOL International (CEF C2).
- GA Level 3 Certificate in ESOL International (CEFR: C2) or GA Level 3 Certificate in ESOL International (Classic C2).
- **C2** LanguageCert Level 3 Certificate in ESOL International (Listening, Reading, Writing) (MasteryC2) and **C2** LanguageCert Level 3 Certificate in ESOL International (Speaking) (Mastery C2). (They are submitted cumulatively for evidence of proficiency).
All foreign language certificates should be accompanied by an official translation into Greek.

**Furthermore:**

a) **Excellent knowledge** of the foreign language is also proven in the following ways:

(i) A Bachelor’s Degree in Foreign Languages and Literature or a Bachelor’s Degree in Foreign Languages, Translation and Interpreting from Greek university departments or from equivalent university departments outside Greece.

(ii) A Bachelor’s degree, an undergraduate or postgraduate diploma or a PhD of any recognized foreign higher education institution,

(iii) National Foreign Language Exam System (KPG) (C2 Level)

(iv) GCSE’s equivalent to a graduation certificate of Greek secondary schools, if it has been acquired after a normal period of study at least six years abroad.

Foreign professional qualifications referred to in (iv) above must be accompanied by a certificate of their education level, which is issued by the Organisation for Vocational Education and Training (OEEK) or the National Organization for the Certification of Qualifications (EOPP) or the National Organization for the Certification of Qualifications & Vocational Guidance (EOPPEP) or by the relevant Directorate of the Ministry of Education, Research and Religious Affairs. It is clarified that this certificate is issued by OEEK, EOOPP or EOPPEP only after the issuing of the corresponding individual administrative act of equivalence.

Foreign Language Teaching Certification does not prove the competence in a foreign language (Presidential Decree 347/2003). In order to prove their competence in the foreign language, candidates who hold the relevant certification must provide the foreign language certificates as provided for in this Annex where applicable.

**The Academic Committee Members**

**Nicos Sifakis**, Assoc. Professor, HOU

**Thomai Alexiou**, Assist. Professor, AUTH

**Faye Antoniou**, Assist. Professor, UOA

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**Course Structure**

**AGG11: Introduction to the m.e.d. teaching oracy skills**

**Code:** AGG11  
**ECTS:** 15  
**Type:** Compulsory  
**Semester where it is available:** First (1st)  
**Language of instruction:** English  
**General description:** The module introduces students to the M.Ed. and to essential concepts and concerns in teaching English as a second, foreign and international language. It also
engages them in the teaching of the listening and speaking skills, with reference to specific criteria and practical considerations that refer to their own teaching context.

**Subjects covered:**
- An introduction to basic concepts in teaching English as a second/foreign/international language.
- The teaching of listening and speaking skills in the context of teaching English as a second/foreign/international language – theory and practice.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- develop a practical knowledge of the basic elements of foreign language teaching, with an emphasis on English as a second, foreign and international language
- be able to recognize the processes involved in the production and understanding of spoken language
- be aware of the evolving methodological approaches in the teaching of the oracy
- have understood the concept of the communicative approach in the teaching of listening and speaking in the context of teaching English as a second, foreign and international language
- design, implement and evaluate original lessons that incorporate communicative language teaching and listening comprehension with appropriate theoretical support
- adapt and evaluate language learning materials for the teaching of listening and speaking based on the level and learning needs of their learners
- have developed the ability to reflect on their own teaching practices
- have a preliminary awareness of the different functions of teaching, learning, evaluating and examining a foreign language
- understand, through the study of the relevant research literature and the preparation of their written assignments, the basic principles of academic research and study, as well as of academic writing.

**Prerequisites:** There are no prerequisites for this module.

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**AGG12: Teaching literacy skills**

**Code:** AGG12

**ECTS:** 15

**Type:** Compulsory

**Semester where it is available:** First (1st)

**Language of Instruction:** English

**General description:** The module engages students in the teaching of the reading and writing skills, with reference to specific criteria and practical considerations that refer to their own teaching context.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:

**Subjects covered:**
- The teaching of reading and writing skills in the context of teaching English as a second/foreign/international language – theory and practice.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- be able to recognize the processes involved in producing and understanding written language
- be aware of the evolving methodological approaches in the production of the written discourse.
- have understood the concept of a communicative approach in the teaching of writing as part of the teaching of English as a second, foreign and international language
- design, implement and evaluate original lessons that incorporate the communicative teaching of production and perception of written discourse with appropriate theoretical support
- adapt and evaluate teaching material for the teaching of the production and perception of written discourse based on the level and learning needs of their learners
- have developed the ability to reflect on their own teaching practices and instructional methodology in general
- have a preliminary awareness of the different functions of teaching, learning, evaluating and examining a foreign language
- understand, through the study of the relevant research literature and the preparation of their written assignments, the basic principles of academic research and study, as well as of academic writing.

**Prerequisites:** There are no prerequisites for this module.

**AGG21: Course development**

**Code:** AGG21  
**ECTS:** 15  
**Type:** Compulsory  
**Semester where it is available:** Second (2nd)  
**Language of Instruction:** English  

**General description:** The module aims at an in-depth understanding of the principles governing the design, implementation and evaluation of appropriate language learning courses and materials in the domain of teaching English as a second, foreign and international language.

**Subjects covered:**
- Design, implementation and evaluation of curricula. Historical background and definition of concepts.
- Integration of theory to classroom practice. Curriculum analysis, needs analysis, language learning materials evaluation, development and evaluation of syllabus and materials on the basis of the established curriculum and learners’ needs.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- describe existing curricula, syllabi, courses and identify their main features and underlying principles and develop criteria for evaluating them;
- design/adapt/revise courses for various teaching contexts on the basis of learners’ needs and features of their teaching context;
- demonstrate a working awareness of the evolution of the second/foreign/international language curriculum and course design and of the factors that influence them;
- identify a comprehensive communicative curriculum/syllabus;
- appreciate and evaluate the importance of the educational context and other factors in managing curriculum change;
- demonstrate a working awareness of the importance of evaluation for curriculum development and the introduction of curricular innovation;
- discuss the development of skills for the evaluation of curricula and language learning materials;
- portray an understanding of the role of the teacher in the curriculum/course design process;
- identify the need for the development of a critical stance towards existing pre-set curricula and attempts for innovation;
- comprehend, through their further engagement with the research literature and the preparation and write-up of their written academic assignments, the principles and aims of academic research, study, and writing.

**Prerequisites:** There are no prerequisites for this module.

**AGG22: Language assessment**

**Code:** AGG22  
**ECTS:** 15  
**Type:** Elective  

**Semester where it is available:** Second (2nd) and Third (3rd) in Route A’  
**Semester where it is available:** Second (2nd), Third (3rd) and Fourth (4th) in Route B’

**Language of Instruction:** English

**General description:** The module focuses on raising English language teachers’ awareness of the principles of foreign language assessment and testing, with reference to different methods and techniques. It aims at developing teachers’ skills in the design, implementation and evaluation of appropriate tools and applications to cater for the needs of their teaching context.

**Subjects covered:**
- Principles and target-setting in assessing and testing English.
- Typology and language assessment and testing methods: initial assessment/testing, formative assessment/testing and achievement assessment/testing.
- Test design characteristics in the assessment and testing of comprehension of spoken and written discourse: validity, reliability, objectivity.
- Alternative assessment principles and techniques (original type assessment, continuous assessment): construction of alternative assessment tools for oral and written comprehension and production (portfolio, observation, diaries, project, descriptive assessment scales).
- Correlation of evaluation tests with the principles of the Common European Framework of Reference for Languages (CEFR).

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- describe and define the fundamental principles and practicalities involved in the area of language testing and assessment;
- distinguish between formal and informal testing as well as compare and analyse two major functions of evaluation: formative and summative assessment;
- interpret the evolution of language testing from the 1960s onwards;
- identify and categorise the various language test types and compare their functions;
- define and apply the various principles of language testing;
- identify and estimate some of the characteristics of ‘good’ language tests and relate these to the different types of language tests;
- develop, apply and reflect on appropriate language tests for their own curricular situation and learners;
- define and discuss on principles and processes of alternative assessment, as well as compare alternative assessment with testing (portfolio, observation, diaries, project, πορτφόλιο, παρατήρηση, ημερολόγιο, project, descriptive assessment scales).
- Correlation of evaluation tests with the principles of the Common European Framework of Reference for Languages (CEFR)

**Prerequisites:** There are no prerequisites for this module.

### AGG31: New technologies in teaching

**Code:** AGG31  
**ECTS:** 15  
**Type:** Elective

**Semester where it is available:** Second (2nd) and Third (3rd) in Route A’  
**Semester where it is available:** Second (2nd), Third (3rd) and Fourth (4th) in Route B’

**Language of Instruction:** English

**General description:** The module focuses on an in-depth but also practical understanding of the different ways in which information and communication technologies (ICT) can be integrated in the teaching and learning of English as a second, foreign and international language.

**Subjects covered:**
- Development of skills for the use of modern ICT applications as tools in learning English.
- Synthetic application of established knowledge, software evaluation and development of multimedia and audiovisual materials, integration of ICT in lesson planning, and development of learners’ and teachers’ horizontal skills (creativity, critical thinking) and critical reflective skills.
- Combination of ICTs with modern pedagogical approaches and language teaching/learning theories.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- demonstrate a working understanding of the ways in which ICT (information and communication technologies) is used to enhance foreign language learning;
- describe the various phases of the evolution of educational technology in the teaching and learning of foreign languages,
- identify ways of overcoming obstacles in the use of ICT,
- identify ways to use resources such as video, self-access online materials, web resources and digital media tools to develop skills in the teaching of English as a second, foreign and international language,
- evaluate software and learning activities that are implemented through ICT and promote language learning, lifelong learning, learners’ development of critical thinking, the learning strategies and cultivation of different forms of literacy,
- demonstrate a working understanding of the ways in which computers are used in the foreign language classroom and the different kinds of available software that can contribute to the teaching of a foreign language,
- demonstrate a working understanding of the ways in which the Internet can be used in foreign language classrooms
- combine social networking applications and software in the context of developing lesson plans and collaborative interdisciplinary projects that prompt critical thinking skills, contribute to the consolidation of new knowledge and enable the integration of taught materials in new contexts.

**Prerequisites:** There are no prerequisites for this module.

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<th>AGG32: Early foreign language education</th>
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**Semester where it is available:** Second (2nd) and Third (3rd) in Route A’

**Semester where it is available:** Second (2nd), Third (3rd) and Fourth (4th) in Route B’

**Language of Instruction:** English

**General description:** The module refers to issues in young learners’ teaching, learning and assessment, with reference to theories of learning and the acquisition of the first and second/foreign language.

**Subjects covered:**
- Learning in the community and learning at school.
- English language learning and its role in primary education – theoretical approaches and good practices.
- Design, implementation and evaluation of curricula for teaching English to young learners.
- Alternative forms of assessment in the context of teaching English to young learners.
- Designing, selecting and evaluating teaching materials for teaching English to young learners using stories, songs, theatrical play, ICT, with an emphasis on differentiated teaching, intercultural understanding and the CLIL approach.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- recognize the importance and idiosyncrasies of the different contexts in which the teaching of English to young learners takes place,
- recognize the most influential thinking and learning theories (mainly the theoretical work of Thorndike, Skinner, Piaget, Vygotsky, Bruner and Gardner), and demonstrate a working understanding of their impact on the teaching of English to young learners,
- critically relate the theory of First Language Acquisition and Second Language acquisition with their own teaching contexts,
- recognize the factors that facilitate young learners’ oral development and highlight the development of appropriate skills for specific teaching and learning contexts (TPR, Multiple Intelligences, CLIL, etc),
- portray a functional understanding of the development of literacy in the first language and recognize the fundamentals of reading and writing in a second/foreign language in relation to children’s learning,
- differentiate approaches among beginners and those who are at more advanced proficiency level and apply the principles of teaching reading and writing skills in the development of appropriate activities.
- identify issues relating to assessing of young learners,
- use specific criteria to evaluate language learning materials designed for the teaching of English to young learners

**Prerequisites:** There are no prerequisites for this module.

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**AGG33: Teaching english for specific purposes**

**Code:** AGG33  
**ECTS:** 15  
**Type:** Elective

**Semester where it is available:** Second (2nd) and Third (3rd) in Route A’  
**Semester where it is available:** Second (2nd), Third (3rd) and Fourth (4th) in Route B’

**General description:** The module’s mission is the in-depth analysis of the principles of teaching English for specific purposes (TESP), with reference to the history of ESP, the analysis of learners’ and learning needs, language analyses, the links between TESP and adult education, as well as insights in instructional methodology, curriculum design and assessment of language skills in different TESP contexts (such as, for example, teaching business English).

**Subjects covered:**
- Principles of adult education.  
- Needs analysis.  
- Design, development and evaluation of curricula in teaching English for specific purposes.  
- Instructional methodology in teaching written and spoken English language skills for specific purposes.  
- Testing and assessment in English for specific purposes contexts.  
- Use, research and teaching of English in academic settings.  
- The Dimension of English as an International Lingua Franca: Reflections and Opportunities  
- Use, research and teaching of English in specialised workplaces.  
- Theory and practice of discourse analysis – history and modern research and pedagogical approaches.

**Learning Outcomes:** Upon completion of this module, students will be expected to be able to:
- develop a working awareness of the principal issues involved in the teaching of ESP;  
- identify different facets of the evolution of ESP both globally and in Greece;  
- demonstrate knowledge of the processes and trends in English for Academic Purposes and Business English;  
- describe the different types of needs analysis in ESP and perform needs analysis research;  
- distinguish between the different types of discourse, register and genre analyses in ESP;  
- identify issues in ESP course design, implementation and evaluation;  
- demonstrate a critical understanding of current methodologies in teaching adults and the pedagogical roles of the adult/teacher trainer;  
- identify assessment and testing trends in ESP.

**Prerequisites:** There are no prerequisites for this module.
AGG34: Teacher education for elt

Code: AGG34
ECTS: 15
Type: Elective

Semester where it is available: Second (2nd) and Third (3rd) in Route A’
Semester where it is available: Second (2nd), Third (3rd) and Fourth (4th) in Route B’

General description: The Module aims at providing an in-depth understanding of issues related to the education and training of teachers of English as a second, foreign and international language, with special emphasis on methods and training practices, the design of appropriate training programs based on principles of adult education, as well as teacher observation models, supervision and evaluation.

Subjects covered:
- Characteristics of effective teachers/instructors/trainers and their relevance to the educational environment.
- Professional, personal and language development of English language teachers.
- Educational/training models with an emphasis on the critical-reflective model.
- The role of theory in teacher education.
- Training programme design based on adult education learning principles.
- Effective ways of organising presentations within training programmes.
- The content and process of training programmes.
- Teacher observation, supervision and evaluation.
- The education of teachers of English as an international lingua franca

Learning Outcomes: Upon completion of this module, students will be expected to be able to:
- Have an awareness of the importance of lifelong training in teaching, learning and instructional-pedagogical concerns,
- Appreciate the distinction between instructional methodology training and training aimed at teachers’ continuous professional development with a view to self-realization,
- Appreciate the importance of the “research approach” to pedagogical problems that arise in the classroom and respond to them as problems to be solved,
- Become informed on different training models,
- Appreciate the priority of learning,
- Actively engage in critical, reflective and reflexive processes,
- Develop and evaluate effective training programs.

Prerequisites: There are no prerequisites for this module.

AGG35: Intercultural approaches to elt

Code: AGG35
ECTS: 15
Type: Elective

Semester where it is available: Second (2nd) and Third (3rd) in Route A’
Semester where it is available: Second (2nd), Third (3rd) and Fourth (4th) in Route B’

Language of Instruction: English

General description: The Module is aimed at in-depth presentation of the principles of intercultural approaches in communication, teaching, curriculum design and evaluation and assessment of English as a foreign and international language.
Subjects covered:
- Culture, interculturalities and the English language: theoretical and practical approaches.
- Intercultural communication: anthropological, psychological, sociological, linguistic and pedagogical approaches and practices.
- The English language and globalisation: interculturalism in learning English as a foreign/international language.
- Intercultural approaches in the design, implementation and evaluation of educational programs for English as a foreign/international language.
- Assessment and testing of the English language: the intercultural dimension.
- Intercultural communication with ICT support.

Learning Outcomes: Upon completion of this module, students will be expected to be able to:
- use key terminology (including: “culture”, “communication”, “intercultural communication”, and “cultural learning”) in order to position TESOL as an area of intercultural practice as well as a type of language education;
- demonstrate an understanding of the complicated character of the English language phenomenon in the world today with regard to its diverse varieties, its functions in different societies, and its role in social forces including colonialism and globalisation;
- demonstrate an understanding of English’s international lingua franca function and the characteristics of the intercultural communication that is conducted through it;
- reflect on the most effective and appropriate ways of teaching English to speakers of other languages in different contexts given its complicated character and diverse functions;
- use both a cultural dimensions approach and a small cultures approach to consider the TESOL practitioner’s on-going quest for methodological appropriateness;
- distinguish how the cultural content of the TEFL classroom might be most effectively and appropriately approached with a view to developing not just cultural understanding but also intercultural awareness and the skills of engaging with cultural texts and phenomena;
- demonstrate an understanding of the construction of the intercultural space as a site for developing intercultural and multicultural awareness among pupils and teachers in multicultural schools in Greece;
- demonstrate an understanding of the potential of newer technologies for developing intercultural awareness through English;

Prerequisites: There are no prerequisites for this module.

AGG36: Learning difficulties
Code: AGG36
ECTS: 15
Type: Elective
Semester where it is available: Second (2nd) and Third (3rd) in Route A’
Semester where it is available: Second (2nd), Third (3rd) and Fourth (4th) in Route B’
Language of Instruction: English

General description: The module aims at introducing postgraduates to the problems that learners with Learning Difficulties (LD) face when they are being taught English as a second, foreign and international language and to empower their teaching of the reading (decoding, fluency and comprehension) and writing skills (spelling and written expression) according to the currently effective teaching practices.

Subjects covered:
- An introduction to basic characteristics of the LD students’ competency in reading and writing in English as a second/foreign/international language.
- The teaching of reading and writing skills in the context of teaching English as a second/foreign/international language.

Learning Outcomes: Upon completion of this module, postgraduates will be expected to:
- identify and assess LD students’ difficulties in reading, specifically in decoding, fluency, and comprehension.
- identify and evaluate LD students’ difficulties in writing, specifically in spelling and written expression.
- gain an understanding on the content of effective interventions and their implementation in order to enhance the reading skill in English as a second/foreign/international language.
- demonstrate a working awareness of the content of effective interventions and their implementation in order to enhance writing in English as a second/foreign/international language.
- design and administer tasks that assess reading and writing.
- design and implement original lessons in order to enhance students’ reading and writing skills.
- integrate effective instructional approaches to the lesson.
- adapt and evaluate the teaching material based on students’ needs.

Prerequisites: There are no prerequisites for this module.

AGG41: Research methodology

Code: AGG41
ECTS: 15
Type: Elective

Semester where it is available: Third (3rd) in Route A’
Semester where it is available: Second (2nd), Third (3rd) and Fourth (4th) in Route B’

Language of Instruction: English

General description: The module aims at introducing postgraduates to different qualitative and quantitative educational research types, methods and processes and to help them design, implement, analyse and present a research programme and its findings that would be relevant for their academic purposes and needs.

Subjects covered:
- Research types and processes.
- Quantitative and qualitative research methods.
- Planning and conducting research.
- Analysis and presentation of research findings and data.
Learning Outcomes: Upon completion of this module, students will be expected to be able to:
- identify different types and processes of educational action research.
- demonstrate a working awareness of different quantitative and qualitative research methods.
- design educational action research plans that are relevant to their purposes and needs.
- administer educational action research.
- Analyse the research findings using the appropriate and relevant tools.
- present their research findings in ways that are appropriate to their academic context.

Prerequisites: There are no prerequisites for this module.

**AGG DN: Postgraduate written dissertation**

**ECTS:** 30  
**Type:** Compulsory in Route A’  
**Semester where it is available:** Fourth (4th) in Route A’  
**Language of Instruction:** English  
**General description:** The M.Ed. in TEFIL dissertation is a written work of up to 15,000 words that focuses on a particular research issue or concern in the area of English language teaching.  
**Prerequisites:** In order for you to be able to begin and carry out your final thesis, you need to have attended and successfully completed all six (6) units of the first, second and third semesters.

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The Teaching of German as a Foreign Language (Starting from the academic year 2018-2019)

**General Information:**  
The postgraduate programme entitled “The Teaching of German as a Foreign Language” is a contemporary programme of studies which offers both educators and graduates, wishing to broaden their scientific horizon, the possibility of acquiring specialized knowledge and skills regarding the theory and practice of teaching German as a foreign language, based on the latest research literature and responding to the needs of the labor market. It introduces students to research methodology, techniques of academic essay writing, language acquisition/learning theories, teaching/pedagogical principles involved in foreign language teaching, language activities, student competences and course development and assessment in German as a foreign language. The main purpose of the programme is to provide specialized knowledge regarding “The Teaching of German as a Foreign Language”, following the requirements of educational science and responding to the needs of the teaching market in Greece and internationally. It is part of the School of Humanities of the Hellenic Open University. It is structured around six-month modules and has a total duration of four semesters of study. More specifically, it requires the completion of six modules and the submission of a postgraduate dissertation.
Aim:
The main purpose of the programme is to provide specialized knowledge regarding "The
Teaching of German as a Foreign Language", following the requirements of educational science
and responding to the needs of the labour market in Greece and internationally.

Type of Postgraduate Programme
Master of Education, M.Ed.

ECTS of M.Ed
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the
completion of this M.Ed. is 120 ECTS. Students can select to study Modules whose ECTS adds
up to no more than 30 ECTS per semester.

Duration of Study
The minimum time required for the completion of the M.Ed. is two (2) years, or four (4)
semesters.

Language of the M.Ed
The official language of the M.Ed. is German. This means that the language in which all
materials content, written assignments, postgraduate dissertation and oral presentations is
German.

Classification according to ISCED-2011 of Unesco:
Based on the level of Education: 7
Based on the field of Education: 14 Teaching training & Education Science

Classification according to ISCED-2013 of Unesco:
Based on the field of Education: 0114-Teacher training with subject specialization

Course Structure:

1st Semester: 30 ECTS
GER10  Research methodology and techniques of academic essay writing (C¹, 15 ECTS)
GER11  Teaching/pedagogical principles of the teaching process (C, 15 ECTS)

2nd Semester: 30 ECTS
GER12  Approaches to language acquisition/learning and grammar models (C, 15 ECTS)
GER13  Language activities (C, 15 ECTS)

3rd Semester: 30 ECTS
GER20  Student competences (C, 15 ECTS)
GER21  Course development and assessment (C, 15 ECTS)

4th Semester: 30 ECTS
GERDE  Postgraduate dissertation (C, 30 ECTS)

Note:
C¹: Compulsory
Orthodox Christian Theology and Religious Pluralism

Aim
The Program’s aim is the study of contemporary approaches to the history and development of the aspects of the Orthodox Christian theological thought and action in multicultural contexts with various religious traditions.

Goals
By the end of their studies, students will be able to effectively understand:
- The historical beginnings of Christianity in their sociopolitical and philosophical contexts
- The formation of dogmas and their differentiations within the various Orthodox communities
- The role of the Orthodox Christian tradition in the formation of the particular national Churches, and the development of the inter-orthodox relations.
- Christianity’s impact on culture and social institutions
- The historical relations of Christianity with other religions, such as Islam and Judaism, as well as the relations of the Orthodox Churches with the Roman Catholic and the Protestant Churches.
- The dialogue between Orthodox theology and the present scientific, philosophical and social theories and practices.

Type of Postgraduate Programme
Master of Arts, M.A.

ECTS of M.Ed
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.A. is 120 ECTS.

Duration of Study
The minimum time required for the completion of the M.A. is two (2) academic years.

Classification according to UNESCO’S ISCED-2011
Based on the level of Education: 7
Based on the field of Education: 22 Humanities

Classification according to UNESCO’S ISCED-2013
Based on the field of Education: 0221-Religion & Theology
Requirements
Applicants to the Master “Orthodox Christian Theology and Religious Pluralism” must possess an undergraduate degree from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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Course Structure
1st Year
ORTH50 The historical development of the Orthodox Church and Theology in the broader Religious and Cultural Environment (Late Antiquity-18th century)
ORTH60 Faith and Experience of the Orthodox Church in relation to other Christian Traditions (C, 20 ECTS)
ORTH51 Orthodox Church and Theology from the 19th to the 21st century and the contemporary Religious reality (C, 20 ECTS)

2nd Year
ORTH61 Orthodox Christian Theology and Contemporary Man (C, 20 ECTS)
Dissertation (C, 40 ECTS)

Note:
C¹: Compulsory

Course Modules

ORTH50: The historical development of the Orthodox Church and Theology in the broader Religious and Cultural Code: ORTH50 ECTS: 20 Type: Compulsory Year: 1st Language of Instruction: Greek Subjects covered:
- The Earliest Historic Origins of the Christian Church and Theology
- The Dialectical Encounter between Christianity, Judaism, and Hellenism
- The Dialectical Encounter between Patristic Theology and Greek Philosophy
- Orthodox Church and Theology in the Context of the Byzantine Life and Culture
- Origins and Emergence of the Differences between Eastern and Western Christianity
- The Encounter of the Orthodox Church and Theology with Islam
- Orthodox Church and Theology during the Ottoman Empire
- Orthodox Church and Theology in Modern Times

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

ORTH60: Faith and Experience of the Orthodox Church in relation to other Christian Traditions
Code: ORTH60
ECTS: 20
Type: Compulsory
Year: 1st
Language of Instruction: Greek
Subjects covered:
- Introduction to Orthodox Theology: Methodological and Hermeneutic Approaches
- History of the Orthodox Theology: From the Apostolic Period to the Present
- Theology of the Orthodox Church: Systematic and Hermeneutic Presentation of its Doctrine, Liturgical and Ascetic Experience

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ORTH51: Orthodox Church and Theology from the 19th to the 21st century and the contemporary Religious reality**

**Code:** ORTH51  
**ECTS:** 20  
**Type:** Compulsory  
**Year:** 1st  
**Language of Instruction:** Greek  
**Subjects covered:**  
- Orthodox Christian “Diaspora” in the West  
- Orthodox Church and Ecumenical Movement  
- Dialogue(s) of the Orthodox Church and Theology with the East and the West and the Role of Hermeneutical Theology  
- Orthodox Church in the Greek Society  
- Orthodox Christianity in the Slavic World  
- Fragmented Christianity and Ecclesiastical Rivalry  
- Theological Anthropogeography of Christianity  
- The Contemporary Concept of Mission  
- Theology of Religions  

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ORTH61: Orthodox Christian Theology and Contemporary Man**

**Code:** ORTH61  
**ECTS:** 20  
**Type:** Compulsory  
**Year:** 2nd  
**Language of Instruction:** Greek  
**Subjects covered:**  
- The Challenges of Modernity and Post-Modernity  
- Political Theology  
- Globalization and Related Theologies  
- The Gospel and the Cultures  
- Nationalisms and Orthodox Christian Churches  
- Feminist Theology  
- Anthropological Topics: Gender, Identity, Sexuality  
- Sciences  
- Literature and the Arts  
- Human Rights  
- Economic Crisis and Social Injustice  
- Digital World  
- Bioethical Dilemmas in a Debate with the Orthodox Christian Theology
Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

Language Education for Refugees and Migrants

Description and objectives
The HOU’s Postgraduate Program entitled as “Language Education for refugees and migrants” is designed for teachers and graduates who wish to complete or deepen their knowledge and skills of teaching the language lesson in various languages, as well as develop new resources they can later apply to specific contexts and levels. The modules will provide postgraduate students with a strong grounding in theoretical literature as well as appropriate classroom methodology, course design and an introduction to the key research tools.

The course aims to provide specialized pedagogical knowledge to teachers in both levels of compulsory education (Primary and Secondary) and to Tertiary graduates who plan to teach, as well as to teachers engaged with adult education in refugee or migrant contexts. It trains Greek and international students to pose and answer key questions in applied linguistics and second language acquisition in the world’s numerous, diverse multilingual contexts.

The course is designed to offer students the opportunity to reflect and further develop their understanding of both theoretical and practical considerations in the field of language learning and teaching drawing from the principles of critical pedagogy and translanguaging. It will encourage you to develop a broad theoretical base reflecting current cutting edge research within applied linguistics and related disciplines. Additionally, this course makes links between the different disciplines which contribute to our knowledge of language learning and issues related to language pedagogy focusing on action and activism as necessary preconditions for social change and justice. The programme is designed to be practical, provides opportunities to create bespoke teaching and learning materials, encourages deep engagement with the world of practice through visits to schools, refugee camps or other institutions related to formal and informal learning of refugees and migrants in different sites of Greece and other countries, team-teaching activities and project work.

The general objectives of the master’s degree are to train specialized researchers in the main phenomena of language acquisition and applied linguistics in general, who can transfer research results to teaching practice and carry out basic applied research projects. The training will enable students to deepen their knowledge of applied linguistics, particularly with regard to second language acquisition, critical literacy and advances in new technologies for language research and learning. Students will develop greater knowledge and skills in relation to the new linguistic scenarios in schools and general society, and will carry out reflexive teaching practice.

The course’s modules focus on the integration of language, culture, and codes of power as part of the development of formal, informal and non-formal, on-line and off-line educational
programs and examine curriculum from a constructivist perspective that recognizes the voices of students, community and teachers as one learning community who inform curriculum and program design. The programme introduces participants to the concepts and basic principles of critical pedagogy; a theory of education that a) gives professionals the opportunity to reflect on their own educational beliefs, practices, and processes and b) gives teachers the voice and tools to reflect upon their teaching methodology vis-a-vis their student's critical thinking, promotes equality and social justice through action research within the school and community.

**Learning outcomes**

The students are expected to:

- develop a broad theoretical base reflecting current cutting edge research within applied linguistics and related disciplines
- deepen their knowledge of applied linguistics, particularly with regard to second language acquisition, critical literacy and advances in new technologies for language research and learning
- reflect and further develop their understanding of both theoretical and practical considerations in the field of language learning and teaching drawing from the principles of critical pedagogy and translanguaging
- understand the basic concepts and principles of critical pedagogy in order to reflect on their own educational beliefs, practices, and processes
- complete their skills of teaching the language lesson in various languages adopting a repertoire approach (translanguaging)
- develop greater knowledge and skills in relation to the new linguistic scenarios in schools and general society
- develop new resources focusing on Arabic language and culture they can later apply to specific contexts and levels
- be able to incorporate cultural knowledge and understanding within the context of the language lesson
- be able to communicate and cooperate effectively in the context of teams recognizing the benefits of collaborative learning
- acquire a strong grounding in theoretical literature as well as appropriate classroom methodology, course design
- create bespoke teaching and learning materials
- engage deeply with the world of practice through visits to schools, refugee camps or other institutions related to formal and informal learning of refugees and migrants in different sites of Greece and other countries
- carry out reflexive teaching practice
- be able to identify and use the most important research tools appropriately
- be able to pose and answer key questions in applied linguistics and second language acquisition taking into account the world's numerous, diverse multilingual contexts
- transfer research results to teaching practice and carry out basic applied research projects
- develop their multicultural, multilingual and critical language awareness
- be able to help people develop their multicultural and multilingual awareness
Entry requirements

Target-group:
Admission to the Postgraduate Programme LRM is open for all graduates from Departments/Schools of Human or Social Sciences from Greece or abroad, who have C1 certification in the English language. All those who have graduated from secondary or tertiary level education in an English-speaking country do not need to provide such documentation. Knowledge of any other European language, Arabic or Farsi at A1 level is required.

Note:
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b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Certification of English proficiency at level C1
Proficiency in English (Mastery or proficiency C2, Effective Operational Proficiency or advanced C1, Vantage or upper intermediate B2) is proven according to article 1, Presidential Decree 146/2007, “Amendment provisions of Presidential Decree 50/2001. Assessment for determining qualifications for appointment in the public sector as they exist (Greek Government Gazette 185/3.8.2007/A) in combination with the last subparagraph of paragraph 1, article 1 of Presidential Decree 116/2006 “Amendment to article 28 Presidential Decree 50/2001” (Greek Government Gazette 115/9.6.2006/A), as follows:

a) National Foreign Language Exam System (KPG) equivalent level of Law 2740/1999, as replaced by paragraph 19, Article 13, of Law 3149/2003.

or

(b) certificates of an equivalent level of CAMBRIDGE or MICHIGAN Universities

or

(c) certificates of other institutions (not only universities) of an equivalent level, irrespective of their legal form, provided they are certified or recognized by the relevant authority of the country concerned for conducting examinations and issuing certificates of proficiency in English at the appropriate level. If there is no certification or recognition body in the country concerned, a certificate from the relevant Ministry or Embassy of Greece is required confirming that the certificates issued by the above bodies to third parties for which English isn’t their
mother tongue are accepted in public services of that country as valid evidence of English at the appropriate level. The term “country concerned” implies the country in which the native or official language is English.

On the basis of the above, as well as the documents submitted to the Supreme Council for Civil Personnel Selection (ASEP) by the relevant bodies, apart from the National Foreign Language Exam System (KPG) the following certificates are also accepted:

- Certificate in Advanced English (CAE) του Πανεπιστημίου του Cambridge.
- Bulats English Language Test, βαθμολογία 75-89, του Πανεπιστημίου του Cambridge.
- International English Language Testing System (IELTS) από το University of Cambridge Local Examinations Syndicate (UCLES) – The British Council – IDP Education Australia IELTS Australia με βαθμολογία από 7 έως 8.
- Certificate in Integrated Skills in English του Trinity College London.
- City & Guilds Level 2 Certificate in ESOL International (reading, writing and listening) - Expert - και City & Guilds Level 2 Certificate in ESOL International (spoken) - Expert - (Συνυποβάλλονται αθροιστικά για την απόδειξη της πολύ καλής γνώσης) ή City & Guilds Certificate in International ESOL - Expert - και City & Guilds Certificate in International Spoken ESOL - Expert - (Συνυποβάλλονται αθροιστικά για την απόδειξη της πολύ καλής γνώσης).
- Advanced Level Certificate in English (ALCE) του Hellenic American University (Manchester, NH-USA) και της Ελληνοαμερικανικής Ενώσεως.
- Test of English for International Communication (TOEIC), βαθμολογία από 785 έως 900 του Educational Testing Service/Chauncey, USA.
- Pearson LCCI EFB Level 4 (Ενότητες: Reading, Writing, Listening, Speaking, σε περίπτωση που η μία εκ των ενοτήτων είναι με βαθμό “Pass”).
- Pearson LCCI EFB Level 3 (Ενότητες: Reading, Writing, Listening, Speaking, με βαθμό “Distinction” ή “Credit”).
- Ascentis Level 2 Certificate in ESOL International (CEF C1).
- ESB Level 2 Certificate in ESOL International All Modes (Council of Europe Level C1).
- Test of Interactive English, C1 + Level (ACELS).
- Test of Interactive English, C1 Level (ACELS) ή Test of Interactive English, C1 Level (Gatehouse Awards).
- NOCN Level 2 Certificate in ESOL International (C1).
- AIM Awards Level 2 Certificate in ESOL International (C1) (Ενότητες: Listening, Reading, Writing, Speaking).
• Michigan English Language Assessment Battery (MELAB) βαθμολογία από 91 έως 99 του Cambridge Michigan Language Assessments (CaMLA).
• Michigan English Test (MET) βαθμολογία από 190 έως 240 του Cambridge Michigan Language Assessments (CaMLA).
• LRN Level 2 Certificate in ESOL International (CEF C1).
• GA Level 2 Certificate in ESOL International – (CEFR: C1).
• C1 – Language Cert Level 2 Certificate in ESOL International (Listening, Reading, Writing) (Expert C1) και C1 – Language Cert Level 2 Certificate in ESOL International (Speaking) (Expert C1)

**Type of Postgraduate Programme**

Master of Arts, M.A.

**Classification according to UNESCO’S ISCED-2013**

Based on the field of Education: 0114 – Teacher training with subject specialization

**Classification according to UNESCO’S ISCED-2011**

Based on the level of Education: 7

**ECTS of M.A.**

The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.A. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

**Duration of Study**

The minimum time required for the completion of the M.A. is two (2) years, or four (4) semesters.

**Language of the M.A.**

The official language of the M.A. is English. This means that the language in which all materials content, written assignments, postgraduate dissertation and oral presentations is English.

**Educational Material**

The programme’s educational material is provided in a digital form. Specifically, various resources, from articles and book chapters to audiovisual elements, are used to cover the contents of each week’s topics. Each week has a short description of what students are going to do during the week, learning outcomes they are expected to achieve and some keywords. Video-lectures, interviews or podcasts as well as powerpoint presentations, reports, articles, book chapters and books are used as study materials. Each study week includes study material and relevant activities through which students are supposed to better understand the study material, reflect on their previous knowledge and experience, connect their realities to theory and scientific knowledge, develop and apply their skills in academic reading and writing, research, digital literacy, collaboration and intercultural communication. There are also optional activities or resources offered for further reading or practicing. The multimodal design
of the educational material aims to respond to the various learning styles and needs of the students, and provide them with skills necessary for language teaching in the 21st century, an era characterized by digitization, multimodality and globalization processes.

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Course Structure

1st Semester
LRM 50 Applied Linguistics and Second Language Acquisition (C¹, 10 ECTS)
LRM 51 Migration, Multilingualism and Intercultural Communication (C, 10 ECTS)
LRM 52 Critical Pedagogy (C, 10 ECTS)

2nd Semester
LRM 53 Language Teaching for Adult Refugees and Migrants (C, 10 ECTS)
LRM 54 Language Teaching for Children with Refugee or Migrant Background (C, 10 ECTS)
LRM 55 Design and Development of Educational Material for Digital Media (C, 10 ECTS)

3rd Semester
LRM 60 Introduction to Arabic Language and Culture (C, 10 ECTS)
LRM 61 Human Rights and International Law for Refugees and Migrants (C, 10 ECTS)
LRM 62 Research Methodology in multilingual contexts (C, 10 ECTS)

4th Semester
LRM 63 PR: Praktikum (C, 20 ECTS)
LRM 64 MA Thesis (C, 10 ECTS)

Note:
C¹: Compulsory
Students may choose 1 to 3 modules per semester according to the recommended order of the modules (as presented in the programme’s structure).

LRM50: APPLIED LINGUISTICS AND SECOND LANGUAGE ACQUISITION
Module Code: LRM 50
ECTS Credit Points: 10
Module Type: Compulsory
Semester offered: First (1ο)
Language: English
General Description of LRM 50
The module aims at deepening students’ theoretical and practical knowledge about applied linguistics with regard to second language acquisition and providing them with the necessary skills and knowledge in order to teach language to refugees and migrants and conduct research on the field. Students will be trained to recognize the most important characteristics of the
different approaches to second language acquisition, to compare and evaluate the strengths and weaknesses of different approaches to second language learning and teaching and will be introduced to modern theories in the wider field of language education. They will look into the international bibliography that provides a wealth of information for applied linguistics and second language acquisition in ways that all perspectives are given a place within the context of education.

Learning Outcomes

Upon successful completion of this module, students are expected to:

- identify the most important approaches to second language acquisition
- recognise the most important characteristics of the different approaches to second language acquisition
- explain second language learning in the light of different approaches
- compare and evaluate the strengths and weaknesses of different approaches to second language learning and teaching
- understand socio-cultural interpretations of language and communication
- develop skills concerning their digital literacy
- develop and apply skills concerning (e-)learning strategies in order to facilitate their learning experience
- develop and apply academic reading and writing skills
- be able to conduct a small-scale research concerning second language learning and teaching

Subjects

- Approaches to second language acquisition
- Affect and other Individual differences in second language learning
- The linguistic environment
- Current trends and future directions for the field

Prerequisites: There are no prerequisites for this module.

Evaluation: During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.
look into the international bibliography that provides a wealth of information for language and culture contact in ways that all perspectives are given a place and a voice within the context of education. Education, in formal or informal settings, holds the key to the development of a generation of citizens that will be in a position to respect difference in language, cultural and other values, viewing it as a natural part of their reality, educationally and socially.

**Learning Outcomes:**
Upon successful completion of this module, students are expected to:

- reflect upon and break down their own stereotypes
- investigate migration and multilingualism as global realities
- identify approaches to language and culture contact as a result of migration
- develop awareness of the complex educational and social challenges faced by refugee and migrant populations
- redefine the phenomena of migration and multilingualism through a critical approach of the ideological and educational issues involved
- explore and learn to use interactive media of representing information (e.g. infographics, interactive maps)
- develop skills concerning their digital literacy
- develop and apply skills concerning (e-)learning strategies in order to facilitate their learning experience
- develop and apply academic reading and writing skills
- be able to conduct a small-scale research concerning migration and its relationship to the multilingual landscape.

**Subjects**

- Migration and Multilingualism as Global Phenomena
- Language and Culture
- Language and Ethnicity
- Intercultural Communication and Training

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

**LRM52: CRITICAL PEDAGOGY**

- **Module Code:** LRM 52
- **ECTS Credit Points:** 10
- **Module Type:** Compulsory
- **Semester offered:** First (1ο)
- **Language:** English

**General Description of LRM 52**
In this module students are to be introduced to the basic principles of the theory of critical pedagogy. Critical pedagogy is a theory of education that:
- Offers professionals the opportunity to reflect upon their own educational beliefs, practices, and processes in order to unpack their position as educators of the dominant culture,
- Gives teachers the voice and the tools to reflect upon their teaching methodology vis-a-vis their student's critical thinking,
- Equips teachers with tools so that they make the educational process empowering rather than overpowering for their students, and
- promotes equality and social justice through action research within the school and within the community.
- Students are expected to critically examine the concept of language in relation to power and ideology and critically engage in the discussion about the ideological properties of language and its role as a major tool in processes for fighting for social and political power. Recognising the new linguistic scenarios in schools and in society students are expected to raise their critical consciousness which is a necessary precondition for carrying out reflexive teaching practice.

**Learning Outcomes:**
Upon successful completion of this module, students are expected to:
- identify the relationship between language, ideology and power
- engage in a critical analysis of reality
- acquire a general picture of the place of language in society
- co-create spaces for debate
- identify language as a critical tool to transform teaching into a medium of unveiling reality, fighting injustice and embracing “educated hope”
- develop critical consciousness which can inform teaching practice
- realise how words can unveil the mechanism of oppression
- develop and apply critical language awareness
- develop and apply academic reading and writing skills
- engage in action concerning refugee or immigrant communities in their local contexts

**Subjects**
- Ideologies, Power and Language
- Nationalism, Identity and Popular Culture
- Linguistic Diversity and Social Justice
- Critical Education and Social Change

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

**LRM53: Language Teaching for Adult Refugees and Migrants**

**Module Code:** LRM 53
**ECTS Credit Points:** 10
Module Type: Compulsory
Semester offered: Second (2ο)
Language: English

General Description of LRM 53
This course aims to introduce students to current issues of language learning within the context of language and culture contact. It includes discussions of the concepts of borrowing, transference, code-switching and the communicative functions of language contact phenomena. Within this course, we also discuss issues of the special needs of refugee and migrant adults, examine material that has been developed for the needs of migrant adults learning a second/foreign language. We will investigate innovative and alternative ways of assisting adult learners develop their linguistic skills, such as role play and digital scenarios. After studying the relevant bibliography and educational material, students will be provided with the opportunity to develop their own material for a population of refugee or migrant adult students, material that will cater for the unique needs of the given population, in terms of language level, cultural values and everyday needs.

Learning Outcomes
Upon successful completion of this module, students are expected to:
- appreciate the specific communicative value of language contact phenomena
- discuss the functions of the parallel use of different languages
- approach critically material that is available for the teaching a second language
- appreciate the specific needs of adult refugee/migrant language learners
- develop their own material that could address the linguistic needs of adult refugees and migrants learning a second language

Subjects
- Inclusive Education for Adults
- Needs Analysis, Course Design, Class Management and Evaluation
- Situated and Collaborative Learning: On-line and Off-line Communities of Practice
- Perspectives and Methodologies

Prerequisites: There are no prerequisites for this module.
Evaluation: During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

LRM54: LANGUAGE TEACHING FOR CHILDREN WITH REFUGEE OR MIGRANT BACKGROUND
Module Code: LRM 54
ECTS Credit Points : 10
Module Type: Compulsory
Semester offered: Second (2ο)
Language: English

General Description of LRM54
This course aims to introduce students to current issues of second language learning / teaching in a context characterized by extreme instability and cultural / linguistic discontinuity, stress. Our students are immigrant or/and refugee children with or without school experience in the country of origin. We need to understand the prior and community knowledge they bring with them, their linguistic repertoire, their educational experience. We explore ways how to bridge the gaps between old and new knowledge, first language(s) and the school language. Our main objective is to understand, meet their needs, provide a secure and empowering context that enables children to feel accepted and learn while tapping into all the linguistic knowledge they possess. Within the course we will discuss issues of bilingualism and second language learning, translanguaging, scaffolding, meaning making and literacy in linguistically diverse contexts. We will investigate innovative and alternative ways of assisting children develop their linguistic skills, their biliteracy and their self-esteem.

After studying the relevant bibliography and educational material, students will be provided with the opportunity to make educational proposals, to develop their own material for a population of refugee or migrant children, material that will cater for the unique needs of the given population, in terms of age, language level, cultural values and everyday needs.

**Learning outcomes:**

Upon successful completion of this module, students are expected to:
- be able to make the linguistic and educational portrait of refugee / migrant children
- appreciate the value of prior knowledge and first language(s) for learning / teaching a second language
- discuss the functions of the parallel use of different languages
- approach critically material that is available for the teaching a second language
- appreciate the specific needs of refugee/migrant children as language learners
- develop their own material that could address the linguistic needs of refugee and migrant children who are learning a second language

**Subjects**
- Formal and Informal Inclusive Education for Children
- Children’s Sociolinguistic Profile, Course Design, Class Management and Evaluation
- Situated and Collaborative Learning
- Perspectives and Methodologies

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

**LRM55: DESIGN AND DEVELOPMENT OF EDUCATIONAL MATERIAL FOR DIGITAL MEDIA**

**Module Code:** LRM 55  
**ECTS Credit Points:** 10  
**Module Type:** Compulsory  
**Semester offered:** Second (2ο)
**Language**: English

**General Description of LRM**
Digital media and information technologies have changed the skills and competencies necessary for full participation in the 21st century life and workplace environments. The goal of this module is to familiarize students with new emerging literacies in school and out-of-school contexts as the rapidly evolving technology and media landscape is now producing a whole new range of new media beyond print. Specifically, students will be trained to recognize the most important models of educational design and they will become aware of digital supported educational innovations. They will be trained to understand and critique technology- and media-based learning and apply those skills to teaching in official, unofficial and non-official school settings. Furthermore, students will get acquainted with learning and teaching technologies, they will search for digital educational content and they will design and develop learning objects and educational scenarios regarding second language learning and teaching.

**Learning outcomes:**
- Upon successful completion of this module, students are expected to:
  - Discuss the role of technology in school change
  - Reflect upon the role of technology in migrants’ and refugees’ integration
  - Develop digital skills
  - Develop awareness of what it means to be literate in the 21st century
  - Be able to identify and critique major theories and trends in practice in the field of educational technology
  - Be able to design and develop technology-based media learning environments that support the learning of all students
  - Be able to integrate new to old media, and new to old literacies and social practices
  - Develop knowledge and skills to design educational scenarios concerning second language learning
  - Develop good practices concerning the design and use of digital media in learning environments
  - Apply learning theories to discuss the role of technology in creating meaningful and learning experiences for learners

**Subjects**
- Technology, School Change and Integration
- Emerging Web Technologies and Learning
- Instructional Design and Programming
- Online Language Teaching and Learning

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.
LRM60: INTRODUCTION TO ARABIC LANGUAGE AND CULTURE

Module Code: LRM 60  
ECTS Credit Points: 10  
Module Type: Compulsory  
Semester offered: Third (3ο)  
Language: English  

General Description of LRM 60

The recent socio-political conditions that hold in Greece and Europe challenge educators to become acquainted with aspects of the Arabic language and culture, appreciate its complexities and be in a position to draw comparisons between elements of the Arabic and European languages and cultures. Students will be introduced to a world of great diversity and will be taught Arabic writing, issues concerning the various dialects of the Arabic language and will be coached to develop basic communicative skills in the Arabic variety of the Middle East.

Learning outcomes:

- Upon successful completion of this module, students are expected to:
  - acquire useful knowledge of the Arabic language and Culture
  - appreciate aspects of the Arabic culture and its complexities
  - be able to make comparisons between European languages and Arabic languages that may assist Arabic-speaking students.

Subjects

- History of Arabic Culture from the Classical Period to the Present
- Religious, Ethnic and Linguistic Diversity in the Arab World
- Societal Issues: Tradition, Family, Education, Arab Communities in Exile
- Arabic Language: Alphabet, Reading, Writing, Simple Conversations; Arabic Dialects and Modern Standard Arabic

Prerequisites: There are no prerequisites for this module.

Evaluation: During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

LRM61: HUMAN RIGHTS AND INTERNATIONAL LAW FOR REFUGEES AND MIGRANTS

Module Code: LRM 61  
ECTS Credit Points: 10  
Module Type: Compulsory  
Semester offered: Third (3ο)  
Language: English  

General Description of LRM 61

Migration is one of the most crucial social issues in Europe and other regions of the world today. Migrants and refugees frequently face unjustified and even illegal behaviour concerning their human rights. The goal of this module is to provide students with a theoretical and practical background concerning human rights and international law for migrants and refugees.
Students will discuss the notion of human rights, its scopes and content, and will be introduced to EU and ECHR Migration and Refugee Law. They will also discuss forced migration in an historical and human perspective and will be encouraged to reflect on the role of European institutions and international human rights bodies concerning forced migration and refugee hood.

**Learning outcomes:**
Upon successful completion of this module, students are expected to:

- acquire an in-depth knowledge of current developments in human rights, international law and democratisation
- understand the complex nature of forced migration and refugee hood
- develop a solid understanding of theories, concepts and methods concerning forced migration and refugees
- conduct small scale research in diverse environments
- discuss the role of law and legal institutions in international and transnational relations
- identify and critically discuss the procedures and practice of international human rights bodies

**Subjects**
- Human Rights: History and Scope of a Concept
- EU and ECHR Migration and Refugee Law
- Asylum and the Rights of Refugees: Case Studies
- Europe as a Fortress and the Construction of Illegality

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities undertaken (in each activity). This corresponds to 30% of the overall grade of the unit. Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score, respectively. After its submission, the final essay should be presented by the student on a day and time set by the tutor. The presentation takes place online, is obligatory and counts for 10% of the 45% of the final essay.

**LRM62: RESEARCH METHODOLOGY IN MULTILINGUAL CONTEXTS**

**Module Code:** LRM 62

**ECTS Credit Points:** 10

**Module Type:** Compulsory

**Semester offered:** Third (3ο)

**Language:** English

**General Description of LRM 62**
This course aims to introduce students to research methodologies that are applied in multilingual contexts and refer to school and society, to children as well as to adults. We will explore research methods for both quantitative and qualitative research. Emphasis will be put on qualitative research such as ethnographical observation, field research, action research with a critical perspective, life stories, and case studies concerning multilingual settings of migration and encampment. In this context we will study the research (methods and outcomes) carried out in the context of large scale projects in Greece and other countries that deal with refugee
and migrant students in schools and in informal and non-formal educational contexts as well as
with local minority groups (i.e. Muslim minority in Thrace, Greece).
As for the target groups of our research these will be migrant students and adults, refugees,
local minorities, but also students, adults and communities in the Diaspora.
After studying the relevant bibliography and research reports, students will be given the
opportunity to make their own research proposals for a specific target group, name the main
objectives, choose the appropriate methodological tool, design the research steps, make a time
plan, search for literature. Research in students’ own environments, families, communities,
social world, etc will be encouraged.

**Learning outcomes:**
Upon successful completion of this module, students are expected to:
- be able to distinguish between different research methods
- be able to search for literature and research reports
- be able to critically read research outcomes
- see themselves as participating researchers in their professional lives
- be able to design a research proposal
- be able to carry out their own research
- be able to link discursive practices and multilingual (and) social contexts with a critical
  perspective
- be able to define a problem, encourage new ways to see the problem and try
  interventions
- be able to create a space of mutual empowerment between researchers and the target
group of refugees and migrants during the research process

**Subjects**
Research as a Stage of the Integration for Refugees and Migrants
Researching Multilingually
Critical Discourse Analysis, Critical Action Research
Voices of Refugees and Migrants

**Prerequisites:** There are no prerequisites for this module.

**Evaluation:** During the semester you need to complete and submit 8 out of the 16 offered
evaluation activities and get a grade equal or greater than 5 in at least 6 of the activities
undertaken (in each activity). This corresponds to 30% of the overall grade of the unit.
Moreover, the final and short essays correspond to 45% (≥5) and 25% (≥5) of the overall score,
respectively. After its submission, the final essay should be presented by the student on a day
and time set by the tutor. The presentation takes place online, is obligatory and counts for 10%
of the 45% of the final essay.

**LRM 63: PRAKTIKUM**

**Module Code:** LRM 63
**ECTS Credit Points:** 20
**Module Type:** Compulsory
**Semester offered:** Fourth (4ο)
**Language:** English

**General Description of LRM 63**
During the fourth semester of their studies, the students are required to complete a praktikum internship with duration of 250 hours in total. Within these hours, the preparation, realization, assessment and report completion of classes of one language to a group of refugee or migrant children or adults are included. The classes can take place in a formal or an informal educational context in the country and city of residence of the students or they can be carried out with individual children (as case studies).

Prerequisites: In order for students to be able to begin and carry out their praktikum, they need to have attended all 9 units of the first, second and third semesters.

Note: Students have the right to proceed to LRM63, even if the third semester’s final essays of up to two (2) Modules are still pending.

Evaluation
The praktikum will be evaluated by the supervisor who will be appointed for it. It will be assessed both on the level of the educational intervention that will be realized and on the level of the scientific format of the final report.

### LRM 64: MA THESIS

<table>
<thead>
<tr>
<th>Module Code: LRM 64</th>
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</thead>
<tbody>
<tr>
<td>ECTS Credit Points: 10</td>
</tr>
<tr>
<td>Module Type: Compulsory</td>
</tr>
<tr>
<td>Semester offered: Fourth (4ο)</td>
</tr>
<tr>
<td>Language: English</td>
</tr>
</tbody>
</table>

**General Description of LRM 64**

Students choose the topic of their thesis from a list of topics proposed by the coordinators of the units. The theme of the thesis is decided upon in cooperation with the supervisor of each student.

**Prerequisites:** In order for students to be able to begin and carry out their final thesis, they need to have attended and successfully completed all 9 units of the first, second and third semesters.

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**Education Sciences:** Special Education for People with Oral and Written Language Difficulties

**Type of Postgraduate Programme**

Master of Education, M.Ed.

**ECTS of M.Ed**

The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.Ed. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

**Duration of Study**

The minimum time required for the completion of the M.Ed. is two (2) years and the maximum time is six (6) academic years.
Language of the M.Ed
The official language of the M.Ed. is Greek. This means that the language in which all materials content and written assignments is Greek.

Classification according to ISCED-2011 of Unesco:
Based on the level of Education: 7

Classification according to ISCED-2013 of Unesco:
Based on the field of Education: 0111-Education science

Course Structure:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Title</th>
<th>Contact ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester: 30 ECTS</td>
<td>EAG50 Special Education</td>
<td>(C¹, 20 ECTS)</td>
</tr>
<tr>
<td>1st Semester: 30 ECTS</td>
<td>EAG51 Language Development</td>
<td>(C, 10 ECTS)</td>
</tr>
<tr>
<td>2nd Semester: 30 ECTS</td>
<td>EAG52 Language Processing</td>
<td>(C, 10 ECTS)</td>
</tr>
<tr>
<td>2nd Semester: 30 ECTS</td>
<td>EAG53 Oral and Written Language Difficulties: Theoretical Approaches</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td>3rd Semester: 30 ECTS</td>
<td>EAG60 Research Design in Special Education</td>
<td>(C, 10 ECTS)</td>
</tr>
<tr>
<td>3rd Semester: 30 ECTS</td>
<td>EAG61 Educational Interventions in Oral and Written Language Difficulties</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td>4th Semester: 30 ECTS</td>
<td>EAG62 Practicum</td>
<td>(C, 30 ECTS)</td>
</tr>
</tbody>
</table>

Note:
C¹: Compulsory

Contact
Student Records:
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General Information:
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Creative Writing

Type of Postgraduate Programme
Master of Arts, M.A.

ECTS of M.A.
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.A. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Duration of Study
The minimum time required for the completion of the M.Ed. is two (2) years and the maximum time is six (6) academic years.

**Language of the M.A.**
The official language of the M.A. is Greek. This means that the language in which all materials content, written assignments, postgraduate dissertation and oral presentations is Greek.

**Classification according to ISCED-2011 of Unesco:**
Based on the level of Education: 7

**Classification according to ISCED-2013 of Unesco:**
Based on the field of Education: 0232 Literature and Linguistics

**Course Structure:**

**1st Semester: 30 ECTS**
- DGR50  Literary Theory and Creative Writing (C¹, 10 ECTS)
- DGR51  European Literary Movements (18th to 20th century) (C, 10 ECTS)
- DGR52  Modern Greek Literature (19th to 21st century) (C, 10 ECTS)

**2nd Semester: 30 ECTS**
- DGR53  Prose (fiction/non fiction) and Poetry (C, 10 ECTS)
- DGR54  Text Editing and Publishing / Editorial Practices (C, 10 ECTS)
- DGR55  Workshops I

**3rd Semester: 30 ECTS**
- DGR60  Writing for the Theatre (E², 10 ECTS)
- DGR61  Writing for Cinema & Television (E, 10 ECTS)
- DGR62  The Language of Journalism (mass media, advertising) (E, 10 ECTS)
- DGR63  Digital Storytelling and Education (E, 10 ECTS)

**4th Semester: 30 ECTS**
- DGR64  Workshops II (C, 10 ECTS)
- DGRDE  Master’s Thesis (CE³, 20 ECTS)
  or
- DGR66  Practical Training (CE, 20 ECTS)

**Notes:**
- C¹: Compulsory
- E²: Elective
- CE³: Compulsory Elective

**Contact**

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**General Information:**
Tel.: ++30-2610 367300. Fax: ++30-2610 367110. E-mail: info@eap.gr
Current trends in linguistics for teachers

Type of Postgraduate Programme
Master of Arts, M.A.

ECTS of M.A.
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.Ed. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Duration of Study
The minimum time required for the completion of the M.A. is two (2) years.

Language of the M.A.
The official language of the M.A. is Greek. This means that the language in which all materials content and written assignments is Greek.

Classification according to ISCED-2011 of Unesco:
Based on the level of Education: 7

Classification according to ISCED-2013 of Unesco:
Based on the field of Education: 0232 - Literature and Linguistics

Course Structure:

1st Semester: 30 ECTS
ADE50  Research and academic skills in linguistics (C¹, 10 ECTS)
ADE51  General linguistics for teachers  (C, 10 ECTS)
ADE52  The relation of Ancient Greek to Modern Greek and its teaching in schools (C, 10 ECTS)

2nd Semester: 30 ECTS
ADE60  Modern Greek descriptive grammar for teachers (C, 10 ECTS)
ADE61  Issues in sociolinguistics for teachers (C, 10 ECTS)
ADE62  Dialects and language education (C, 10 ECTS)

3rd Semester: 30 ECTS
ADE70  Multilingualism and language education (C, 15 ECTS)
ADE71  Critical literacy and school curriculum (C, 15 ECTS)

4th Semester: 30 ECTS
ADEDE  Postgraduate thesis (C, 30 ECTS)

Note:
C¹: Compulsory

Contact
Public History

Type of Postgraduate Programme
Master of Arts, M.A.

ECTS of M.A.
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.A. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Duration of Study
The minimum time required for the completion of the M.A. is two (2) years.

Language of the M.A.
The official language of the M.A. is Greek. This means that the language in which all materials content and written assignments is Greek.

Classification according to ISCED-2011 of Unesco:
Based on the level of Education: 7

Classification according to ISCED-2013 of Unesco:
Based on the field of Education: 0222 - History and archaeology

Course Structure:

1st Semester: 30 ECTS
- DIS50 Introduction to Public History (C¹, 10 ECTS)
- DIS51 Theories of history and historiography (C, 10 ECTS)
- DIS52 History and sources (C, 10 ECTS)

2nd Semester: 30 ECTS
- DIS53 History and education (C, 10 ECTS)
- DIS54 History and the media (C, 10 ECTS)
- DIS55 History and space (C, 10 ECTS)

3rd Semester: 30 ECTS
- DIS60 History and state institutions (C, 10 ECTS)
- DIS61 Applied history (C, 10 ECTS)
- DIS62 History and cinema (E², 10 ECTS)
DIS63   Public History in the digital era   (E, 10 ECTS)

**4th Semester: 30 ECTS**

DISDE   Master’s Thesis   (C, 30 ECTS)

**Notes:**
C¹: Compulsory
E²: Elective

**Contact**

*Student Records:*
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*General Information:*
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School of Social Sciences

Undergraduate Courses

Business Administration

Description

The aim of the Course is to provide students with knowledge and skills relating to the administration of Business and Organization Systems both in the public and private sector. More specifically, the aim of this Course is to equip graduates with the theoretical background and a practical knowledge required in the administration of the modern businesses and organizations.

Due to globalization of economic activity, the European integration and the development of a new economy, more and more modern economic organizations are seeking specialized workforce able to analyze, compose and interact in the complicated circumstances characterizing the modern business and organizations.

Upon completion of this course students should be able to:

- use statistical and financial methods for the analysis of the external and internal activities of their institutions.
- understand the influences and interactions between financial occurrence, funding opportunities, governmental policy and business environment in their national and international dimensions.
- contribute effectively to the most appropriate and financially efficient operation of their institutions.
- act confidently as consultants in MCM (Mass Communication Media), multinational companies and funding organizations.
- take initiatives related to technological or organizational changes required in the business world within a rapidly growing international environment.

Requirements

Applicants to the Business Administration course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio), or an equivalent Greek or Foreign High School Certificate.

Minimum study duration

4 academic years

Classification according to ISCED-2011 of Unesco

Coding of educational attainment: 6
Based on the field of Education: 34 Business Administration

**Classification according to ISCED-2013 of Unesco**

Based on the field of Education: 0413 - Management and Administration

**ECTS credit points**

240

**Learning Material**

Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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**Course Structure**

**1st Year**
- DEO 10 Law and Administration (C¹, 20ECTS)
- DEO 11 Introduction to Business Administration (C, 20ECTS)
- DEO 13 Quantitative Methods (C, 20ECTS)

**2nd Year**
- DEO 23 Marketing I (C, 20ECTS)
- DEO 24 Public Administration and Policy (C, 20ECTS)
- DEO 25 Accounting (C, 20ECTS)

**3rd Year**
- DEO 31 Financial Management (C, 20ECTS)
- DEO 33 Marketing II (O², 20ECTS)
- DEO 45 E-Business, New Technologies and Entrepreneurship (O, 20ECTS)
- DEO 34 Economic Analysis and Policy (C, 20ECTS)

**4th Year**
- DEO 40 Administration of Businesses and Organizations (C, 20ECTS)
- DEO 41 Money and Capital Markets (O, 20ECTS)
- DEO 44 Entrepreneurship and Innovation (O, 20ECTS)
- DEO 42 Total Quality and Environmental Management (O, 20ECTS)
- DEO 43 Industrial Organization, Labour Economics and European Business (O, 20ECTS)

**Notes:**
C¹: Compulsory
O²: Optional

The degree is awarded on completion of 12 course modules.

## Course Modules

<table>
<thead>
<tr>
<th>Course</th>
<th>Module Code</th>
<th>ECTS Credit Points</th>
<th>Module Type</th>
<th>Year</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEO10 Law and Administration</td>
<td>DEO10</td>
<td>20</td>
<td>Compulsory</td>
<td>1st</td>
<td>Greek</td>
</tr>
</tbody>
</table>

### Module General Description:

The Subject Unit "Basic Principles of Law and Administration" intends to familiarize you with the basic principles of Law and to introduce you to some of the key issues related to Administration.

- Specifically as far as the subject of Law is concerned it seeks:
  - To give you an overview of the scope of the Law, its specific branches and their characteristics.
  - To acquaint you in more detail with two particular branches of Law, namely the Administrative Law and the Commercial Law, which are most directly connected with the business and organizations administration, part of the larger educational programme within which this Subject Unit is included.
- Similarly as far as the subject of Administration is concerned it seeks:
  - To present you with the dimension of industrial relations, as they are developed within businesses and organizations, both in the private and public sector.
  - To familiarize you with the scope, the dilemmas and principles of administrative action, particularly in the public services sector.

### Learning Outcomes:

Upon the completion of the course the student is able to:

- Understand the architecture of the Greek legal system and the structure of the Greek Public Administration.
- Identify the basic principles of the Greek Constitutional and Administrative Law.
- Identify the basic principles of the Greek civil, commercial and labor law.
- Understand the function and impact of the European Union law to the Greek legal system.

### Subjects Covered:

- Introduction to Law
- Administrative Law
- Commercial Law
- Collective labour Law
- Administrative analysis

### Evaluation:

Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

<table>
<thead>
<tr>
<th>Course</th>
<th>Module Code</th>
<th>ECTS Credit Points</th>
<th>Module Type</th>
<th>Year</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEO11 Introduction to Business Administration</td>
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<td></td>
</tr>
</tbody>
</table>
Module code: DEO11  
ECTS Credit Points: 20  
Module Type: Compulsory  
Year: 1st  
Language: Greek  

Module general description: The course provides an introduction to management essentials, processes and functions. Overviews the practice of management as applied within organizations. Includes history of the tradition, of main management theories and current effective practices, research findings and case studies. It incorporates operations management, human resource management and study of international economic environment dimensions. The course aims to enhance student understanding of the external and internal factors, which influence and shape organizational performance and draw leadership requirements.

Learning Outcomes: On successful completion of the Course Module DEO 11, students acquire a main body of knowledge related to the theory and the practice of Management, which constitute an introduction to the principles, the norms and the methods of Management in the private and public sector.

The Course Module DEO 11 is comprised on the following four parts:
- Basic Principles of Management for Organisations
- Production Management
- Human Resources Management
- International Economic Environment

On completion of the first part, students will be able to identify the basic introductory concepts and theories that constitute a knowledge background in which Organization and Administration Principles have been based and developed until today. Additionally, they will be in the position to define and analyze the basic functions of Management: Planning - Organizing - Leading - Control, which are implemented in every business and organization in order to achieve effective and efficient performance.

On completion of the second part, students will be able to describe and analyze the production process that is implemented in every business or/and organization in order to generate products and services. Specifically, they will be able to comprehend basic issues related to the design, planning and control of the production systems, that refer to numerous factors, related directly or indirectly to the production process such as labor, technology, facilities, raw material, energy, information, quality, production schedule, inventories, cost, customers, suppliers e.t.c.

On completion of the third part, students will be able to evaluate the prospects of contemporary daily labor life. More specifically, they will be able to identify:
- the problems that people face as "sellers" of their labor power, not only at the beginning of their labor relation, but also during their business career,
- the capabilities that the contemporary human is required to have as an employee, and
- the ways and means that will allow him/her to resolve emerging problems as a specialist in Human Resources Management.

Lastly, on completion of the fourth part, students will be in the position to better:
- describe the advantages and disadvantages brought by the internationalization of business activities and their multinational character,
- identify the major "players" in the international economic environment and describe their role and contribution in its formulation, and to
- describe the characteristics of the international monetary system as well as the framework of international transactions.

**Subjects covered:**
- Essentials of Management
- Operations Management
- Human resources management
- International economic environment

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**DEO13 Quantitative Methods**

**Module code:** DEO13  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Module general description:** The aim of this module is to:

- Introduce the students to the main concepts and theory of mathematics and statistics for business and economics as well as operational research, through real business and economic life examples.
- Introduce the students to problem solving techniques with regards to quantitative problems in a modern business environment.
- To familiarize the students with the basic techniques of mathematics and statistics for business and economics and operational research.
- To get the students acquainted with the newly developed computer software packages that are widely used by modern businesses in their everyday activities.

**Learning Outcomes:** Quantitative Methods requires from the student the comprehension of three separate fields of Quantitative Analysis Modules, those of Mathematics for Economists and Business Managers, Statistics for Economists and Business Managers and Operational Research. After successful completion of his/her studies the student:

**With regards to Mathematics:**

- Will be able to solve functions of one-choice variable, first-order, second-order and higher-order polynomials.
- Will be able to draw graphs of functions of one-choice variable.
- Will be able to use functions of one-choice variable in order to apply them in real-life examples and problems of the business and economic environment.
- Will get acquainted with the concept of derivatives.
- Will be able to calculate derivatives of elementary functions, complex functions and inverse functions.
- Will understand the concept of elasticity in microeconomics and will connect it with the use of derivatives.
- Will be able to calculate the limit of a function.
- Will be able to solve optimization problems with the use of the first derivative test and the second derivative test.
- Will comprehend the concept of integral and the use of integration in applications from economics and business.
- With regards to Statistics:
  - Will get familiar the concept and real nature of statistics as well as with the role of statistics in Business Administration.
  - Will learn the arithmetical methods of describing grouped and ungrouped data such as the measures of location, measures of dispersion, measures of variation, and measures of asymmetry and kurtosis.
  - Will be able to calculate all those measures with given examples of pedagogical nature together with the use of spreadsheets such as excel.
- Will learn the concept and use of probabilities and probability theory.
- Will be able to solve probability problems from real-life economics and business examples.
- Will be able to distinguish among discrete and continuous distributions.
- Will solve problems of discrete distributions such as Bernoulli, Binomial, Geometric, Hypergeometric and Poisson.
- Will solve problems of continuous distributions such as Uniform, Normal, Exponential, χ², t and F distributions.
- Will learn how to estimate parameters and confidence intervals.
- Will be able to use hypothesis testing problems for means, proportions and variances for one and for two populations.
- Will understand the concept of Linear Regression and will be able to solve problems of simple and multiple regression analysis with applications in economics and business.
- Will be able to calculate the coefficients together with all the necessary statistics of a linear regression problem with the use of spreadsheets (excel).
- With regards to Operational Research:
  - Will learn how to solve problems of optimal transportation plan with the use of the Northwest Corner Method and the Vogel Method.
  - Will learn how to tackle assignment problems with the Hungarian Method.
  - Will understand the disequilibrium solutions for both optimal transportation plan and assignment problems.
  - Will use real-life examples from business administration for both optimal transportation plan and assignment problems.
  - Will learn network analysis and network optimization techniques.
  - Will work with dynamic linear programming problems.
  - Will be introduced to game theory and solve problems with the graphical method and the linear programming method.
  - Will get familiar with the queuing models and systems and will solve problems of business administration nature.
  - Will learn how to solve linear programming problems with the use of the simplex algorithm and the graphical method.
- Will be acquainted with larger scale operational research problems and learn how to tackle them appropriately with the use of spreadsheets, such as excel.

Subjects covered:
- Mathematics for Business and Economics
- Statistics for Business and Economics
- Operational Research
- Introduction to Computers

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO23 Marketing I
Module code: DEO23
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: The module introduction to Marketing aims to:
Present and discuss the philosophy and functions of marketing in the business context,
Analyse systematically the key concepts associated with marketing implementation and consumer behaviour,
Provide theoretical and practical knowledge on the processes of sales and distribution,
Offer in-depth insights into the area of industrial marketing and consider its implication for the business environment,
Analyse and highlight the role of International and E-marketing in contemporary marketing practice.

Learning Outcomes: After completing this module, students will be able to understand the basic principles of marketing and to become familiar with all processes and functions of marketing gaining a holistic overview of this area. In particular, students will be able to:

Understand the concepts of segmentation - targeting - positioning
- Understand basic principles of marketing research
- Analyze the product mix, price, distribution and promotion
- Understand the basic principles of consumer behavior
- Learn about alternative models to explain the behavior in the purchasing process
- Analyze theories shaping attitudes
- Be familiar with models for measuring attitudes and their impact on marketing policies
- Understand models of industrial buyers' purchasing behavior
- Analyze the characteristics of industrial markets
- Understand the characteristics of industrial marketing management
- Understand the basic principles of sales management
- Carry out comprehensive plans of sales organization
- Understand the peculiarities of the international environment
- Describe applications of political marketing in international export markets
- Be familiar with the basic principles of e-marketing
- Determine the mix of e-marketing

**Subjects covered:**
- Introduction to marketing
- Industrial marketing
- Consumer behavior
- Distribution channels and Sales Management

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DEO24 Public Administration and Policy**

**Module code:** DEO24

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 2nd

**Language:** Greek

**Module general description:**
- To introduce the students to the main concepts and theories of Public Administration and Public Policy and to present the reforms that take place in public administration and policy both at the local and the international level.
- To present the structure and the operation of the Greek Public Administration system both at the central and the regional level.
- To familiarize students with the history and basic institutions of the European Union.
- To provide information about the structure of the National Strategic Reference Framework (NSRF) and its main implementation mechanisms
- To explain the role of public enterprises and to describe the concept of their privatization
- To illustrate the principles and processes of public budgeting, the mean through which public policies are established.

**Learning Outcomes:** Upon completion of the course, students should/will be able to:
- Identify and distinguish the main theoretical approaches to and models of public policy and administration, as well as their interconnectedness and applications to the field of public policy-making in several countries/regions;
- Grasp, describe and discuss the evolution and the main functions of the Greek system of public administration and governance at large, as well as the main themes surrounding its key reforms;
- Capture, identify and discuss the evolution and the functioning of the EU multi-level system of governance, as well as the workings of main EU institutions and their role/involvement in the way in which EU policies are designed and implemented;
- Identify and discuss the main themes/issues surrounding the working of public finances in Greece, such as the functioning of the budget and public utilities companies, as well as the challenges of their reform with emphasis on the processes of (de)regulation and/or privatization in Greece.
Subjects covered:
- Public Enterprise Economics
- Principles of public Administration
- Contemporary function of the State
- Structure and Operation of public sector organisations
- Public Policy
- National Institutions and policies
- New Public Management

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### DEO25 Accounting

**Module code:** DEO25  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek

**Module general description:** The aim of the module is,
- To present the key accounting concepts, the procedures and the techniques employed by the economic entities in order to journalize and post transactions, adjust entries, analyze economic transactions and interpret financial information affecting decision making.
- To introduce the principles of accounts and financial statements as well as the process of the accounting cycle, of the Greek General Accounting Standards, of costing systems as well as of accounting information systems.
- To familiarize with the procedures and the techniques of accounting, through exercises and applications, using an integrated accounting software package.
- To provide information on the contemporary issues regarding the quality of accounting information provided by the financial statements, auditing and International Accounting Standards.

**Learning Outcomes:** In the Accounting Course DEO25 students will study Financial Accounting, the Greek and International Financial Reporting Standards as well as elements of Cost Accounting and Accounting Information Systems. After successful completion of his/her studies the student will be able to:
- define the meaning and purpose of accounting and its role in management
- discern between Financial and Managerial Accounting.
- describe the types of tasks performed by accountants
- understand the content of financial statements
- identify the types, the function and the meaning of the accounts as well as understand the operation of the double-entry system and the Debit and Credit principle
- perform journal entries for routine accounting events
- understand the role of adjusting entries
- correct accounting errors
- determine the profit or loss over a period
- prepare financial statements
- understand the characteristics and content of the Greek Accounting Plan and chart of Accounts
- apply the Greek General Accounting Plan for book keeping and financial statements preparation.
- understand the differences between IFRS and the Greek General Accounting Plan.
- understand the concept of cost
- distinguish between different types of costs.
- describe the function of costing
- determine the production cost
- understand the allocation of overhead charges
- analyze the thinking of the programmers making accounting applications
- describe the required structure of a modern accounting application in order to deliver the expected results
- understand the multitude of information produced by modern accounting software

Subjects covered:
- Greek General Chart of Accounts
- Introduction to accounting
- Financial accounting
- Computerised accounting
- Introduction to Cost Accounting

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO31 Financial Management
Module code: DEO31
ECTS Credit Points: 20
Module Type: Compulsory
Year: 3rd
Language: Greek
Module general description: The module:
- Defines the meaning of money demand and introduces the students to the functions of the banking system, the supply of money, and the meaning of the monetary policy. The basic features of the currency markets are explained
- Analyses the basic features of future and present value of money and explains the meaning of cash flows. The students will also focuses on the differences between the methods of the net present value and the internal rate of return and explain the weighted average cost of capital.
- Defines what a derivative instrument is, introduces the concept of risk and how it can be hedged.
- Analyses the importance of the financial markets and describes the risk return relation. The basic concepts of portfolio theory are also presented.
Learning Outcomes:
- Money and Banking - Foreign Exchange
- Define the meaning of money demand.
- Understand the functions of the banking system and the supply of money.
- Interpret the meaning of the monetary policy.
- Explain the functions of currency markets.
- Financial analysis and management
- Analyze the basic features of future and present value of money.
- Explain the meaning of cash flow.
- Define and explain the net present value method.
- Define and explain the internal rate of return method.
- Explain the differences between the methods of the net present value and the internal rate of return.
- Make investment decisions in an inflationary environment.
- Adjust for risk in capital budgeting decisions.
- Explain and derive the weighted average cost of capital.
- Derivatives – Securities
- Define what a derivative instrument is.
- Understand the concept of risk and how it can be hedged.
- Describe the mechanics of future markets.
- Explain how a future/forward instrument is valued.
- Explain the hedging procedure with future/forwards instruments.
- Explain how an option contract is valued.
- Explain the hedging procedure with options.
- Portfolio management
- Understand the importance of the financial markets.
- Describe the risk return relation.
- Describe the money and capital markets.
- Explain the basic features of a bond.
- Explain the basic features of a stock.
- Understand the basic concepts of portfolio theory.
- Present the capital asset pricing model.
- Understand what an investment company is.

Subjects covered:
- Money and Banking - Foreign Exchange
- Financial analysis and management
- Derivatives – Securities
- Portfolio management

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO33 Marketing II
Module code: DEO33
ECTS Credit Points: 20
Module Type: Optional (Students choose between course modules DEO33 and DEO45)
Year: 3rd
Language: Greek

Module general description: The aim of the "Marketing II" module is to give students the opportunity to learn the basic principles of Services Marketing (Volume A) and Communications Techniques (Volume B). Moreover, this module provides the theoretical background and analytical tools for decision making. Finally, the course includes the learning of the key concepts of Marketing Research (Volume C) and the design of Marketing Plans (Volume D).

Learning Outcomes: After the completion of the course, students will be able to: understand the specialties of services, describe the additional 3Ps of the services marketing mix, define integrated marketing communications, analyze the promotion mix, design a print advertisement, describe the steps of conducting a marketing research, implement a sampling design, understand the contents of a marketing plan.

Subjects covered:
- Marketing Planning
- Distribution channels and Sales Management
- Industrial marketing
- Services Marketing

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO45 Business, New Technologies and Entrepreneurship

Module code: DEO45
ECTS Credit Points: 20
Module Type: Optional (Students choose between course modules DEO33 and DEO45)
Year: 3rd
Language: Greek

Module general description: The main purpose of the DEO45 Module ("Electronic Business and New Technologies for Entrepreneurship") is to introduce students to the administrative and business functions of the digital era, since today more and more business functions are done electronically using Information and Communication Technologies (ICTs). The Module covers issues relating to e-commerce, e-business and the Management of Information Systems. Emphasis is placed on the advantages and disadvantages of e-commerce, on the technological background necessary to e-commerce applications, on the legal and security issues, on the operation of digital enterprises, on real examples of electronic businesses, as well as on the different types and the strategic management of information systems.

Learning Outcomes: Upon successful completion of the DEO45 Module, students will be able to:
- Define the term and the use of e-business and e-commerce.
- Understand the legal framework and the security techniques of e-transactions
- Evaluate the strategies and the techniques of e-marketing
- Understand the difference between B2B and B2C markets
- Realize the function of digital signatures and digital wallets
- Identify the advantages and the possible dangers of e-business and e-commerce.
- Define the term and the use of management information systems (MIS)
- Be aware of the types and the categories of management information systems (MIS)
- Identify the role of management information systems (MIS) within the digital enterprise
- Evaluate the technological infrastructure and the environmental background necessary for the management information systems (MIS)
- Realize security issues connected with management information systems (MIS)

Subjects covered:
- The Framework for e-Business
- E-Commerce
- Management Information Systems

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DEO34 Economic Analysis and Policy**

Module code: DEO34  
ECTS Credit Points: 20  
Module Type: Compulsory  
Year: 3rd  
Language: Greek

Module general description: The student is introduced to the principles of Economic Analysis and Policy with special focus on Microeconomic, Macroeconomic and Public Economics Principles.

Learning Outcomes:
On successful completion of the Microeconomics sub module, students will be able to:
- identify the main concepts of microeconomics
- realize how individuals and firms allocate their limited resources to make themselves as well off as possible
- use the model of individual choice to examine how people react to changes in prices and income
- identify the main factors affecting the demand and supply of a good or service
- to understand why the notion of elasticity provides a convenient way of measuring the extent to which market demand responds to price and income changes
- analyze how the free market determines prices
- evaluate broad questions of government policy using the supply and demand model
- understand how economists conceptualize the process of production
- realize why the distinction between the short run and long run for firms is quite useful for studying market responses to changed conditions
- understand how returns to scale and scale economies affect firm's efficiency
- construct the firm's cost curves
- examine the assumption that firms seek to maximize profits and making their decisions
- understand how the competitive model of supply and demand can be used to investigate a range of economic activities and policies
- understand why monopolistic and oligopolistic conditions determine the market price and lead to deadweight loss effect
- On successful completion of the Macroeconomics sub module, students will be able to:
  - identify the main concepts of macroeconomics
  - elaborate on the methods estimating the main macroeconomic variables and to define the basic relations between them
  - illustrate the alternative approaches determining national income
- analyse the main determinants of national income using private sector product demand (private consumption and investment), product demand by the public sector and the net demand from abroad
- differentiate macroeconomic equilibrium between short term, medium term and long term
- identify the main characteristics of the money market and the determination of interest rates
- determine the equilibrium in product and money markets (IS-LM)
- analyse the main determinants of the labour market
- evaluate aggregate demand, aggregate supply and analyse price level determination
- identify and analyse the functioning of monetary and fiscal policies according to various school of economic thoughts
- analyse the concept of equilibrium in foreign transactions and the way of achieving simultaneous equilibrium in the balance of payments, the domestic product and money markets (IS-LM-BP)
- identify the efficiency of economic policy in an open economy under various foreign exchange systems
- define and discuss the concepts of inflation and unemployment
- On successful completion of the Principles of Public Economics sub module, students will be able to:
  - understand the theoretical context which with contemporary societies approach the fundamental economic problem of "what, how, and for whom will be produced"
  - understand the concept of Pareto optimization regarding production and consumption separately, as well as production and consumption simultaneously, and define the relevant optimization conditions
  - define the two fundamental theorems of Welfare Economics
  - understand the reasons behind the inabilities and imperfections of the free market system, as well as the public sector functions and operations in order to cure these market failures
  - define the concept and the categorization of externalities
  - understand the effects of externalities on allocative efficiency in production and/or consumption and analyze the policies for correcting externalities
  - define the concepts of, pure and non pure, public goods and their distinction from private goods
- understand the inefficiencies emerging from the private and/or public provision of non pure public goods and analyze the policies for correcting those inefficiencies
- determine the reasons for public provision of private goods as well as the problems of public enterprises
- discuss and analyse the main arguments for and against income distribution and redistribution
- define the characteristics, and classifications of various taxes, taxation systems, and the concepts of tax avoidance and tax evasion
- analyze the concepts of tax burden and its distribution, and the various types of economic agents reactions towards taxation
- analyse the economic effects of taxation on the individual and corporate decisions to invest and save, and also its effects on labour market outcomes
- define the concepts of state budget, primary public deficit and primary public surplus and analyse their economic consequences

Subjects covered:
- Microeconomics
- Macroeconomics
- National Accounts and the structure of Greek Economy
- Principles of Public Economics
- International Economic Environments

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO40 Administration of Businesses and Organizations
Module code: DEO40
ECTS Credit Points: 20
Module Type: Compulsory
Year: 4th
Language: Greek

Module general description: Short description of the module: The main purpose of this module is to analyze key issues of management and organization of corporations and organizations, namely:
- The formulation of business strategy
- Organization, planning and controlling of projects
- The study and analysis of organizational theory and of the behavior of individuals within an organization
- The study and analysis of international business and of the role and operation of multinational corporations

Learning Outcomes:
On successful completion of the STRATEGIC MANAGEMENT sub module, students will be able to:
- define the concept of strategy and analyse its utility in corporations.
- distinguish the ways through which corporate strategy may be formulated.
- analyse the dimensions of macro and micro external environment as well as of internal
  environment of corporations.
- analyse the internal and external environment of corporations through rational
  planning towards the formulation and realisation of a strategy.
- illustrate the way of determination of corporate mission statements.
- formulate appropriate corporate strategies
- evaluate strategic moves of corporations.
- identify the differences among the levels of strategy.

- distinguish the main options of corporations at corporate level and compare their
  advantages and disadvantages.
- On successful completion of the MANAGEMENT OF MULTINATIONAL CORPORATIONS
  sub module, students will be able to:
  - define the concepts Multinational Corporation and Direct Foreign Investments.
  - determine the reasons why corporations go global and the factors affecting their
    activities.
  - distinguish the different types of Direct Foreign Investments and the different ways of
    penetration in foreign markets.
  - analyse the elements of external environment which Multinational Corporations
    should take into consideration in the formulation of their corporate plans.
  - discuss the evolution of the main theories regarding International Trade and Direct
    Foreign Investments estimate the role of Multinational Corporations in International
    Trade.
  - distinguish the types of subsidiaries, the types of organisational structure of
    Multinational Corporations and the characteristics of global production strategies.
  - discuss how the current investment landscape has been formed, the main regional
    economic integration organisations and the main international trade agreements.
  - evaluate the benefits and negative implications of the activities of Multinational
    Corporations in host countries and in countries of origin.
- On successful completion of the PROJECT MANAGEMENT sub module, students will be
  able to:
  - define the concepts programme, project, sub-project, activity and labour and
    distinguish the differences among them.
  - define project management and discuss the life cycle of a project.
  - discuss the breakdown structures of projects and explain their advantages and
    disadvantages.
  - apply the following methods of project planning and control: Gantt charts, progress
    curves, matrix schedules, horse blankets, lines of balance and Graphical Evaluation &
    Review Technique (GER).
  - apply the following methods of network analysis: Critical Path Method (CPM), Metra
    Potential Method (MPM) and Program Evaluation and Review Technique (PERT).
  - explain and apply scheduling of resources with time or resource constraints as well as
    optimisation techniques in scheduling.
  - explain and apply schedule and financial control techniques in project management.
  - analyse the budget of a project and explain the cost progress.
- identify the operation and the limitations of project management information systems in decision-making.
- On successful completion of the ORGANISATIONAL THEORY AND BEHAVIOUR sub module, students will be able to:
  - define the concept of Organisational Behaviour and analyse its significance in contemporary organisations.
  - discuss the main elements of Organisational Theories and evaluate their potential applications in modern management.
  - employ System Theory in studying organisations.
- discuss the main elements of individual behaviour and the role of the causes which determine it.
- define the concept of Communication and determine the capabilities which are required for effective interpersonal communication as well as the barriers which may be encountered.
- determine the reasons for the formulation of groups in organisations as well as the factors which contribute to their effectiveness.
- analyse the process of conflicts and determine ways for their resolution.
- distinguish the concepts Management and Leadership and discuss the methodological approaches regarding the study of Leadership.
- define the concept of Organisational Culture and discuss its creation process.
- define the concepts Ethics and Business Ethics and analyse the importance of ethical behaviour challenges in organisations.

**Subjects covered:**
- Strategic management
- Business plan
- Project management
- Administration of multinational enterprises

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**DEO41 Money and Capital Markets**

**Module code:** DEO41

**ECTS Credit Points:** 20

**Module Type:** Optional (Students choose between course modules DEO41 and DEO44)

**Year:** 4th

**Language:** Greek

**Module general description:**
- Those mechanisms that crucially determine the returns as well as the associated risks of available investment opportunities within a globalized banking and financial environment.
- The basic principles governing the investment theory and analysis, the types of available investment instruments, such as those related to the portfolio theory and analysis, and, finally, their differences in terms of their effective operation.

- The mechanisms as well as the financing instruments available for business corporations and domestic and international organizations which highly assist CEOs in reaching rational decisions and strategies, and, thus, contributing to higher corporate values and related stock prices.

- The mechanisms that enhance the efficacy of money and capital markets through the alleviation of systematic risk which is mainly attributed to high volatile interest rates, exchange rates, commodity prices, and, finally, stock prices.

**Learning Outcomes:**

**Knowledge and understanding**

On successful completion of the module, students will be able to:

- Understand the operations of the major groups of financial institutions within the global financial system and appreciate the broad nature of the financial services and products that they offer

- Explain the role that money and capital markets as well as institutions play in financial intermediation

- Effectively communicate financial information as it relates to the global financial system

**Intellectual skills: application**

On successful completion of the module, students will be able to:

- Apply models in the money and capital markets to assess the potential of investments in the real world

- Discuss the nature of money and capital markets as well as money and capital market instruments

- Appreciate the regulatory framework within which financial institutions and financial markets function

**Intellectual skills: analysis and evaluation**

On successful completion of the module, students will be able to:

- Compare the various theories and models in the money and capital markets to assess what approach can bring them closer to the world of finance and investments

- Discuss the causes and consequences of the recent financial crisis and the various official responses around the world

- Contrast the current crisis with previous crises

- Explain certain economic and financial events and case studies from the real world

- Have the ability to identify and evaluate the forces of change facing financial institutions and to appraise the alternative development strategies which may be pursued

- Analyze the impact of regulatory framework upon the operations and strategy of financial institutions

**Subjects covered:**

- International Money and Capital Markets
- Securities and Stock Market Investments
- Corporate and Organisations Finance
- Credit Institutes and Risk Management

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DEO44 Entrepreneurship and Innovation**

**Module code:** DEO44  
**ECTS Credit Points:** 20  
**Module Type:** Optional (Students choose between course modules DEO41 and DEO44)  
**Year:** 4th  
**Language:** Greek

**Module general description:** The main purpose of the DEO44 Module ("Theory of Entrepreneurship and Innovation") is the analysis of key issues relating to entrepreneurship and innovation, and specifically the study and analysis of these concepts, their importance to individuals and organizations and their impact on socio-economic development, the dynamics technological change, funding sources in conjunction with Support Programs from the EU, the organization structure and analysis of the key steps in developing a business plan, legal issues, as well as strategies to promote entrepreneurship and innovation at the business and national levels.

**Learning Outcomes:** Upon successful completion of the DEO44 Module, students will be able to:

- Define the concept of entrepreneurship and its importance, and how to recognize the various forms of business activity
- Explain the role of entrepreneurship in economic development and growth
- Describe programs that support entrepreneurship in the European Union and in Greece
- Define the concept of innovation, its various forms and how they relate to technology
- Assess the importance of innovation in both the enterprise and the national economy levels
- Describe the term "Knowledge Economy"
- Explain why there are differences in the nature and intensity of innovation across industries
- Recognize how to group the different branches of activity depending on the intensity of innovation in each branch
- Describe the stages of evolution of technological change within an industry
- Define the alternative strategic options a business has at its disposal in relation to innovation.
- Be aware of the importance and means of protection of intellectual property.
- Explain the fundamental mechanisms of generating new knowledge
- Identify the typical phases in the New Product Development process
- Explain what organizational resources, skills, and values relate to innovation
- Identify the characteristics of a business plan and its key components

**Subjects covered:**
- Introduction to Entrepreneurship
- Introduction to Innovation
- Business plan

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### DEO42 Total Quality and Environmental Management

**Module code:** DEO42  
**ECTS Credit Points:** 20  
**Module Type:** Optional (Students choose between course modules DEO42 and DEO43)  
**Year:** 4th  
**Language:** Greek

**Module general description:** The main purpose of this module is to present:
- The practical dimension of Total Quality Management.
- The main concepts and practices of quality control and quality assurance standards.
- The basic principles of natural resources management and optimization of conditions for their exploitation.
- The modern operational methods to address environmental problems.

**Learning Outcomes:**

**Volume A**  
Upon successful completion of the subject of the TOTAL QUALITY MANAGEMENT in the DEO42 module, students are expected to be able to:
- Recognize the strategic importance of the adoption of Total Quality Management by businesses and organizations.
- Appreciate the critical success factors for the successful adoption of Total Quality Management in relation to the problems and the needs of organisations and businesses.
- Use beneficially the quality standards and the quality awards as means for constant quality improvement.
- Determine quality processes, measurements and inspections for quality improvement.
- Apply benchmarking for comparative analysis to determine the needs for improvement.
- Rectify problems and interpret the cause for possible failures.
- Determine targets, design and implement new improvement procedures in businesses and organisations.
- Identify quality costs and estimate the cost of simple quality improvement programs.
- Understand the change in mentality required for the deep and wide adoption of the Total Quality Management paradigm in the businesses/organisations where they are or will be employed.

**Volume B**  
Upon successful completion of the subject QUALITY CONTROL AND QUALITY ASSURANCE STANDARDS of the module DEO42, students will be able to:
- Define what Quality Control is and which its main principles are.
- Classify the quality cost in main categories and subcategories and assess the cost of simple quality programs.
- Report and interpret the sampling errors types and describe the principles of the operating characteristic curve.
- Understand what the Average Outgoing Quality is and how it is calculated, and the capacity of a production process.
- Understand what the Statistical Process Control is, when it can be used, and what are the best known graphs.
- Understand the basic principles of Taguchi theory.
- Define what quality assurance is and identify the differences with quality control.
- Define what the standards of quality are and describe the use of the ISO 9000 standards.
- Describe indicative quality assurance standards and their main principles.
- Understand the steps in developing and certifying a quality system, detailing its key strengths and weaknesses.

**Volume C**
Upon successful completion of the subject of the MANAGEMENT OF NATURAL RESOURCES in the DEO42 module, students are expected to be able to:
- Organize natural resources in certain groups with common characteristics and understand the depletion and degradation problems they face depending on the group to which they belong.
- Understand the basic principles used in natural resource economics.
- Assess the economic efficiency of an environmental friendly business.
- Evaluate policies adopted by businesses which promote environmental friendly decisions.
- Understand the natural resources integrated management.
- Estimate the effectiveness of activities and works aiming to protect and enhance the natural resources.
- Advise businesses, organizations and public authorities in the decision making process for the management and protection of natural resources.

**Volume D**
Upon successful completion of the subject of the STRATEGIC MANAGEMENT AND STRUCTURAL CHANGES in the DEO42 module, students are expected to be able to:
- Understand the concept of strategy.
- Manage the decision making process.
- Understand the importance of knowledge, learning and thinking of every person, company or organization anticipating growth and prosperity.
- Describe the content of strategic decisions, the tasks of strategic management and hierarchical levels of strategy.
- Understand the meaning of organisational stakeholders and how their expectations shape strategy.
- Identify the main factors affecting the external and internal environment of an enterprise.
- Recognize the dynamic allocation of resources and skills that shape organisational capabilities and can be a source of competitive advantage.
- Perceive the influence of business identity and culture on a company's strategic management.
- Identify the main cultural factors that influence strategic management as well as the characteristics of the Greek culture that influence both the behavior and the organizational context of Greek enterprises.

Volume E

Upon successful completion of the subject of the ENVIRONMENTAL MANAGEMENT in the DEO42 module, students are expected to be able to:
- Identify and analyze environmental problems using Operations Research as a tool for decision making and understand the relationship between the supply chain and the environmental chain.
- Comprehend the importance of eco-design and eco-labeling of products.
- Understand the concept of life cycle analysis and carry out simple life cycle assessment studies.
- Know and be able to explain the features of reverse logistics and design simple reverse logistics systems.
- Appreciate the importance and know the key features of the environmental management systems.
- Identify and analyze the causes and implications of environmental problems and propose the best solution using simple techniques.
- Apply environmental management methods and techniques and carry out simple technical environmental/economic studies.
- Evaluate environmental policies of businesses, organizations and public authorities.
- Understand the causes and consequences, including economic impacts, of climate change and be able to propose / evaluate mitigation and adoption policies.

Subjects covered:
- Total Quality Management
- Quality Control and Quality Assurance Standards
- Strategic Restructuring of Enterprises and Organisations
- Environmental Management

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DEO43 Industrial Organization, Labour Economics and European Business

Module code: DEO43
ECTS Credit Points: 20
Module Type: Optional (Students choose between course modules DEO42 and DEO43)
Year: 4th
Language: Greek
Module general description:
- The main purpose of this module is to present the basic principles of the theory of industrial organization, economics of labor and collective bargaining and finances of European companies.
- In particular, the Industrial Organization presents the topics: theory of production, theory of imperfect markets, market power, market pricing in oligopolistic markets, price discrimination, product differentiation, barriers to entry in a market.
- In particular, the Labor Market presents the topics: institutional framework of the labor market, labor supply, labor demand, determination of wage labor, human capital, immigration, labor unions, wage differentials, unemployment, income distribution, economic policy.
- In particular, the European Business presents the topics: international economic relations, principles of multinational enterprises, the European business environment and the steps towards European integration, the path towards the European Union (EU), EU competition policy, the EU social policy, the single market and single currency, foreign direct investment in the EU, SMEs in Greece and the EU, entrepreneurship in Greece and the EU.

**Subjects covered:**
- Theory of Industrial Organization
- Labor economics and collective bargaining
- Economics of European Business

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Public Administration**

**Description**

The course is offered in Greek

**Duration of the programme**

The minimum duration of the programme is four (4) years or eight (8) semesters

**ECTS**

The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this programme is 240 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

**Classification according to ISCED-2011 of Unesco**

Coding of educational attainment: 6

**Classification according to ISCED-2013 of Unesco**

Based on the field of Education: 0413 - Management and Administration
# Course Modules

## 1st Year

### 1st Semester
- DHD 11 Basic Principles of Public Law (C¹, 10 ECTS)
- DHD 12 Introduction to Economics (C, 10 ECTS)
- DHD 13 Greek Administrative System (C, 10 ECTS)

### 2nd Semester
- DHD 21 Introduction to Political Science (C, 10 ECTS)
- DHD 22 Introduction to Quantitative methods (C, 10 ECTS)
- DHD 23 Introduction to the Principles of Management (C, 10 ECTS)

## 2nd Year

### 3rd Semester
- DHD 31 International and European Law (C, 10 ECTS)
- DHD 32 Introduction to Public Economics (C, 10 ECTS)
- DHD 33 Historical development of the modern Greek state (C, 10 ECTS)

### 4th Semester
- DHD 41 International Political Economy (C, 10 ECTS)
- DHD 42 Ethics and Deontology in Public Administration (C, 10 ECTS)
- DHD 43 State and Public Policies (C, 10 ECTS)

## 3rd Year

### 5th Semester
- DHD 51 Regional Inequalities and Regional Development (C, 10 ECTS)
- DHD 52 Institutions and Policies of the European Union (C, 10 ECTS)
- DHD 53 Project Management (C, 10 ECTS)

### 6th Semester
- DHD 61 Human Rights Institutions and Protection Policies (C, 10 ECTS)
- DHD 62 Government Accounting (C, 10 ECTS)
- DHD 63 Reform Trends and Change in Public Administration (C, 10 ECTS)

## 4th Year

### 7th Semester
- DHD 71 Public Administration and International Institutions (C, 10 ECTS)
- DHD 72 Administrative Decentralization and Local Government Political and Economic Dimension (C, 10 ECTS)
- DHD 73 Public Investment and Development Programs (C, 10 ECTS)

### 8th Semester
- DHD 81 Public Servant Law (C, 10 ECTS)
- DHD 82 Public Expenditure Management and Auditing (C, 10 ECTS)
- DHD 83 Total Quality Management (C, 10 ECTS)

**Note:**
C¹: Compulsory

*The degree is awarded on completion of 24 course modules.*

## Contact
Tourism Management

Description
The course is offered in Greek

Duration of the programme
The minimum duration of the programme is four (4) years or eight (8) semesters

ECTS
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this programme is 240 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Classification according to ISCED-2011 of Unesco
Coding of educational attainment: 6

Classification according to ISCED-2013 of Unesco
Based on the field of Education: 1015 – Travel, Tourism and Leisure

Course Structure
1st Year
1st Semester
DIT11 Introduction to Tourism and Hospitality (C¹, 10 ECTS)
DIT12 Hotel Enterprises and Services Management (C, 10 ECTS)
DIT13 Economics of Tourism Enterprises (C, 10 ECTS)

2nd Semester
DIT21 Accounting for Tourism Enterprises (C, 10 ECTS)
DIT 22 Information and Communication Technologies in Hospitality (C, 10 ECTS)
DIT23 Tourism Law (C, 10 ECTS)

2nd Year
3rd Semester
DIT31 Management of Tourism Entities and Organisations (C, 10 ECTS)
DIT32 Tourism Sociology (C, 10 ECTS)
DIT33 Tourism Economics (C, 10 ECTS)

4th Semester
DIT41 Events Management (C, 10 ECTS)
DIT42 Transport in Tourism (C, 10 ECTS)
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<tr>
<th>Year</th>
<th>Semester</th>
<th>Course Module</th>
<th>Credits</th>
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<tr>
<td>3rd</td>
<td>5th</td>
<td>DIT43 Financial Management for Tourism Enterprises</td>
<td>(C, 10 ECTS)</td>
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<td>6th</td>
<td>DIT51 Tourism Geography</td>
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<td>DIT52 Research Methods in Tourism</td>
<td>(C, 10 ECTS)</td>
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<td>DIT53 Tourism Marketing</td>
<td>(C, 10 ECTS)</td>
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<td>4th</td>
<td>7th</td>
<td>DIT61 Tourism Planning and Policy</td>
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<td>DIT62 Communication and Crisis Management in Tourism</td>
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<td>DIT63 Human Resource Management for Tourism Enterprises</td>
<td>(C, 10 ECTS)</td>
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<td>8th</td>
<td>DIT71 Tourism Development</td>
<td>(C, 10 ECTS)</td>
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<td>DIT72 Entrepreneurship and Innovation in Tourism</td>
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<td>DIT73 Special and Alternative Forms of Tourism</td>
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<td></td>
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<td>DIT81 Culture and Tourism: Management and Promotion</td>
<td>(E², 10 ECTS)</td>
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<td>DIT82 Environmental Management in Tourism</td>
<td>(E, 10 ECTS)</td>
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<td></td>
<td>DIT83 Tourism Destination Management</td>
<td>(E, 10 ECTS)</td>
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<td>DIT84 Distribution Channels for Tourism Products</td>
<td>(E, 10 ECTS)</td>
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<td></td>
<td>DIT85 European Union and Tourism Policy</td>
<td>(E, 10 ECTS)</td>
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<td></td>
<td></td>
<td>DIT86 E-business in Tourism</td>
<td>(E, 10 ECTS)</td>
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</table>

**Notes:**
- C¹: Compulsory
- E²: Elective

**The degree is awarded on completion of 24 course modules.**

**Contact**

**Student Records:**
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School of Social Sciences

Postgraduate Courses

Master in Business Administration

Description
This Master's Degree Course aims at helping individuals develop the necessary skills and knowledge in order to become effective managers in businesses and organizations. It aims at developing students’ ability to evaluate and analyse external and internal data and strategic decision-making in any business environment. Upon completion of this Course students will:
- have developed a wide range of administrative abilities and operational techniques
- have increased their confidence in evaluating and analysing complex business matters and decision making
- have developed cooperative problem solving skills and will be able to enable students to communicate orally and in writing as managers with potential colleagues
- offer creative and strategic thinking
- have the ability to work under pressure to tight deadlines
- have the ability to undertake independent applied research and submit a research thesis
- have developed sensitivity to different cultures, ability to work in international teams.

Learning Outcomes
On successful completion of the MBA course students will be able to:
- Understand the global economy and analyze the ever changing international economic environment that surrounds modern business.
- Employ a modern economic framework for analyzing a variety of problems that managers face in today’s business environment.
- Understand the operational environment of the European Union and analyze how various organizations operate within it.
- Understand the theory and techniques of financial accounting and evaluate the present financial position of firms.
- Understand the time value of money concept, capital budgeting and the cost of capital.
- Understand the main issues concerning the management of investments and modern portfolio theory.
- Use quantitative methods in business problems and analyze them with economic and business models.
- Employ analytic methods that managers use in a wide variety of decision situations.
- Understand the nature of complex organizations and the basic functions of management.
- Develop the necessary skills to manage people effectively within an organizational context and develop an understanding of organizational effectiveness.
- Analyze and manage the organizations’ markets in order to pursue a competitive advantage.
- Emphasize the strategic and coordinating role of a management executive.
- Make use and combine methodologies and tools for shaping, implementing and evaluating strategic plans.

Requirements

Graduates of Greek Universities and Technological Educational Institutes as well as graduates of Universities and Technological Educational Institutes from countries of the European Union and countries outside the European Union.

Since the Postgraduate Studies Programme is taught in English, an adequate knowledge of English is required of at least the C1 level pursuant to the Common European Framework of Reference for Languages.

20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

If the above positions are not covered by candidates with 10 years of experience, the remaining posts may be filled by candidates without professional experience. Respectively, if the positions are not filled by candidates without professional experience, the remaining posts may be filled by experienced candidates.

Due to the multidisciplinary nature of the course, it can be implemented under the exclusive academic responsibility of the MBA fast track foundation course, in order (for new students) to acquire basic knowledge on quantitative methods and economics. This preparatory course has an aiding/supportive content; it will be implemented prior to the beginning of the academic year and attendance will be optional, while its cost (equal to 25% of the cost of a Module) will be borne by the students. The preparatory subjects of this course will have a duration of 1-2 four-hour meetings for economics subjects (relevant MBA50 Module) and will focus on the basic concepts of economics, while for quantitative subjects (relevant MBA60 Module) they will have a duration of 2-3 four-hour meetings and will focus, apart from the basic concepts, on the use of spss.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.
The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.
*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Duration of the programme:**
The minimum duration of the programme is two (2) years.

**Language:**
The programme is offered in English.

**ECTS credit points**
120

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 34 Business Administration

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0413 - Management and Administration

**Contact**

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**Course Structure**

**1st Year**

MBA50 Economics for Managers (C, 20 ECTS)
MBA60 Advanced Quantitative Methods for Managers (C, 20 ECTS)
**MBA51** Financial Management & Accounting (C, 20 ECTS)
MBA61 Management of People & Organisations (C, 20 ECTS)
Course Modules

MBA50 Economics for Managers
Module code: MBA50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: English
Module general description: The module material is organised under three broad thematic sub modules: International Economic Environment, Managerial Economics and European Business.

International Economic Environment
The purpose of this thematic sub module is first to provide students with the necessary tools to understand the global economy, and second to equip them with the means of analyzing the ever changing international economic environment that surrounds modern business. A good understanding of international economics will facilitate managers in making the right business decisions to protect their businesses, e.g., from exchange rate fluctuations or from tariff measures, and will also allow them to compete successfully in the international arena by improving their business opportunities.

More specifically, this thematic part will cover the following topics:
- Theory of International Trade (Ricardo model, Income Distribution, Hecksher-Ohlin model, international movements of factors of production),
- International Trade Policy (instruments of trade policy, Strategic Trade Policies in Developed and Developing Countries)
- Exchange Rates and the Open Economy Macroeconomics (Exchange rates and foreign exchange market. Money, Interest Rates and Exchange Rate) and
- International Macroeconomic Policy (the International Monetary System, Optimal Currency Areas, Global Capital Markets).

Managerial Economics
This thematic sub module provides a modern economic framework for analyzing a variety of problems that managers face in today’s business environment. It has been designed to show how economic theory can be applied in business situations and to familiarize students with the most recent economic literature on decision making under uncertainty. Upon completion of this module students will be able to:
Understand how economics can be applied to the analysis of enterprise policy.
Understand and assess the role of economic concepts to improve operational decision making.
Evaluate rigorously the effects of the macroeconomic environment in business and how businesses respond to macroeconomic trends.
Understand the link between economic analysis and principles of financial firms.

**European Business**

This thematic sub module examines the operational environment of the European Union and analyzes how various organizations operate within it. It considers the rapid political and socioeconomic changes and the impact of the operational environment on EU policies. The European business environment is also significantly affected by external influences such as trade relations with the thematic parted States and Japan, and Foreign Direct Investment. The objective of the module is to equip students with knowledge and understanding of the process of EU integration from an economic and social perspective and to provide them with the necessary tools for the analysis of the changing European business environment. Upon completion of the module students will be able to examine rigorously the European Business environment in which companies operate, assess the impact of EU policies on European companies, analyze and evaluate business strategies and performance within a dynamic market.

**Learning Outcomes:** On successful completion of the MANAGERIAL ECONOMICS sub module, students will be able to:

- Recall and recognize how the business environment (technology, the status of competition, and regulation in input/output markets) affects a firm's choice of strategy.
- Differentiate analytical frameworks and theories to compare different business environments.
- Apply analytical frameworks and theories to analyze how a firm's pricing decisions can be optimally taken.
- Evaluate how strategy and the business environment together drive the firm's choice of organizational design.
- On successful completion of the INTERNATIONAL ECONOMIC ENVIRONMENT sub module, students will be able to:
  - Understand the basic analytical concepts and tools of international economics
  - Recognize what determines the pattern of production and international trade
  - Apply analytical frameworks and theories to analyze the gains obtained and losses incurred for countries involved in international factor mobility
  - Identify the role of the balance of payments and its components
  - Differentiate analytical frameworks and theories related to exchange rate determination

On successful completion of the EUROPEAN BUSINESS sub module, students will be able to:

- Describe the driving forces of European Economic Integration
- Identify the main issues of the EU
- Reflect on the main EU policies
- Evaluate the determinants and effects of foreign direct investment (FDI) in the EU

**Subjects covered:**

- Markets, Business Strategies, and Competition Policy
- International Trade, Foreign Direct Investment, and Economic Integration
- Macro economics and International Finance
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**MBA60 Advanced Quantitative Methods for Managers**

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<th>Module code: MBA60</th>
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<tr>
<td>ECTS Credit Points: 20</td>
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<tr>
<td>Module Type: Compulsory</td>
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<td>Year: 1st</td>
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<tr>
<td>Language: English</td>
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**Module general description:** The module material is organised under three broad thematic sub modules: Advanced Quantitative Analysis, Economic and Business Modelling and Decision Making.

**Advanced Quantitative Analysis**
The objective of the first thematic sub module is to provide the general framework of quantitative methods and their application in business applications. It will help students who do not necessarily have an extensive mathematics background to understand how statistical tools and techniques are applied. It provides students with an overview of descriptive statistics, probability and probability distributions, inferential tools and regression analysis, while special attention is given to the application of statistical methods to business applications.

**Economic and Business Modelling**
The scope of the second thematic sub module is to provide an overview of the relationship between two or more variables when analyzing a business problem. It will help students to understand how a model is built up, how it is specified, how it is estimated and finally how it is tested using diagnostic tools which test how well a specified model fits the data. These models, also called econometric models, are extensively used to describe the relationships among the aggregates of an economy. On the other hand, many business problems involve analyzing the relationships among three or more variables, and these relationships may be nonlinear.

**Decision Making**
The third thematic sub module describes the analytic methods managers use in a wide variety of decision situations. Sometimes they encounter a decision situation in which they can be certain of the outcome of each alternative. This type of decision environment is termed a certainty environment. However, in most business decisions the decision maker does not know what outcome will occur when an alternative is selected. This type of decision environment is termed an uncertainty environment. When managers are faced with choices between two or more options in a business situation, they are required to make a decision. This thematic part explains how the criteria on which the decision is to be made can be established.

**Learning Outcomes:**
On successful completion of the ADVANCED QUANTITATIVE ANALYSIS sub module students will be able to:
- Understand key concepts for quantifying and managing information in business and management problems
- Perform computer-aided data analysis using MS Excel or relevant statistical software
- Analyze data skillfully in the context of assignments and the final project
- Understand the more advanced techniques of the next modules
- On successful completion of the ECONOMICS AND BUSINESS MODELLING sub module students will be able to:
  - Understand how a model which describes the relationship between variables is specified according to the underlined economy theory which distinguishes the dependent variable from the independent ones
  - Apply appropriate statistical techniques, both simple and more advanced, to estimate the model
  - Analyze the computer output and interpret the results
  - Incorporate qualitative variables into a regression model by using dummy variables
  - Understand how a simultaneous equation model is specified and estimated
  - Use the estimated model for forecasting purposes
  - Evaluate the forecasting performance of the model
- On successful completion of the DECISION MAKING sub module students will be able to:
  - Describe the decision-making principles of certainty and uncertainty
  - Explain the difference between choices based on utility and choices based on revealed preference
  - Apply the decision making techniques with multiple criteria and understand how the individual criteria are weighted
  - Construct a payoff table and an opportunity-loss table
  - Apply the expected value criterion in business decision situations
  - Compute the cost of uncertainty and value of perfect information
  - Develop a decision tree and learn how it can aid decision making in an uncertain situation.

Subjects covered:
- Advanced quantitative analysis
- Economic and business modelling
- Decision making

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**MBAS1 Financial Management & Accounting**

Module code: MBA51
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: English

Module general description: The module material is organised under four broad thematic sub modules: Financial Accounting, Financial Statement Analysis, Corporate Finance and Investment Analysis and Portfolio Management.

Financial Accounting
The objective of this sub module is to help students to develop an understanding of the theory and techniques of financial accounting. After completing this thematic sub module, students will be expected to be able to: a) understand the framework of financial accounting in the context of the basic tools used (journal, general ledger and trial balances), b) demonstrate an understanding of the basic double-entry accounting by correctly journalizing transactions, making adjusting entries, and making closing entries and c) prepare and present the financial statements of companies (balance sheet and income statement).

Financial Statement Analysis
Financial statement analysis aims to evaluate the present financial position of a firm. In doing so it usually employs two tools: ratios analysis, and sources and uses of funds analysis. The results of the financial analysis should be interpreted in the light of the financial life cycle theory of the firm. Additionally, these results should be related to the economy, and the industry in which the company operates (top-down analysis). After completing this thematic sub module, students will be expected to be able to assess the financial position, performance and cash flow of companies using financial statements and based on the analysis of financial statements to recommend alternative appropriate courses of action to remedy operating and financial problems.

Corporate Finance
Following an introduction to financial management the thematic sub module examines the time value of money concept, capital budgeting and the cost of capital. In introducing financial management the course examines the maximization of shareholders' wealth as the primary objective of financial management. In turn the functions of financial management, namely the investment decisions and the financing decisions are discussed. Finally, students obtain an idea of (a) some of the forces that affected financial management in the past; (b) the place finance has in a firm’s organization; and (c) the relationships financial managers have with their counterparts in the accounting, marketing, and production departments. After completing this thematic part, students will be expected to be able to evaluate the role of the Corporate Finance Manager and its main links to business objectives, understand the concept of the time value of money, demonstrate the ability to evaluate investment decisions using a variety of appraisal techniques, analyse the main sources of debt finance, examine the factors that determine a company’s dividend policy and describe and calculate the cost of capital for a business.

Investment Analysis and Portfolio Management
The aim of the present thematic sub module is to present and analyze the main issues concerning the management of investments and modern portfolio theory. In doing so, the main money and capital markets products are analyzed along with the methods developed for estimating their fair fundamental value. Furthermore, the main theoretical models that have been developed in the area of portfolio management that tackle the relationship between risk and expected return are presented. Finally, the process of evaluating and restructuring an investment portfolio is examined. After completing this thematic sub module, students will be expected to be able to: a) state a wide variety of financial securities found in equity, fixed income and derivatives markets, b) explain the theoretical foundations, and make use of the widely-used asset pricing theories and portfolio management techniques and c) describe the main methods of valuing a company.

Learning Outcomes:
On successful completion of the FINANCIAL ACCOUNTING sub module, students will be able to:
- Understand the framework of financial accounting
- Demonstrate understanding of basic double-entry accounting by correctly journalizing transactions, making adjusting entries, and making closing entries
- Prepare and present the financial statements of companies
- On successful completion of the FINANCIAL STATEMENT ANALYSIS sub module, students will be able to:
  - Assess the financial position, performance and cash flow of companies using financial statements
  - Recommend alternative appropriate courses of action to remedy operating and financial problems based on the analysis of financial statements
- On successful completion of the CORPORATE FINANCE sub module, students will be able to:
  - Evaluate the role of the Corporate Finance Manager and its main links to business objectives
  - Understand the concept of the time value of money and be able to use basic time value concepts.
  - Demonstrate the ability to evaluate investment decisions using a variety of appraisal techniques.
- Analyse the main sources of debt finance
- Examine the factors that determine a company's dividend policy
- Describe and calculate the cost of capital for a business
- On successful completion of the INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT sub module, students will be able to:
  - State a wide variety of financial securities found in equity, fixed income and derivatives markets.
  - Explain the theoretical foundations, and make use of the widely-used asset pricing theories and portfolio management techniques.
  - Describe the main methods of valuing a company.

Subjects covered:
- Accounting for Managers
- Corporate Finance
- Financial Analysis & Business Valuation

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

MBA61 Management of People & Organisations

Module code: MBA61
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st or 2nd
Language: English
**Module general description:** The module material is organised under four broad thematic sub modules: Management, Human Resource Management, Marketing Management and Strategic Management.

**Management**
The objective of this thematic sub module is to help students understand the nature of complex organizations and the basic functions of management. It shows the link between management concepts, organizational behavior and business functions and provides students with the concepts and techniques they need to acquire as managers in today's organizations. The topics covered include an overview of management, the nature and purpose of planning in organizations; organizing human resources; directing, leading and motivating employees; and the role of control in the management process.

**Human Resource Management**
The objective of this thematic sub module is to provide students with the knowledge, insight and skills necessary to manage people effectively within an organizational context and to develop an understanding of organizational effectiveness. The module identifies the factors and forces that managers confront both internally and externally in the organization regarding its existing and potential human resources and helps students develop an understanding of the nature of decision-making involved in HRM. The topics covered include an overview of HRM in organizations; staffing and organizing human resources; performance management; training and career development; the scope and structure of compensation practices; and the role of labor unions and collective bargaining.

**Marketing Management**
The objective of this thematic sub module is to equip students with the theoretical understanding and practical skills to analyze and manage the organizations' markets in order to pursue a competitive advantage. It shows how companies create value for their customers and build strong customer relationships in order to capture value from them in return. The topics covered include an overview of marketing in the new economy, the analysis of a company's macro- and sectoral environment; the development, positioning and management of market offering; the management of marketing channels; pricing strategies; advertising; and the management of sales forces.

**Strategic Management**
The objective of this thematic sub module is to integrate knowledge from the previous thematic sub modules and to emphasize the strategic and coordinating role of a management executive. Therefore this is an important area since it concerns the manifestation of policies and strategies for the entire organization. Students learn to assess strengths, weaknesses, opportunities and threats, as well as the competitive advantages and disadvantages related to companies and industries. Furthermore, students comprehend an organization's internal conflicts and external pressures in dynamic organizational settings. Students are taught how to implement analytical and decision making skills in various organizational structures. Other topics covered also include strategic choices, change, international strategy and systems' dynamics.

**Learning Outcomes:**
On successful completion of the **MANAGEMENT** sub module, students will be able to:
- Understand the evolution of management thinking
- Analyze the global character of the environment of management
- Recognize the importance of business ethics and social responsibility
- Understand the functions of management (planning, organizing, staffing, leading, controlling) and apply relevant tools and techniques
- Analyze the role of quality, value chain and information technology to the performance of organizations
- Implement techniques and tools in different business settings

On successful completion of the **HUMAN RESOURCES MANAGEMENT** sub module, students will be able to:

- Analyze and understand the human resource environment
- Apply techniques and tools for acquisition and preparation of human resources
- Understand the role of assessment and development of human resources
- Explain the importance of compensation of human resources and apply the relevant tools and techniques
- Understand the global dimension of human resource management
- Recognize the strategic aspect of human resource management

On successful completion of the **MARKETING MANAGEMENT** sub module, students will be able to:

- Define marketing and the marketing process
- Understand the marketplace, the customers and their behavior and needs
- Design a customer-driven marketing strategy and marketing mix
- Explain the role of marketing to creating competitive advantage
- Understand the role of ethics and social responsibility in the global marketplace
- Apply relevant tools and techniques.

On successful completion of the **STRATEGIC MANAGEMENT** sub module, students will be able to:

- Understand what is strategy and why does it matter
- Analyze the managerial process of crafting and executing company strategies
- Apply concepts and analytical tools for evaluating a company's situation
- Understand the ethical and socially responsible dimensions of company strategies
- Apply managerial keys to successfully executing the chosen strategy

**Subjects covered:**
- Management and Human Resource Management
- Marketing Management
- Strategic Management

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
capable of rational decision formation and decision-making in today's complex social-cultural healthcare environment. An additional objective of the program is the advancement of health sciences and the promotion of research in this field, as well as the development of an interdisciplinary approach to conducting research and resolving contemporary problems.

**Learning Outcomes**

The program's graduates are expected to:

- Understand the particularities of practicing management in an environment where services are produced and provided with the intention to restore health.
- Understand the institutional framework in which management principles can lead to acceptable solutions to maximize societal benefit.
- Realize the need for state intervention in the production and delivery of health services.
- Understand that health policy is a subset of broader social policy.
- Adequately recognize the historical evolution of the National Health System and its problems/prospective in the economic, social and healthcare environment of our country.
- Recognize that population health status is determined by numerous factors, and not only by how health services are organized or delivered.
- Realize that the allocation public financial resources should aim to achieve maximum societal outcomes.
- Be familiar with economic evaluation and resource allocation methods aiming at equity, effectiveness and efficiency in the health system.
- Be familiar with methods for financing the health system and its suppliers.
- Apply financial analysis and management methods for health care facilities.
- Understand models describing user behavior or physician-patient relationships in the health system.
- Apply appropriate models to study and understand behaviors related to health prevention.
- Plan effective interventions to reduce professional burnout in the health environment.
- Apply basic concepts to study team-dynamics.
- Describe the cultural impact the usage of health services.
- Understand the burden of chronic disease and the losses it imposes.
- Design interventions to improve health services and patient satisfaction.
- Appropriately handle research data to support good practices and policies for patients and their illnesses.

**Requirements**

Applicants to the Health Care Management course must possess an undergraduate degree in a related field from a Greek Public University, Technological Educational Institute or an equivalent degree.

Knowledge of English language at B2 level is required.

20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

*Note:*
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 31 Social and Behavioral Sciences

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0311 - Social and Behavioural Sciences/Economics

**Duration of the programme**
The minimum duration of the programme is two (2) years.

**Language**
The programme is offered in Greek.

**ECTS credit points**
120

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

 Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

 Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.
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Course Structure

1st Year
DMY50 Fundamental Principles of Management in the Health Services (C¹, 20 ECTS)
DMY51 Health Services and Health Care Institutions: Particularities and Challenges (C, 20 ECTS)
DMY60 Health Economics and Financing of Health Services (C, 20 ECTS)

2nd Year
DMY61 Sociological and Psychological Approaches to Health and Health Care (C, 20 ECTS)
DISSERTATION (C, 40 ECTS)

Note:
C¹: Compulsory

Course Modules

DMY50 Fundamental Principles of Management in the Health Services

Module code: DMY50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description: The objectives of this module are:
- to familiarize students with basic management principles at a theoretical and a practical level,
- to determine the nature and the specificity of the challenges associated with managing health services, and in particular hospitals,
- to provide students with the opportunity to face specific managerial issues and problems (via case studies, exercises, etc.)

Learning Outcomes: On successful completion of the module, students will be able to,
- Comprehend the definitions, the importance, and the basic functions of management, and to recognize the evolution of management approaches, over time, to their current state.
- Understand the main types of healthcare organizations and to discuss their basic organizational features.
- Explain the meaning, the significance and the types of planning as well as of the planning process with examples from the healthcare services domain.
- Comprehend the meaning, the significance and the types of organizing as well as of the departmentalization process and to analyze an organization chart from a health care facility.
- Understand the meaning and the importance of human resource management together with its basic operations (personnel planning, job analysis, recruitment, assessment, education and development, wages and compensation) with examples from the healthcare sector.

- Recognize operational problems in the field of healthcare services, distinguish between and compare planned and unplanned decisions, decision-making levels and decision making.

- Explain why communication is essential to management of healthcare units and provide examples of the communication process and of the types of formal and informal communication.

- Give a definition of leadership, describe its basic characteristics and theories as well as to use Blake & Mouton's management grid for healthcare organizations.

- Describe the relationship between motivation and performance in healthcare organizations and comparatively assess the basic theories of motivation for their applicability in healthcare professionals.

- Define and explain the need for control, the types of control and its process as well as possible side effects of control in a healthcare environment.

- Comprehend the different categories of healthcare professionals, their human-geography as well as the main educational institutes which produce healthcare professionals.

- Understand the specific nature and characteristics of healthcare services and hospital administration.

- Comprehend and recognize the role and the significance of hospital administration in terms of the healthcare service delivery as well as the educational, research role of the hospital.

- Understand the socioeconomic aspects of healthcare organizations within a social and economic context but also in terms of the relation between healthcare professionals and the patients.

- Explain the distinctive nature of "health" as a "public good" and discuss how "healthcare services" operate in mixed economies, in relation to the factors determine demand and supply.

- Inter-relate healthcare and healthcare systems with the broader social and political issues at an international level.

- Understand key historical periods and key points of the historical development of healthcare systems and services in Greece, with emphasis on the establishment of the National Health System (NHS) and the subsequent reforms.

**Subjects covered:**

- Organization of health systems and healthcare units
- Decision making in health services: Planning and control/ monitoring
- Human resources management/ administration and the human factor in health services.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.
DMY51 Health Services and Health Care Institutions: Particularities and Challenges

**Module code:** DMY51  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Module general description:** The objectives of this module are:
- presenting the economic, institutional and social environment that composes the overall framework for the operation and the involved actions of healthcare services  
- defining those critical issues that reflect upon the economic, administrative and legal levels that govern healthcare services (both current and future ones)  
- presenting the basic principles underlying the structure and best-practice of healthcare services, as well as, discussing the evolution of the structure and operation of healthcare services in Greece  
- putting suitable emphasis on the general notion of healthcare quality and healthcare service improvement while discussing the involved intra- and extra-service burdens and limitations  

**Subjects covered:**
- Health: Definitions, evaluation, and determinants  
- Health systems, services, and policies  
- Information systems, new technologies, and quality in health services.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DMY60 Health Economics and Financing of Health Services

**Module code:** DMY60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Module general description:** This module aims:
- To explain the idiosyncratic nature of health care services  
- To analyze and assess alternative methods of financing and provider reimbursement  
- To provide an understanding of the notion of efficiency and its measurement in health care organizations  
- To analyze hospital financial statements  
- To discuss the methods of economic evaluation of health care programs  
- To present the methods of priority setting in health care  

**Learning Outcomes:** Upon completion of this module, students will be able to:
- Distinguish the causes and consequences of market failures in the health care sector and evaluate the available government policies to tackle the resulting problem  
- Analyze the motives that patients, third-party payers and suppliers have in different health care settings due to the organization and financing systems in effect
- Synthesize the acquired knowledge regarding the idiosyncratic characteristics of health care and the methods of financing and apply it to evaluate different health care systems, taking into account both theoretical argumentation and empirical evidence
- Comprehend the basic characteristics of the Greek National Health System, identify its weaknesses and suggest effective policies
- Understand the difficulties associated with the determination of the optimal level of health care expenditure
- Recognize the hospital as an economic unit that utilizes inputs, which are transformed into outputs through the production process
- Identify the various types of efficiency, realize the difficulties regarding its measurement and suggest appropriate policies for its improvement
- Differentiate between the various methods of economic evaluation and recognize the circumstances where each can be legitimately applied
- Apply pre-established criteria in order to evaluate existing economic evaluation research
- Describe the aim, methods, results and conclusions of empirical research published in peer-reviewed journals
- Understand the main features of the basic priority setting approaches and realize their strengths and weaknesses
- Scrutinize the financial statements of health care units with the use of financial ratios
- Describe the most common methods used to assess financial investments
- Realise the need for a transition towards a modern accounting system in Greek public hospitals and understand the differences between single- and double-entry accounting

Subjects covered:
- Health economics
- Financial management of health services
- Economic evaluation and priority setting in health care

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DMY61 Sociological and Psychological Approaches to Health and Health Care

Module code: DMY61
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: This module aims:
- to supplement students' knowledge and understanding of key concepts provided by the other health services management (HSM) modules
- to familiarize students with the basic concepts of sociology and psychology of health (e.g., culture and symptoms, patient-physician communication, health inequalities, chronic illness experience, preventive behaviors) - to provide students with the
necessary knowledge and understanding of research methodology and interdisciplinary collaboration to pursue independent research in the area of HSM
- to provide students with the necessary skills to apply different psychological models of preventive behavior (health belief model, theory of planned behavior, self-efficacy theory, locus of control theory)
- to develop the students' understanding of the complex skills required to take decisions on HSM issues and ensure social reconciliation and social consent
- to equip students with the theoretical and practical knowledge to solve psychosocial problems in the area of HSM and use research findings to support effective policies.

Learning Outcomes: Upon completion of the module, students will be able to:
- Apply the principles of Health Services Management (HSM) to practical problems.
- Identify and define basic terms and concepts which are needed for advanced courses in HSM (e.g., culture and symptoms, patient-physician relationship, health inequalities, social-cognition models of health behavior, chronic illness experience, health services research methods).
- Compare and contrast the multiple determinants of preventive behavior.
- Critically analyze current research findings in the area of HSM.
- Design individualized interventions for improved quality of health care.
- Distinguish among different models of doctor-patient relationship (e.g., Talcott Parsons' sick role theory, Eliot Freidson's approach, Szasz and Hollender model)
- Describe how culture impacts the illness experience.
- Explain the role of gender and social class disparities in quality of health care.
- Employ a bibliographical search through the web and use the appropriate research method (e.g., randomized control trial, case-control study design) to study a health care problem.
- Set up and develop a research project and write the research report.
- Evaluate the impact of interventions in the case of professional burnout.
- Outline the differences between epidemic diseases of the past and contemporary chronic diseases.
- Recognize selected doctor-patient communication strategies.
- Discuss various factors affecting patient satisfaction with consultation and hospital care.
- Assess the causes and consequences of professional burnout.
- Apply different psychological models of preventive behavior (e.g., health belief model, theory of planned behavior, self-efficacy theory, locus of control theory, protection motivation theory).
- Use key concepts regarding leadership theories, organizational behavior, group dynamics, process of group development, and conflict resolution.

Subjects covered:
- Social and cultural aspects of health, illness, and medicine
- Behavior and interpersonal relationships in the health sector: Psychology of health, illness, and healthcare
- Methodology and research methods in health and health services.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Cultural Organisations Management

Description
The course offers specialized knowledge to current cultural administrators and to those planning to work in the field of cultural management.

Learning Outcomes
Upon completion of the program the students should be able to:
- Master the concepts of culture, cultural industries, cultural policies and administration.
- Investigate the different tools through which cultural administration, cultural policies and cultural communication are implemented.
- Analyze trends for cultural administration, management and communication in the context of cultural institutions.
- Describe the function of the cultural economy along with the methods for cultural promotion in a digital context
- Examine the structure of cultural institutions and the legal context in which they operate
- Develop research skills and critical abilities in order to work as cultural managers, design cultural policies and develop financial plans and communication strategies for the promotion of cultural products and institutions.

Requirements
Applicants to the Cultural Organisations Management course must possess an undergraduate degree in a related field from a Greek Public University, a Technological Educational Institute or an equivalent degree.
Knowledge of English language at B2 level is required.
20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

Note:
Where previously mentioned:
a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and
Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*. The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 34 Business Administration

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0314 - Sociology and Cultural Studies

**Duration of the programme**
The minimum duration of the programme is three (3) years.

**Language**
The programme is offered in Greek.

**ECTS credit points**
120

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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**Course Structure**

<table>
<thead>
<tr>
<th>1st Year</th>
<th>2nd Year</th>
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<tbody>
<tr>
<td>DPMS0 Aspects of Cultural Phenomena</td>
<td>(C¹, 24 ECTS)</td>
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<tr>
<td>DPMS1 Cultural Policy and Management</td>
<td>(C, 24 ECTS)</td>
</tr>
<tr>
<td>DPMS60 Cultural Economics</td>
<td>(C, 24 ECTS)</td>
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</tbody>
</table>
DPM61 Cultural Communication (C, 24 ECTS)
3rd Year
Dissertation (C, 24 ECTS)

Note:
C¹: Compulsory

Course Modules

DPM50 Aspects of Cultural Phenomena

Module code: DPM50
ECTS Credit Points: 24
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description:
The aim of DPM50 is to:
- present the basic concepts of culture, cultural industries and cultural activities in Greece and in Europe.
- explore the ways in which cultural reality and cultural contexts are shaped in the Greek, European and global cultural scene.
- give the structure of cultural policy and discuss the development of cultural institutions.
- present the cultural institutional framework and discuss the development of cultural phenomena.
- explore the cultural conditions in which new trends emerge in the field of culture.
- present the cultural trends and the basic concerns regarding the role of culture in the era of digital communication.
- examine and analyse the development of cultural industries and cultural institutions in the 21st century.

Learning Outcomes: The learning objectives are:
- Understand the basic concepts of culture, cultural industries and cultural activities in Greece and Europe.
- Explore the ways in which the cultural reality and cultural contexts shape the Greek, European and global cultural scene
- Consider the cultural agenda and the development of cultural industries, organizations, institutions and agencies
- Discuss the institutional and cultural frameworks and their role in the advancement of new forms of cultural development
- Analyze new trends in the cultural environment and the role of culture in the era of digital communication.
- Develop their research skills and critical thinking.

Subjects covered:
- Cultural Studies
- Greek and International Cultural Policy
- Contemporary Cultural and Cultural Policy Issues
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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<table>
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<tr>
<th><strong>Module Code:</strong></th>
<th>DPM51</th>
<th><strong>ECTS Credit Points:</strong></th>
<th>24</th>
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<tr>
<td><strong>Module Type:</strong></td>
<td>Compulsory</td>
<td><strong>Year:</strong></td>
<td>1st</td>
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<tr>
<td><strong>Language:</strong></td>
<td>Greek</td>
<td><strong>Module general description:</strong></td>
<td>The aim of DPM 51 is to:</td>
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<td>- present the basic concepts of management, strategy and administration of cultural organizations/industries.</td>
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<td>- explore the ways in which cultural policies and cultural administration contribute toward the development of cultural organizations/industries.</td>
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<td>- examine the formation of cultural and administrative policies.</td>
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<td>- investigate the regulatory and legal context in which cultural administration is exercised in the context of cultural organizations.</td>
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<td>- explore the contribution of administrators in the development and formation of strategic planning.</td>
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<td>- discuss the most significant problems in relation to the institutions, regulation and public interest for the development of cultural policies in the context of a digital environment.</td>
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<td>- examine and analyze the development of cultural policies and managerial planning for an effective cultural administration in the 21st century.</td>
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</table>

**Learning Outcomes:** The learning objectives are:

- Understand the basic concepts of cultural management, cultural policy and cultural administration in the era of info-communication globalization.
- Explore the ways in which the academic research for the cultural policy and administration contributes to the development of cultural institutions in the Greek, European and global cultural environment.
- Discuss the management of cultural organizations, the protection of cultural goods (product and services) and the developments of cultural activities in the information and knowledge society.
- Analyze the new treads in cultural management, administration and policy and the role of public interest in cultural activities.
- Develop their research skills and critical thinking about cultural policy, management and administration.

**Subjects covered:**

- Cultural Policy and Administration of Cultural organisations
- Cultural Management and Models of Developing Cultural Activities
- Cultural Policy Strategy and Protection of Cultural Heritage

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

**DPM60 Cultural Economics**

*Module code:* DPM60  
*ECTS Credit Points:* 24  
*Module Type:* Compulsory  
*Year:* 2nd  
*Language:* Greek  

**Module general description:** The aim of DPM 60 is to:
- present the basic concepts of cultural and financial management in the context of cultural organizations/industries.
- explore the methods and the structure of cultural and financial planning.
- present the strategies/structure of financial and cultural management
- investigate the institutional context of cultural economics, including financing strategies in the context of cultural organizations.
- explore the contribution of administrators in the development and formation of fundraising strategies.
- discuss the most significant problems in relation to fundraising techniques and cultural marketing in the digital era.
- examine the development of strategies and innovative models for the management of funds, cultural capital and donations in the context of cultural organizations/industries.

**Learning Outcomes:** The learning objectives are:
- Understand the basic concepts of cultural and economic issues in cultural organisations.
- Explore the ways in which the academic research for the cultural economy and the cultural goods (product and services) contributes to the development of cultural markets
- Discuss the economic management of cultural organizations and the regulation for financing cultural goods (e.g. cultural sponsorship, grants, etc.) in the Greek and European markets.
- Analyze the new treads in cultural economics and cultural investment in the information and knowledge society.
- Develop their research skills and critical thinking about cultural economy and cultural markets.

**Subjects covered:**
- Economics Management of Cultural Organisations
- Resources of Cultural Organisations
- Financial Methods of Cultural Organisations

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

**DPM61 Cultural Communication**
Module code: DPM61
ECTS Credit Points: 24
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: The aim of DPM 61 is to:
- explore the role of communication in cultural processes and practices.
- understand the multidimensional role of communication in cultural activities.
- investigate the relationship between culture and communication.
- evaluate methods and techniques for market surveys and public opinion polls, in order to develop suitable strategies and cultural policies.
- understand the practice of cultural marketing as well as the development of marketing techniques for the promotion and distribution of cultural products.

Learning Outcomes: The learning objectives are:
- To understand the basic concepts of cultural communication and cultural organisations in the context of information and knowledge society.
- To explore the ways in which the academic research for the promotion and visibility of cultural goods contributes to the development of cultural institutions.
- To discuss the role of cultural communication in the context of Greek and European cultural institutions.
- To analyze the new trends in cultural communication for the promotion of cultural organizations.
- To develop their research skills and critical thinking in regards to cultural communication.

Subjects covered:
- Communication principles and methods
- Strategies of Cultural Communication and Promotion
- Promotion of Cultural Organisations

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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Tourism Business Administration M.Sc.

Description
The postgraduate programme in Tourism Business Administration aims to provide the necessary sectoral knowledge for a managerial career in the tourism industry. The programme organises and offers educational content in a way that allows students to develop both theoretical knowledge and practical skills required to succeed in management positions in the tourism industry. At the same time, it advances the development of analytical skills and...
personal traits required to address and resolve problems faced by tourism businesses and organisations. The programme focuses on the interdisciplinary elements of tourism management, which explain its nature and development at micro- and macroeconomic levels. This approach reinforces the in-depth understanding and the ability to synthesise the political, economic, social and technological factors related to contemporary tourism management.

Learning Outcomes
Within this overall aim, the course strives to enable students to:
- Cultivate an ability to synthesize the inter-disciplinary aspects of tourism management that explain its nature and development.
- Demonstrate theoretical knowledge and have practical skills that are required for management positions in the tourism industry.
- Develop analytical academic abilities and personal characteristics required to solve tourism management problems.
- Critically assess the many aspects that comprise the tourism industry.
- Develop a thorough understanding of the political, social, economic and technological influences which relate to the management of tourism firms and organizations.

Requirements
Applicants to the Tourism Business Administration course must possess an undergraduate degree in a related field from a Greek Public University, a Technological Educational Institute or an equivalent degree.
Knowledge of English language at B2 level is required.
20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

Note:
Where previously mentioned:
a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.
*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”. 
Classification according to ISCED-2011 of Unesco
- Based on the level of Education: 7
- Based on the field of Education: 81 Personal Services

Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0311 - 1015 Travel, Tourism and Leisure

Duration of the programme
The minimum duration of the programme is two (2) years.

Language
The programme is offered in Greek.

ECTS credit points
120

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
 Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
 Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
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Course Structure
1st Year
DTE50 General Principles of Management, Tourism Law and Organization of Employers’ Collective Bodies in Tourism (C¹, 20 ECTS)
DTE51 Tourism Sector (C, 20 ECTS)
DTE60 Tourism and Tourism Business Management (C, 20 ECTS)
DTE61 Marketing in Tourism Bodies, Organizations and Businesses (C, 20 ECTS)
2nd Year
DTE60 Tourism and Tourism Business Management (C, 20 ECTS)
DTE61 Marketing in Tourism Bodies, Organizations and Businesses (C, 20 ECTS)
DISSERTATION (C, 40 ECTS)

Note:
C¹: Compulsory
Course Modules

DTE50 General Principles of Management, Tourism Law and Organization of Employers-Collective Bodies in Tourism

Module code: DTE50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description:
The aims of this course are:
- To provide basic knowledge regarding the general principles, the theories and the applications of Management.
- To familiarize students with the institutional and the organizational aspects of Tourism (Private and Public Sector, Collective Bodies, Organisations).

Learning Outcomes:
On successful completion of this Module, students will be able to:
- Define management and summarize the evolution of management thought
- Explain the principles, fundamental concepts and applications of management.
- Identify and analyze contextual factors in the business environment and their impact on the interaction between people and organizations.
- Understand the types of decisions taken in the modern business environment.
- Recognize the role of management in modern tourism organizations.
- Analyze the institutional and organizational dimensions of tourism organizations and operations.
- To recognize the legal issues in complex problems of the tourism industry and apply their knowledge to these issues.

Subjects covered:
- General principles of management
- Organisation and Operation of Tourism Organisations and Institutions
- Law and Regulation of tourism

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DTE51 Tourism Sector

Module code: DTE51
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description:
The aims of this course are:
- To provide information regarding the operation and the organization of Tourism and the Tourism Sector.
- To cross-scientifically analyze the contemporary development of Tourism.
- To stress the interdisciplinary aspects of the organization and management of companies in the Tourism Sector.
- To understand the dynamic role of Tourism in the economic, environmental and social development of countries.

**Learning Outcomes:**

**Volume A**

Tourism Economics and Organization of Tourist Travels

On successful completion of this Module, students will be able to,
- Describe and interpret the evolution of international tourism.
- Describe classification systems for travel movements.
- Demonstrate knowledge of the different structures and types of travel products.
- Define and explain the structure and function of the tourism market.
- Analyze and interpret the function of tourism as an economic phenomenon.
- Define and analyze the generation of tourism multiplier effects.
- Analyze the dimensions of tourism consumption.

**Volume B**

Tourism Development and the Environment

On successful completion of this Module, students will be able to,
- Identify and analyze the different parameters forming tourism demand.
- Demonstrate knowledge of the principles, procedures, levels and modes of implementation of tourism development planning.
- Interpret and assess the impacts of tourism on the natural and built environment.
- Define and apply tourism environmental policies.
- Demonstrate knowledge about the institutions and means of implementing policies for tourism and the environment.

**Volume C**

The Politics and Sociology of Tourism Development

On successful completion of this Module, students will be able to,
- Analyze the reasons justifying the necessity of state intervention in tourism and the development of tourism policy
- Understand the institutional framework, the organization and the responsibilities of national tourism authorities.
- Identify the particular characteristics of tourism education and training policies.
- Analyze and evaluate the main axes of tourism policy at the European level.
- Understand the social dimension of tourism.
- Identify the main types of tourists and analyze tourist motives.
- Analyze, interpret and evaluate the social and cultural impacts of tourism development.

**Volume D**

Information Technology (IT) in Tourism

On successful completion of this Module, students will be able to,
- Identify the different applications and uses of IT for tourism development and business organization
- Analyze and apply Internet and new technology capabilities in tourism development and promotion.
- Understand the functions and uses of information systems in hotels and travel agencies.
- Identify and interpret contemporary trends in tourism IT.

Subjects covered:
- Tourism Economics
- Development and Environment
- Sociology and Policy of Tourism Development

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DTE60 Management of Tourism and Tourism Service Providers
Module code: DTE60
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st & 2nd
Language: Greek

Module general description: The aims of this course are:
- To provide sufficient knowledge on the nature and the primary functions of Tourism Management.
- To familiarize students with the operational, financial and organizational aspects of Tourism Management in Hotels, Restaurants and Entertainment Service Providers, Travel Organizers and Intermediaries, Tourism Organisations and Institutions and Alternative and Special Tourism Service Providers.
- To understand the underlying processes behind major sports events, such as the Olympic Games, with an emphasis on the Athens 2004 Olympic Games.

Learning Outcomes: On successful completion of this Module, students will be able to:
- Identify the factors that affect the management of tourism firms and organisations.
- Evaluate opportunities and threats in the business environment.
- Develop and implement appropriate management strategies for different types of tourism firms and organisations.
- Identify the role of human resource management in managing key performance indicators of tourism firms and organizations.
- Select and apply appropriate analytical frameworks and theories for successfully managing tourism firms and organisations.
- Identify and forecast changes taking place in the tourism industry.
- Use appropriate models for managing change and developing new competitive tourism services/products.
- Apply analytical frameworks and theories for crisis management in the tourism industry.
- Identify and analyse the conditions for sustainable tourism management and development.
- Understand the dynamically changing role and the services of tourism intermediaries on the function and structure of the tourism industry.
- Analyse the role, organisational structure and services of tourism destination management organisations.
- Understand and apply the process of organizing and bidding for a mega event.

Subjects covered:
- Principles and Operations of Tourism Management
- Organisation and Management of Tourism Businesses
- Management of Special-Interest and Alternative Forms of Tourism and Leisure

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DTE61 Tourism Marketing for Organizations and Enterprises

Module code: DTE61
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st & 2nd
Language: Greek

Module general description: The aims of this course are:
- To provide sufficient knowledge on the planning, organization, implementation and promotion of Tourism Marketing.
- To understand the organizational and functional aspects of National (Country-level) and Regional marketing plans.
- To familiarize students with the interaction between Advertising, Public Relations and Sales Promotion in Tourism.

Learning Outcomes: On successful completion of this Module, students will be able to:
- Explain the principles and fundamental concepts of tourism marketing.
- Critically analyze the process of developing an integrated tourism marketing plan.
- Develop small-scale market research projects in real-life situations.
- Analyze the factors influencing tourist buying behavior.
- Develop an integrated tourism marketing communication and promotion plan.
- Understand the specificities of applying marketing in different sectors of the tourism industry.

Subjects covered:
- Tourism Marketing
- Tourism Promotion and Communication
- Marketing of Tourism Businesses

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### Banking MSc

**Description**

This course aims to offer specialized knowledge required for Bank System Modernization, and the improvement of banking methods and procedures for organizations and businesses.

**Objective**

The core objective of the Postgraduate Program in Banking is the education of specialized banking employees that can gain modern technics and capabilities for making and implementing efficient decisions in a contemporary, globalized and intensively competitive economic environment. This postgraduate program on Banking pays particular attention to international developments in the labor market and promotes critical thinking, team-work cooperation, as well as creative and initiative activity to dealing with corporate problems and banking issues in Greece and abroad. The program develops, organizes and offers solid knowledge, so it can be integrated, comprehensive, attractive and applicable. Furthermore, it offers students new opportunities for alternative, critical and active thinking and for solving various banking topics. This innovative approach supports students' familiarization with new technologies and informatics in general, raises the importance of academic module interdisciplinarity and reinforces a global analysis of critical topics for the efficient attainment of financial capabilities.

**Learning Outcomes**

Upon completion of the MSc in Banking program, students will be able to:

- Review and analyze the main factors determining demand for money and money supply in a modern economy.
- Analyze the structural characteristics of the financial system, as well as the instruments of monetary policy.
- Articulate and discuss the way in which the monetary system and financial institutions are controlled and supervised.
- Present the work of Basel Committee on Banking Supervision.
- Estimate the expected cash flows of an investment project and calculate the firm’s cost of capital.
- Use, interpret and evaluate the most important methods that are used in capital budgeting analysis.
- Examine a firm’s capital structure, and assess whether it affects investors’ preferences and consequently the stock price of the firm.
- Explain a firm’s dividend policy and determine whether it has an impact upon investors’ preferences and consequently the stock price of the firm.
- Apply in practice the two main supportive functions of human resource management, that is, job analysis and job description, and human resource planning
- Analyze the banks’ financial statements and evaluate their profitability, performance and the quality of their portfolios.
- Propose the asset - liability management that financial institutions should employ driven by estimated interest rate changes.
- Understand the accounting plan and the chart of accounts for the banking industry.
- Analyze the content and use of financial tools.
- Collect and present statistical data.
- Apply probability theory and probability distributions.
- Employ the technology underlying electronic data bases.
- Evaluate the main information systems that Greek banks employ and suggest either improvements or new advanced operations in order to improve existing or new specialized banking activities.
- Identify, categorize and evaluate the main risks the banking sector faces.
- Understand the role and use of modern financial instruments that banks use.
- Implement risk management techniques.

Requirements

Applicants to the Banking course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree. Knowledge of English language at C1 level is required.

20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”

Classification according to ISCED-2011 of Unesco

- Based on the level of Education: 7
- Based on the field of Education: 34 Business Administration
Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0412 - Finance, banking and insurance

Duration of the programme
The minimum duration of the programme is two (2) years.

Language
The programme is offered in Greek.

ECTS credit points
120

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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Course Structure
1st Year
TRA50 Banking Environment (C¹, 20 ECTS)
TRA51 Banks Management (C, 20 ECTS)
TRA60 Means of Banking Operation (C, 20 ECTS)
TRA61 Banking Strategy (C, 20 ECTS)

2nd Year
TRA60 Means of Banking Operation (C, 20 ECTS)
TRA61 Banking Strategy (C, 20 ECTS)
DISSERTATION (C, 40 ECTS)

Note:
C¹: Compulsory

Guidelines on Module selection
During the first year of study, students can select three modules: TRA50, TRA51 and either TRA60 or TRA61. If they don’t have the time needed, students must first select module TRA50 or both modules TRA50 and TRA51.

Students can choose to undertake their dissertation alongside their last module (TRA60 or TRA61), provided that they have successfully completed three modules. It should be specified that, in order to complete the program in two academic years, the student must successfully complete three modules during their first year of study (in accordance with the above instructions) and in the second year complete the last module and the dissertation. Only upon the completion of all four course modules of the program do students have the right to defend a dissertation.

To obtain a Master’s degree, students must successfully complete four course modules and successfully defend a postgraduate dissertation.

Course Modules

**TRA50 Banking Environment**

**Module code:** TRA50  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Module general description:** General description of the Thematic Subject: The aim of this Thematic Subject is to provide the students a clear understanding of the following concepts and mechanisms.

- The economic significance, the definitions and the types of money, the quantity and the value of money as well as the determinants which affect the demand for and the supply of money.
- The operation of the financial system both within a closed as well as in open economy.  
- The international, the European and Greek legal and regulatory framework with respect to the operation and regulation of the banking sector as well as of the monetary system.

**Learning Outcomes:** Upon completion of this module, students will be able to:

- Explain the definition and role of money in an economy and describe in detail the different types of money.
- Review and analyze the main factors determining demand for money and money supply in a modern economy.
- Assess and critically compare local and international money and capital markets as well as intermediation in these markets.
- Articulate and discuss the way in which the monetary system and financial institutions are controlled and supervised.
- Analyze the structural characteristics of the financial system, as well as the instruments of monetary policy.
- Identify the importance of the balance of payments accounts and how they interfere with the domestic monetary processes.
- Discuss the merits of the alternative exchange rate systems and how they affect the implementation and effectiveness of monetary policy
- Present the work of Basel Committee on Banking Supervision. Specify the institutional framework of the European Union's single banking market.
- Illustrate the fundamental importance of money and financial intermediation in an economy.
- Debate the structure, function and the increasing importance of financial derivatives and their corresponding markets.
- Describe the structure, function and historical evolution of the main International Economic Organizations.
- Define the importance of the yield curve and the theories for the term structure of interest rates.
- Explain the different types of risk that financial institutions are exposed to and how these risks can be minimized.
- Articulate and discuss the forms of international expansion for financial institutions and assess their advantages and disadvantages.

Subjects covered:
- Monetary Theory and Policy
- The Financial System
- Banking and Monetary Law

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

TRA51 Banks Management

Module code: TRA51
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description: General description of the Thematic Subject: The aim of this Thematic Subject is to help the student understand the way in which basic concepts and techniques of Financial Management, Human Resource Management and Banking Strategies are implemented on Bank Management.

Learning Outcomes: Upon completion of this module, students will be able to:
- Evaluate different investment projects under certainty and risk.
- Estimate the expected cash flows of an investment project and calculate the firm's cost of capital.
- Use, interpret and evaluate the most important methods that are used in capital budgeting analysis.
- Examine a firm's capital structure, and assess whether it affects investors' preferences and consequently the stock price of the firm.
- Explain a firm's dividend policy and determine whether it has an impact upon investors' preferences and consequently the stock price of the firm.
- Identify the different leasing and factoring alternatives and describe the features, advantages and disadvantages of each.
- Apply in practice the two main supportive functions of human resource management, that is, job analysis and job description, and human resource planning.
- Identify recruitment practices for firms and organizations, as well as the theoretical approaches that underlie and shape those practices.
- Illustrate the way in which employee appraisal and training/development aim to improve management and firm's performance.
- Review and describe the main types of payment systems that are in use today in practice.
- Analyze the banks' financial statements and evaluate their profitability, performance and the quality of their portfolios.
- Propose the asset-liability management that financial institutions should employ driven by estimated interest rate changes.
- Suggest the approval or rejection of a loan from a financial institution and the conditions of approval.
- Judge if it is more profitable to employ local capital market for borrowing and investing, or foreign exchange markets with hedging foreign exchange risk.

Subjects covered:
- Financial Management
- Human Resource Management
- Banking Development Strategies

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

TRA60 Means of Banking Operation

Module code: TRA60
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st and 2nd
Language: Greek

Module general description: General description of the Thematic Subject: The aim of this Thematic Subject is to help the student understand the role of Computer Science in the banking area and also to provide the knowledge that is necessary in the field of Bank Accounting and Quantitative Methods to those that work or are going to work in accounting and financial services in banks in order to be able to reach successfully their goal.

Learning Outcomes: Upon completion of this module, students will be able to:
- Understand the accounting plan and the chart of accounts for the banking industry.
- Gather information regarding foreign currency accounting policies
- Analyse the content and use of financial tools.
- Have a deep understanding of and suggest improvements to the banking loan system.
- Analyse in detail issues related to the concept and accounting practices for deposits, repos and bonds
- Collect and present statistical data.
- Apply probability theory and probability distributions
- Understand in detail the concept of normal distribution, the use of sample distributions and the concept of confidence interval
- Test hypotheses.
- Conduct linear and multiple regression analyses.
- Analyse the principles under which banking electronic systems operate.
- Employ the technology underlying electronic data bases.
- Locate appropriate products and services and adapt them to individual banking environment.
- Adapt information systems related to cash payments and receipts as well as customer oriented information systems
- Evaluate the main information systems that Greek banks employ and suggest either improvements or new advanced operations in order to improve existing or new specialized banking activities.

**Subjects covered:**
- Financial & Bank Accounting
- Informatics in Banking
- Quantitative Methods in Banking

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**TRA61 Banking Strategy**

**Module Code:** TRA61
**ECTS Credit Points:** 20
**Module Type:** Compulsory
**Year:** 1st and 2nd
**Language:** Greek

**Module general description:** General description of the Thematic Subject: The aim of this Thematic Subject is to help the student understand the banking financing, portfolio theory as well as the risk management process of the banking portfolios. Also to provide the knowledge that is necessary in the field of Banking Risk Management and Quantitative Methods to those that work or are going to work as risk officers in banking and financial services in order to be able to reach successfully their goal in measuring and forecasting the volatility of assets and the management of their risks.

**Learning Outcomes:** By the end of this course students will be able to:
- Identify, categorise and evaluate the main risks the banking sector faces
- Perform necessary calculations to facilitate managerial decisions
- Develop extensive knowledge related to financial and investment decisions of banks
- Critically synthesize the academic literature
- Understand the role and use of modern financial instruments that banks use
- Implement risk management techniques
- Show practical understanding of the necessary quantitative techniques for an advanced career in the banking sector

**Subjects covered:**
- Risk Management in Banking
- Portfolio Management
- Special Types of Credit

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**MSc Enterprise Risk Management**

**Scope of the Master Programme**
Enterprise Risk Management is increasingly being recognized as the key for achieving and driving sustainable organizational performance, regardless if the organization is active in the public sector or the private sector and industrial domains. This Master's Programme in Risk Management is designed around four year-long thematic units and a Master's thesis, which capture the essential knowledge, and skills that are essential to a competent and contemporary Chief Risk Officer in any type of organization or enterprise. The Programme is designed to provide formal education contemporary Risk Management and its natural extensions to Crisis and Emergency Management to graduates.

**Learning Outcomes**
On successful completion of the Master in Risk Management students will be able to:
- Understand the role of the Chief Risk Officer
- Understand the main issues concerning Organizational Analysis, Crisis Protocols and Procedures
- Understand the main issues concerning Continuity Planning and Preparedness Training
- Use Essential Qualitative and Quantitative Techniques
- Understand the main issues concerning Risk Identification, Risk Evaluation and Risk Treatment
- Understand the main issues concerning Risk Information Systems and Technologies

**Entry Requirements**
- Applicants must hold an undergraduate degree from a valid/recognized higher education institution.
- All candidates must have a very good knowledge of the English language in order to be able to attend successfully the programme.

**Teaching Language**
The Master programme in "Enterprise Risk Management" is offered in the English language.
Duration of the programme
The minimum duration of the programme is two (2) years.

European Credit Transfer System – ECTS
120 ECTS

Contact:
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Modules’ contents

Year 1
ERM50 Organization and Management - The Environment of Risk Management (C¹, 20 ECTS)
ERM60 Advanced Quantitative Methods for Managers (C, 20 ECTS)
ERM51 Risk Management and Risk Management Standards (C, 20 ECTS)

Year 2
ERM61 Crisis Management and Business Continuity Planning (C, 20 ECTS)
ERMDE Master’s Thesis (C, 40 ECTS)

Note:
C¹: Compulsory

Programme Structure
For the successful completion of the Master programme, students must follow and successfully pass examinations in four (4) compulsory Modules (credited with 20 ECTS per module) and the Master’s Thesis (credited with 40 ECTS).
Students are required to prepare four written assignments in each Module under the supervision and guidance of a tutor and if they gain the necessary grades they become eligible to participate in the final exams.
The University’s academic year begins in mid-September and ends in June, with the final written exams at the end of the year in May.
The selection of 60 ECTS per academic year is equivalent to full-time, whereas the selection of less than 60 ECTS per academic year is considered as part-time.

Modules’ Content

ERM50 Organization and Management - The Environment of Risk Management
Module Code: ERM50
ECTS Credit Points: 20
Module Type: Compulsory
Offered for the academic year: First (1st)
Language: English
General Description
This thematic unit presents important issues related to the economic environment in which a firm operates, focusing on concepts and practices of the modern firms' Management and Human Resource Management.

**Learning Outcomes**
The purpose of this thematic unit is to provide students a modern economic framework for analyzing a variety of problems that managers face in today's business environment, as well as to emphasize the strategic and coordinating role of a management executive.

**Prerequisites:** There are no prerequisites for this module.

**ERM60 Advanced Quantitative Methods for Managers**
- **Module Code:** ERM60
- **ECTS Credit Points:** 20
- **Module Type:** Compulsory
- **Offered for the academic year:** First (1st)
- **Language:** English

**General Description**
The objective of this thematic unit is to provide the general framework of quantitative methods and their application in business applications. Furthermore, this sub module describes the analytic methods managers use in a wide variety of decision situations.

**Learning Outcomes**
The purpose of this thematic unit is to help students understand how a model is built up, how it is specified, how it is estimated and finally how it is tested using diagnostic tools, which test how well a specified model fits the data.

**Prerequisites:** There are no prerequisites for this module.

**ERM51 Risk Management and Risk Management Standards**
- **Module Code:** ERM51
- **ECTS Credit Points:** 20
- **Module Type:** Compulsory
- **Offered for the academic year:** First (1st)
- **Language:** English

**General Description**
This thematic unit presents important issues related to Risk Management Standards and Risk Management Information Systems and Technologies.

**Learning Outcomes**
On successful completion of this thematic unit, students will be able to understand the main issues concerning Risk Standards Evolution, Integrating risk management in organizational functions as well as Decision Support and Executive Information Systems.

**Prerequisites:** There are no prerequisites for this module.

**ERM61 Crisis Management and Business Continuity Planning**
- **Module Code:** ERM61
- **ECTS Credit Points:** 20
- **Module Type:** Compulsory
- **Offered for the academic year:** Second (2st)
Language: English

General Description
The objective of this thematic unit is to provide the general framework of Crisis Management and Business Continuity Planning

Learning Outcomes
On successful completion of this thematic unit, students will be able to understand the main issues concerning Organizational Analysis, Crisis Protocols and Procedures, Continuity Planning and Preparedness Training

Prerequisites: There are no prerequisites for this module.

Sports Studies: Sociology, History, Anthropology

Type of Postgraduate Programme
Master of Science, M.Sc.

ECTS of M.Sc.
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.Sc. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

Duration of Study
The minimum time required for the completion of the M.Sc. is two (2) years.

Language of the M.Sc.
The official language of the M.Sc. is Greek. This means that the language in which all materials content and written assignments is Greek.

Classification according to ISCED-2011 of Unesco:
Based on the level of Education: 7

Classification according to ISCED-2013 of Unesco:
Based on the field of Education: 0388 - Inter-disciplinary programmes and qualifications involving social sciences, journalism and information:
  - 0314 Sociology and cultural studies
  - 0312 Political sciences and civics
  - 0222 History and archaeology
  - 0114 Teacher training with subject specialisation

Course Structure:
1st Semester: 30 ECTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK50</td>
<td>Social and Cultural History of Sports</td>
<td>10 ECTS</td>
</tr>
<tr>
<td>ASK51</td>
<td>Sociology and Anthropology of Sports: theory and method</td>
<td>10 ECTS</td>
</tr>
<tr>
<td>ASK52</td>
<td>History of Physical Education</td>
<td>10 ECTS</td>
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</table>
**2nd Semester: 30 ECTS**
- ASK53 Social and Political Functions of Physical Education (C, 10 ECTS)
- ASK54 Sport Fans and their Worlds I: the social organization and development of sport fan communities (C, 10 ECTS)
- ASK55 “Delinquency” and “Violence” in Sports (C, 10 ECTS)

**3rd Semester: 30 ECTS**
- ASK60 Sport Fans and their Worlds II: fan identities and culture (C, 10 ECTS)
- ASK61 Social Control in Sports (C, 10 ECTS)
- ASK62 Sociology and Anthropology of the Body and Gender (C, 10 ECTS)

**4th Semester: 30 ECTS**
- ASKDE Master Dissertation (C, 30 ECTS)

**Note:**
C¹: Compulsory

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**Contemporary Journalism Studies**

**Type of Postgraduate Programme**
Master of Arts, M.A.

**ECTS of M.A.**
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.A. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

**Duration of Study**
The minimum time required for the completion of the M.A. is two (2) years.

**Language of the M.A.**
The official language of the M.A. is Greek. This means that the language in which all materials content and written assignments is Greek.

**Classification according to ISCED-2011 of Unesco:**
Based on the level of Education: 7

**Classification according to ISCED-2013 of Unesco:**
Based on the field of Education: 0321-Journalism and reporting
**Course Structure:**

**1st Semester: 30 ECTS**
- SDS50 Journalism and Communication in the Contemporary World (C¹, 15 ECTS)
- SDS51 Principles and Techniques of Contemporary Journalism (C, 15 ECTS)

**2nd Semester: 30 ECTS**
- SDS52 Journalism Ethics and Codes of Conduct (C, 15 ECTS)
- SDS53 Web Journalism (C, 15 ECTS)

**3rd Semester: 30 ECTS**
- SDS60 Contemporary Journalism Specializations I (C, 15 ECTS)
- SDS61 Contemporary Journalism Specializations II (C, 15 ECTS)

**4th Semester: 30 ECTS**
- SDS62 Dissertation (C, 30 ECTS)

**Note:**
- C¹: Compulsory

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**Social and Solidarity Economy**

**Type of Postgraduate Programme**
Master of Science, M.Sc.

**ECTS of M.Sc.**
The total sum of ECTS (European Credit Transfer and Accumulation System) required for the completion of this M.Sc. is 120 ECTS. Students can select to study Modules whose ECTS adds up to no more than 30 ECTS per semester.

**Duration of Study**
The minimum time required for the completion of the M.Sc. is two (2) years.

**Language of the M.Sc.**
The official language of the M.Sc. is Greek. This means that the language in which all materials content and written assignments is Greek.

**Classification according to ISCED-2011 of Unesco:**
Based on the level of Education: 7

**Classification according to ISCED-2013 of Unesco:**
Based on the field of Education: 0318 – Inter-disciplinary programmes and qualifications involving Economics, Political Sciences and Civics, Psychology, Sociology and Cultural Studies.

**Course Structure:**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester:</strong></td>
<td>30 ECTS</td>
<td>KAO50 Concepts and theories of Social and Solidarity Economy (C¹, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO51 Organisational forms and types of Social and Solidarity Economy (C, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO52 Commons: an alternative paradigm (C, 10 ECTS)</td>
</tr>
<tr>
<td><strong>2nd Semester:</strong></td>
<td>30 ECTS</td>
<td>KAO60 Territorial development, social innovation and Social and Solidarity Economy (C, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO61 Public policies and legal framework about Social and Solidarity Economy (C, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO62 Social Movements, State and Social and Solidarity Economy (C, 10 ECTS)</td>
</tr>
<tr>
<td><strong>3rd Semester:</strong></td>
<td>30 ECTS</td>
<td>KAO70 Business Planning of Social and Solidarity Economy (C, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO71 Governance models for Social Solidarity Economy Initiatives (C, 10 ECTS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KAO72 Financial Management and Financing of Social and Solidarity Economy enterprises (C, 10 ECTS)</td>
</tr>
<tr>
<td><strong>4th Semester:</strong></td>
<td>30 ECTS</td>
<td>KAO7DE Dissertation (C, 30 ECTS)</td>
</tr>
</tbody>
</table>

*Note:* C¹: Compulsory

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Studied in Natural Sciences

Description

The course aims to provide students with an introduction to all fields of Natural Science, including Physics, Chemistry and Biology, understanding of Science principles, notions and theories, and to develop problem solving abilities.

Learning Outcomes

On successful completion, the students will be able to:

- Understand and describe the necessity and concepts of basic scientific directions within the framework of a consolidated scientific world perception
- Describe the basic principles, concepts, scientific theories and laws of Physics, Chemistry and Biology, as well as their evolution, till today.
- Understand basic mathematical concepts and use the theorems of analysis and algebra of calculus and vector calculus in order to solve problems in physical sciences and/or describe physical and biological phenomena by employing mathematical terms and equations
- Apply analytical and approximation techniques and methods for solving problems modelled through differential equations that describe physical phenomena and/or biological and chemical processes.
- Apply the fundamental laws of physics to solve problems in the fields of Mechanics, Electromagnetism, Wave propagation, Thermodynamics, Quantum Mechanics and Atomic Physics.
- Apply the laws of chemistry and successfully deal with general problems in Chemistry disciplines such Physical Chemistry, Inorganic and Organic Chemistry.
- Deeply understand the biological mechanisms regulating cellular function, processes and concepts of metabolism and general physiology of living organisms. They also will be able to describe heredity principles and interpretation of the complex biological relationship between genotype and phenotype, which have influenced the evolution on earth through the process of natural selection.
- Deepen the knowledge of laboratory methods and techniques that are employed for the collection, analysis and process of biological, chemical and physical data, and develop the relevant skills.

Requirements
Applicants to the Studies in Natural Sciences course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio), or an equivalent Greek or Foreign High School Certificate.

**Minimum study duration**
4 academic years

**Classification according to ISCED-2011 of Unesco**
Coding of educational attainment: 6  
Based on the field of Education: 44 Physical Sciences

**Classification according to ISCED-2013 of Unesco**
Based on the field of Education: 0538 Physical Sciences

**ECTS credit points**
240

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.  
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.  
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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**Course Structure**

**1st Year**
- FYE10 Mathematics I (C, 20 ECTS)
- FYE12 General and Inorganic Chemistry (C, 20 ECTS)
- FYE14 Introduction to Natural Sciences (C, 20 ECTS)

**2nd Year**
- FYE20 Mathematics II (C, 20 ECTS)
- FYE22 Physical Chemistry (C, 14 ECTS)
- FYE24 Physics I: classical mechanics, electromagnetics, thermodynamics (C, 14 ECTS)
- Physics Laboratory Course I (C, 6 ECTS)
- Chemistry Laboratory Course I (C, 6 ECTS)
3rd Year
FYE30 Organic Chemistry (C, 16 ECTS)
FYE31 Cell structure and function (C, 16 ECTS)
FYE34 Physics II: vibrations and waves, relativity, modern physics (C, 16 ECTS)
Chemistry Laboratory Course II (C, 6 ECTS)
Biology Laboratory Course I (C, 6 ECTS)

4th Year
FYE40 Quantum Physics (C, 14 ECTS)
FYE43 Genetics (C, 14 ECTS)
Physics Laboratory Course II (C, 6 ECTS)
Biology Laboratory Course II (C, 6 ECTS)

Choose one (1) module:
FYE41 Evolution of Ideas in Natural Sciences (E², 20 ECTS)
FYE42 Planet Earth (E, 20 ECTS)
PLI10 Introduction to Computer Science (E, 20 ECTS)
PLI11 Principles of Software Technology (E, 20 ECTS)
PLI23 Telematics, Internets and Society (E, 20 ECTS)
PLI35 Computer Systems Security (E, 20 ECTS)
PLI37 Informatics and Education (E, 20 ECTS)
PLI44 Signals and Image Processing EKP63 Science Education (E, 20 ECTS)
EKP63 Science Education (E, 20 ECTS)

Notes:
¹C = Compulsory
²E = Elective

The degree is awarded on completion of 12 course modules and laboratory courses.

Course Modules

FYE10 Mathematics I
Module code: FYE10
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: On successful completion of the Module FYE10 Mathematics I the students will have the opportunity to develop the following skills:
- apply the converge criteria for real number sequences and series
- apply the basic theorems (Darboux, Existence of Minimum & Maximum Value, Mean Value, Rolle) to the solution of various problems, such as the description of the behaviour of real valued functions of a single real variable, approximation of roots of equations, optimization, etc
- use polynomial approximations (Taylor & Maclauren Series) for algebraic and transcendental functions, determine approximation errors and intervals of validity
- use integration techniques for the determination of antiderivatives, the evaluation of areas of plane regions, areas and volumes of solids of revolution, etc
- determine the Fourier Series expansion of periodic functions
- apply the basic theorems (Continuity, Differentiability, Mean Value, Existence of Local Minima & Maxima, Implicit and Inverse Function) to the solution of various problems, such as the description of the behaviour of real multivalued real functions, optimization, Taylor Series approximation, etc
- use Vector Algebra techniques to the solution of geometrical problems
- apply vector functions techniques to the description curves and surfaces, in three dimensions
- use Vector Calculus techniques and the Theorems of Green, Gauss, Stokes and Helmholtz for the description of Vector Fields

**General outcomes:**
On successful completion of the module MSM60 the student will be able to
- to organize and use the knowledge acquired for solving a specific problem
- to be able to understand and present up to date scientific briefs in related areas of Mathematics

**Subjects covered:**
- Calculus of one variable
- Calculus of many variables
- Introductory Mathematics

**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**FYE12 General and Inorganic Chemistry**

**Module code:** FYE12
**ECTS Credit Points:** 20
**Module Type:** Compulsory
**Year:** 1st
**Language:** Greek

**Learning Outcomes:** After successful completing the module «General and Inorganic Chemistry» (FYE 12), students will be expected to be able to:
- Describe the properties of electrons, protons, and neutrons (the atomic structure)
- Describe isotopes and their composition
- Calculate atomic weights from isotopic abundance and isotopic masses
- Name and write formulas for common binary and ternary inorganic compounds
- Use chemical formulas to solve various kinds of chemical problems
- Relate names to formulas and charges of simple ion
- Combine simple ions to write formulas and names of some ionic compounds
- Recognize and use formula weights and mole relationships
- Interconvert masses, moles, and formulas
- Determine percent compositions in compounds
- Determine formulas from composition
- Write balanced chemical equations to describe chemical reactions
- Interpret balanced chemical equations to calculate the moles or masses of reactants and products involved in each of the reactions
- Determine the percent yield of a reaction
- Calculate concentrations of solutions when they are diluted
- Carry out calculations related to the use of solutions in chemical reactions
- Describe the wave properties of light and how wavelength, frequency, and speed are related
- Use the particle description of light, and explain how it is related to the wave description
- Relate atomic emission and absorption spectra to important advances in atomic theory
- Describe the main features of the quantum mechanical picture of the atom
- Describe the four quantum numbers, and give possible combinations of their values for specific atomic orbitals
- Describe the shapes of orbitals and recall the usual order of their relative energies
- Write the electron configurations of atoms
- Relate the electron configuration of an atom to its position in the periodic table
- Describe the periodic table and some of the relationships that it summarizes
- Discuss chemical periodicity of the following physical properties: Atomic radii, ionization energy, Electron affinity, Ionic radii, Electronegativity
- Write Lewis dot representations of atoms
- Predict whether bonding between specified elements will be primarily ionic, covalent, or polar covalent
- Compare and contrast characteristics of ionic and covalent compounds
- Describe how the elements bond by electron transfer (ionic bonding)
- Describe energy relationships in ionic compounds
- Predict the formulas of ionic compounds
- Describe how elements bond by sharing electrons (covalent bonding)
- Write Lewis dot and dash formulas for molecules and polyatomic ions
- Recognize exceptions to the octet rule
- Write formal charges for atoms in covalent structures
- Describe resonance, and know when to write resonance structures and how to do so
- Describe the basic ideas of the valence shell electron pair repulsion (VSEPR) theory
- Use the VSEPR theory to predict the molecular geometry of polyatomic molecules and ions
- Describe the relationships between molecular shapes and molecular polarities
- Predict whether a molecule is polar or nonpolar
- Describe the basic ideas of the valence bond (VB) theory
- Analyze the hybrid orbitals used in bonding in polyatomic molecules and ions
- Use hybrid orbitals to describe the bonding in double and triple bonds
- Describe the basic concepts of molecular orbital theory
- Draw a molecular orbital diagram of a diatomic molecule from the relating atomic orbitals
- Distinguish among bonding, antibonding, and nonbonding orbitals
- Find the bond order in diatomic molecules and ions
- Relate bond order to bond stability
- Use the MO concept of delocalization for molecules in which valence bond theory would postulate resonance
- Recognize and describe nonelectrolytes, strong electrolytes, and weak electrolytes
- Describe the Arrhenius theory of acids and bases
- Describe the Bronsted-Lowry theory of acids and base
- List properties of aqueous solutions of acids and bases
- Arrange binary acids in order of increasing strength
- Arrange ternary acids in order of increasing strength
- Describe the Lewis theory of acids and bases
- Complete and balance equations for acid base reaction
- Define acidic and basic oxides and salts
- Explain amphoterism
- Balance oxidation-reduction equations
- Explain the common ion effect and give illustrations of its operation- Recognize buffer solutions and describe their chemistry
- Describe how to prepare a buffer solution of a specified pH- Explain what acid-base indicators are and how they function
- Describe what species are present at various stages of titration curves for (a) strong acids and strong bases, (b) weak acids and strong bases, and (c) polyprotic acids and strong bases- Carry out calculations based on titration curves for (a) strong acids and strong bases and (b) polyprotic acids and strong bases- Write solubility product constant expressions
- Use Ksps in chemical calculations
- Recognize some common, slightly soluble compounds
- Describe fractional precipitation and how it can be used to separate ions
- Describe the occurrence and use of the main-group elements - Describe compounds of the main-group elements, their reactions, properties, and uses
- Describe major sources of metals
- Describe some pretreatment techniques for ores
- Describe some reduction processes that produce free metals
- Describe some techniques for refining (purifying) metals
- Identify the d-transition metals and describe some of their important properties
  Describe typical oxidation states of the transition metals
- Describe the specific metallurgies of three metals: titanium, iron, and copper
- Recognize coordination compounds
- Use the terminology that describes coordination compounds
- Apply the rules for naming coordination compounds
- Recognize common structures of coordination compounds
- Describe various kinds of structural (constitutional) isomerism and distinguish among structural isomers
- Recognize stereoisomers
- Describe the valence bond theory and the crystal field theory of bonding in coordination compounds
- Explain the origin of color in complex species
- Use the spectrochemical series to explain colors of a series of complexes
- Give some examples of applications of complexes in our daily life

Subjects covered:
- Atomic structure - The periodic system - Properties of the atoms
- Chemistry of Coordination and Organometallic Compounds
- Current Trends and Applications in Inorganic Chemistry

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

FYE14 Introduction to Natural Sciences
Module code: FYE14
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: By the end of this course, students will be able to:

- Describe using the kinematical equations the motion of a body in 1,2 and 3 dimensions, the Newton’s laws and the laws for rotation, as well as the conservation laws of momentum, angular momentum and mechanical energy. To explain the pseudo forces in non-inertial frames of reference, and to perceive the concept of conservative forces and potential energy. To examine the motion in the gravitational field, the static equilibrium of a body, the two-body collision, the kinematics of variable-mass systems, the precession and the general motion of a rigid body. To solve complex problems using the free body diagram, to analyze the body’s motion in independent coordinates, to combine the Newton laws to describe the general motion of a rigid body.

- Describe the simple harmonic motion, the general solution and the physical meaning of the parameters and constants of this solution, the functional form of the position, velocity and acceleration as well as the kinetic and potential energy of a simple harmonic oscillator system. To examine the harmonic motion of the simple, physical and torsional pendulum as well as of the double pendulum, to describe the oscillation motion with dumping and the forced oscillations with dumping.

- Describe the quantities of pressure and density of a fluid, the variation of pressure in a static fluid, the Pascal’s and Archimedes’ principles, the effects of surface tension of a fluid, to apply the continuity equation and the Bernoulli equation.

- Determine the electric potential and the electric field from a static charge distribution, to formulate the Gauss’s law, the Ohm’s law, the Kirchhoff rules, the Ampere’s law, the Biot-Savart law, the Faraday law and the Lenz rule. To explain the motion of charges in electric and magnetic fields and the sources of the magnetic field. To solve circuit
problems with resistors and capacitors, to explain the functionality of: the capacitor, the solenoid, the transformer and the electric generator, and to describe the main devices that are used in electrical measurements. To infer the completeness of Maxwell’s equations for electromagnetism problems solving.

**Subjects covered:**
- Introduction to mathematics
- Introductory physics

**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**FYE20 Mathematics II**

**Module code:** FYE20  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek

**Learning Outcomes:** After completing this module, students will be expected to be able to:
- Understand the basic theory of Linear Algebra and Ordinary Differential Equations.
- Combine basic mathematical notions with those of Linear Algebra and Differential Equations.
- Solve problems of Linear Algebra using Matrices, Determinants, Linear Systems, Linear Transformations and Eigenvalues-Eigenvectors.
- Solve Ordinary Differential Equations of first and higher order, as well as Linear Systems of Ordinary Differential Equations.
- Apply Linear Algebra and Ordinary Differential Equations to describe and model the behavior of some physical systems or phenomena in mathematical terms.

**Subjects covered:**
- Linear algebra
- Differential equations I

**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**FYE22 Physical Chemistry**

**Module code:** FYE22  
**ECTS Credit Points:** 14  
**Module Type:** Compulsory  
**Year:** 2nd
Language: Greek

Learning Outcomes: After successful completing the module «Physical Chemistry» (FYE 22), students will be expected to be able to:

- describe the definitions and fundamental concepts and develop the three basic laws of thermodynamics
- define the basic thermodynamic functions, the concept of chemical potential and the perfect (ideal) gas
- derive the equation of state of the perfect gases
- describe the ideal mixture of gases
- describe the deviation of the behavior of gases from the ideal behavior and give examples of equation of the state for real gases
- define the reaction stoichiometry and describe the meaning of the progress of a reaction
- write and understand the general chemical reaction equilibrium condition
- define the chemical equilibrium constant, the standard Gibbs free energy of reaction and the standard thermodynamic formation functions
- describe the temperature dependence of the chemical equilibrium constant and the effect of the pressure and temperature conditions to the yield of a chemical reaction
- formulate the phases equilibrium condition through the chemical potentials and to describe qualitatively the dependence of the chemical potential of the three phases of a substance on the temperature and pressure
- derive and write the Clausius–Clapeyron equation
- draw the boundary lines between the three phases in the diagram (p, T) and describe the equilibrium between two or three phases
- define the ideal solution based on the chemical potential
- write the Raoult and Henry laws
- describe the possible configurations of a system of molecules
- define the partition function and the canonical partition function
- calculate the statistical weight of a possible configuration of a system of molecules, the canonical partition function and the thermal de Broglie wavelength
- calculate the thermodynamic functions of a system from the canonical partition function
- mention and calculate the four contributions to the partition function of a substance due to the four different modes of its molecules motion
- describe the kinetic model of gases and calculate, on the basis of this model, thermodynamic and transport properties of a perfect gas
- describe the main characteristics and quantities of electromagnetic radiation
- describe the basic principles of rotational or microwave spectroscopy, infrared or vibration of diatomic molecules, spectroscopy and Raman spectroscopy
- interpret infrared spectra of polyatomic molecules
- describe the basic principles of electronic absorption spectroscopy and interpret the corresponding UV-Vis spectra
- describe the magnetic properties of nuclei of atoms that make up molecules and the basic principles and concepts of nuclear magnetic resonance spectroscopy (NMR)
- describe the modern technique for taking NMR spectra of high resolution and interpret the two-dimensional NMR spectra
- interpret the electronic paramagnetic resonance (EPR) spectra of atoms or molecules, which carry an unpaired electron
- define basic concepts of chemical kinetics, such as the chemical reaction rate, the kinetic equation and the order of reaction
- apply the following methods for determining the kinetic equation of a reaction: the differential method, the method of initial rates, the isolation technique, the integral method and the half-life method
- write and apply the Arrhenius equation
- describe the search path of the mechanism of a chemical reaction
- describe the basic mechanisms of reversible reactions, consecutive reactions, parallel reactions and of chain reactions, as well as the main kinetic study methods of them
- describe the two main theories of chemical reactions: the collision theory and the transition state theory
- explain the following terms: electrochemical cell, electrode, electrolyte, anode, cathode, half-cell, half-reaction, electrolysis
- describe the function of an electrochemical cell and write the overall reaction taking place at this
- mention the various types of ionic conductors (electrolytes)
- describe how they ions behave in the presence of other ions due to their interaction
- explain the way of the ions movement within the ionic conductors
- describe the structure of the electrode-electrolyte interface
- explain the way of the representation of electrochemical cells and the sign of the electromotive force
- provide for the spontaneous direction of a redox system from measurements of electrode potentials
- describe the electrochemical equilibrium for an interface and an electrochemical reaction
- explain the dependence of the equilibrium potential on the activities of the electroactive species
- write and apply the Nernst equation
- explain the relationship between the rate of an electrochemical reaction and the potential difference in the electrical interface

Subjects covered:
- Chemical thermodynamics
- Chemical kinetics
- Electrochemistry
- Statistical thermodynamics
- Spectroscopy

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or
repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**FYE24 Physics I: classical mechanics, electromagnetics, thermodynamics**

**Module code:** FYE24  
**ECTS Credit Points:** 14  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek

**Module general description:** The module FYE 24 includes three courses: Classical Mechanics, Thermodynamics, and Electromagnetism. Knowledge of derivative and integral calculus is required for all three courses. Knowledge of ordinary differential equations or concurrent registration in FYE 20 is desirable. Especially for Electromagnetism, the knowledge and use of vectors is required. Knowledge of line and surface integrals is desirable.

**Learning Outcomes:** With the successful completion of the module the students:
- Will know the beauty of Classical Mechanics, namely that all its results can be derived from Newton's laws.
- Will be in a position to study one-dimensional and three-dimensional motions of point masses either through the solution of the differential equation of motion or with the use of the energy method, when it is appropriate.
- Will be in a position to study the rotation of solid bodies around a fixed axis.
- Will be in a position to write the equations of motion of point masses in coupled harmonic oscillators independent of their number or their configuration.
- Will know the fundamental concepts of Thermodynamics (such as heat, work, internal energy, entropy) and will be able to use the laws of Thermodynamics to solve simple problems.
- Will know the four laws of Electromagnetism.
- Will be able to compute the electric field that is produced by a distribution of stationary electric charges and the magnetic field that is produced by a constant electric current.
- Will be able to compute the electric field produced by a variable magnetic flux.

**Subjects covered:**
- Classical mechanics
- Thermodynamics
- Electromagnetism

**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**Physics Laboratory Course I**

**ECTS Credit Points:** 6  
**Module Type:** Compulsory
Year: 2nd
Language: Greek
Subjects covered:
- Classical Physics
- Modern Physics

Chemistry Laboratory Course I
ECTS Credit Points: 6
Module Type: Compulsory
Year: 2nd
Language: Greek
Subjects covered:
- General and Inorganic Chemistry
- Analytical Chemistry
- Physical Chemistry
- Organic Chemistry

FYE30 Organic Chemistry
Module code: FYE30
ECTS Credit Points: 16
Module Type: Compulsory
Year: 3rd
Language: Greek
Learning Outcomes: Upon completion of the course the student will be able to
- Recognize the structures of molecules and the basic reactions of organic chemistry.
- Knowledge of main spectroscopic techniques. - Understand the basic principles and rules of stereochemistry.
- Distinguish the major classes of organic compounds & biomolecules, understand their properties and mechanisms of basic reactions.
- Apply and combine the main spectroscopic techniques for the structure elucidation of simple molecules.
- Analyze retro-synthetically the structures of simple organic molecules.
- Suggest reaction sequences for the synthesis of simple organic molecules, designing the most efficient sequence of chemical reactions.

Subjects covered:
- Homologous series
- Stereochemistry and organic reactions mechanisms
- Spectroscopy of organic compounds
- Bio-Molecules

Teaching Method: Distance education with six Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
**FYE31 Cell structure and function**

**Module code:** FYE31  
**ECTS Credit Points:** 16  
**Module Type:** Compulsory  
**Year:** 3rd  
**Language:** Greek

**Module general description:** The material presented and analyzed in this course is based partly on knowledge acquired in General and Inorganic Chemistry (FYE12) and Physical Chemistry (FYE22) and is supplemented by knowledge obtained during the third year in Organic Chemistry (FYE30). FYE31 pertains to three fundamental areas of Biology (Cell Biology, Biochemistry and Molecular Biology). Merging these three independent disciplines in the course “Structure and Function of the Cell” (FYE31) is based on the complementarity and partial overlap between them. The thorough approach applied during the lecture series facilitates comprehension of the terms demonstrated in these closely related fields and highlights their interdependence.  
*The main topics presented are the following:*

**Cell biology**
- A) Organization of prokaryotic and eukaryotic organisms  
- B) Membranes and transport of substances  
- C) Cell signaling and interactions  
- D) Subcellular organelles: structure and functions  
- E) Nucleus and chromosomes  
- F) Cell movement  
- G) Cell Proliferation and Reproduction

**Biochemistry**
- A) Structure and function of proteins and macromolecules  
- B) Catabolism (glycolysis, citric acid cycle, oxidative phosphorylation, beta-oxidation, urea cycle)  
- C) Anabolism (gluconeogenesis, synthesis of fatty acids and amino acids)  
- D) Biosynthesis of nucleic acids and proteins  
- E) Regulation of metabolism

**Molecular Biology**
- A) Structure of nucleic acids  
- B) Replication, transcription, translation  
- C) Regulation of the genetic information expression  
- D) Mutations, Viruses  
- E) Recombinant DNA technology

**Learning outcomes:** Upon completion of this course the student should be able to:

- Classify the macromolecular complexes present in cells and link them to their functions  
- Describe the structure of prokaryotic and eukaryotic cells  
- Analyze the composition and functions of biological membranes  
- Match the cell functions to the subcellular compartment where they take place  
- Develop the mechanisms of cell communication and signaling  
- Comprehend the levels of organization of protein molecules in cells  
- Link the structure of proteins to their function
- Describe the major biochemical pathways of catabolism and associate them to mechanisms of energy production in cells
- Describe the main metabolic pathways of anabolism used by the cell for the synthesis of its "constituents"
- Explain the flow of genetic information in cells and describe the mechanisms throughout which it is achieved
- Describe the primary ways that the cell uses in order to regulate the expression of its genes
- Comprehend the ways in which mutations occur and their repercussions for the organism
- Use the theoretical knowledge in order to predict and understand genetic engineering and its applications

Subjects covered:
- Cell biology
- Biochemistry
- Molecular biology

Teaching Method: Distance education with six Contact Sessions held at weekends during the academic year.
Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

FYE34 Physics II: vibrations and waves, relativity, modern physics
Module code: FYE34
ECTS Credit Points: 16
Module Type: Compulsory
Year: 3rd
Language: Greek
Description: This module provides basic knowledge on (a) coupled oscillations and waves (b) Special Relativity and the principles of General Relativity (c) the principles of Quantum Mechanics and Nuclear Physics, and their application in the interpretation of natural phenomena.
Learning Outcomes: The module aims to introduce in (a) Vibrations and Waves (b) Theory of Relativity and (c) Modern Physics. On successful completion of this module the student should be able to:
- Demonstrate understanding of coupled oscillations, utilize the mathematical formalism to compute frequencies and relative amplitudes of normal modes of mechanical systems in related problems.
- Demonstrate understanding of the basic principles and phenomena related to mechanical and electromagnetic waves as interference, diffraction and geometric optics, and solve related problems.
- Demonstrate understanding of the principles of the Special Theory of Relativity, its consequences such as time dilation, length contraction and Doppler shift, and state the
Lorentz transformation and the relativistic definitions of quantities such as momentum and energy, and apply them in solving related problems. Outline the principles of general relativity.

- Demonstrate understanding of the experimental results which led to the introduction of quantum mechanics and the basic concepts and principles of quantum formalism such as the wave function and its probability density interpretation, the Schrödinger equation, uncertainty principle, particle-wave duality. Identify and understand the solutions of the Schrödinger equation for both one-dimensional potentials as the infinite well, the step function, the harmonic oscillator, or the three-dimensional Coulomb potential and their consequences such as the quantization of energy and angular momentum, the tunneling and demonstrate ability to interpret relevant phenomena, and solve related simple problems.

- Describe the statistical laws that govern the behavior of the different particle species (fermions, bosons) and utilize them in interpreting relevant phenomena, and solve related simple problems.

- Describe the predictions of quantum theory for atoms, molecules and solids, as the periodic table of elements, the emission and absorption spectra and the band theory and the quantum mechanical applications such as the laser and the transistor.

- Demonstrate understanding the basic concepts and applications of nuclear physics as the nucleus model, α, β and γ decays, radioactivity, radiocarbon dating, nuclear reactions, nuclear fission, fusion and identify the fundamental interactions of nature and elementary particles as fundamental blocks of matter.

**Subjects covered:**
- Relativity
- Vibrations & Waves
- Modern Physics

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**Chemistry Laboratory Course II**

**ECTS Credit Points:** 6

**Module Type:** Compulsory

**Year:** 3rd

**Language:** Greek

**Subjects covered:**
- General and Inorganic Chemistry
- Analytical Chemistry
- Physical Chemistry
- Organic Chemistry

**Biology Laboratory Course I**

**ECTS Credit Points:** 6

**Module Type:** Compulsory
Year: 3rd  
Language: Greek  
Subjects covered:  
- Cell Biology  
- Molecular Biology  
- Genetics  
- Biochemistry  
- Bioinformatics  
- Physiology

**FYE40 Quantum Physics**  
**Module code:** FYE40  
**ECTS Credit Points:** 14  
**Module Type:** Compulsory  
**Year:** 4th  
**Language:** Greek  
**Learning Outcomes:** Upon completion of the course the student is able to:  
- Understand the fundamental principles of quantum physics.  
- Apply the general theory to a variety of problems involving bound states and simple scattering processes.  
- Characterize and analyze the behavior of nuclei.  
- Compare the theoretical results to the experimental data.  
- Comprehend the basic principles of elementary particles (physical properties, classification and interactions).  
- Understand and evaluate modern results published in some scientific journals.  
**Subjects covered:**  
- Quantum mechanics  
- Introduction to nuclear physics  
- Introduction to elementary particle physics  
**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**FYE43 Genetics**  
**Module code:** FYE43  
**ECTS Credit Points:** 14  
**Module Type:** Compulsory  
**Year:** 4th  
**Language:** Greek  
**Learning Outcomes:** On successful completion of this course, the students will be able to:  
- Describe the fundamental principles of genetics in prokaryotes and eukaryotes  
- Understand the relationship between phenotype and genotype  
- Describe the basics of genetic mapping  
- Understand how gene expression is regulated
- Understand the basics of mutagenesis
- Understand the basics of developmental genetics
- Understand the basics of genetic engineering
- Explain introductory concepts of human physiology
- Describe the cellular and tissue organisation of the body by referring to the functions and interactions of the different cell and tissue components.
- Describe the fundamental principles and theories of evolution
- Explain the processes and mechanisms of evolution

Subjects covered:
- Genetics
- Physiology
- Evolution

Teaching Method: Distance education with six Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Physics Laboratory Course II
ECTS Credit Points: 6
Module Type: Compulsory
Year: 4th
Language: Greek
Subjects covered:
- Classical Physics
- Modern Physics

Biology Laboratory Course II
ECTS Credit Points: 6
Module Type: Compulsory
Year: 4th
Language: Greek
Subjects covered:
- Cell Biology
- Molecular Biology
- Genetics
- Biochemistry
- Bioinformatics
- Physiology

FYE41 Evolution of Ideas in Natural Sciences
Module code: FYE41
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes
After successful completion of this thematic module, the student will be aware of the general evolution of ideas in science. He should have realized that, while physical phenomena remain the same, the human approach and interpretation of them vary through the centuries! In particular, the student will approach the history of physics, chemistry, biology, characteristic "adventures" and the degree of acceptance of the proposed interpretations of natural phenomena, by the scientific community and structured society.

The students have to realize that the field of scientific research is open to further research which would lead to new concepts, models, theories, surprises!

Competences
Generic Competences:
- General knowledge of the field of natural sciences.
- Learning ability, creativity.
- Criticism and self-criticism capacity. Interdisciplinarity.
- Written and oral communication. Ethics in science. Use of second language.

Subject specific competences:
- Knowledge and understanding of theories for interpreting natural phenomena. Science culture acquisition (Physics culture)
- Acquiring skills useful for the teaching of physics.
- Appreciation of the temporal evolution of theories, models, standards.
- Familiarity with searching and evaluating information.
- Comprehensive knowledge of science - conceptual approach.

Course contents
- History of Physics and Chemistry (with emphasis in ancient times, the Arabs (10th-12th century), the Scientific Revolution (16th & 17th century modern physics).
- History of Biology (perceptions of the phenomena of life in antiquity and the Middle Ages, Renaissance, modern times).
- Philosophy of Science (Philosophical currents historical dimension in philosophy of science, modern trends in philosophy of science, Conceptual approach.

Subjects covered:
- History of physics and chemistry
- History of biology
- Philosophy of science

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

FYE42 Planet Earth
Module code: FYE42
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning outcomes: Upon completion of the thematic unit, the student will have acquired the following knowledge:

- The basic elements of Earth’s crust, the types of rocks, their formation, the formation and classification of volcanoes. He will have learned the mechanisms of earthquakes and their characteristics and a simplified method for estimating their magnitude and their epicenter.

- The structure and compositions of the oceans and the sea bed, the interactions between oceans - atmosphere and land, the equations describing the ocean dynamics, the types of waves and the mechanisms of their formation and the tides.

- The general description of the biosphere, the characteristics of the ecosystems, the energy flow and material cycles in the ecosystems and the basic spatial and temporal characteristics of the biocenoses.

- The structure and chemical composition of Earth’s atmosphere, the greenhouse effect, the mechanisms of production and depletion of the stratospheric ozone, the atmosphere dynamics. Also the basic characteristics and the causes of atmospheric pollution and the simple gaussian dispersion model for estimating air pollution as a function of the weather conditions.

- The basic principles of magnetohydrodynamics and plasma physics, the characteristics of the Sun, the solar wind, the magnetosphere of the Earth and the basic celestial mechanics equations.

Subjects covered:
- Lithosphere
- Hydrosphere
- Biosphere
- Atmosphere
- Space physics

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

PLI10 Introduction to Informatics

Module code: PLI10
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes:

VOLUME 1: INTRODUCTION TO COMPUTER SCIENCE
Knowledge
On successful completion of the study of the first volume, students will know:
- the historic evolution of computers
- the main disciplines of Computer Science and its applications
- the structure of computer systems and the operations between their subsystems
- ways to store and represent data and information in a computer
- different number systems and its arithmetic operations
- basic logic gates and circuits
- the main ideas behind programming, algorithms, programming languages, system and application software, data bases, and computer networks

Understanding
On successful completion of the study of the first volume, students will understand:
- the ways to store, transmit, and process data
- the basic arithmetic operations in different number systems
- the process used to design digital circuits
- the notions of algorithms, system and application software, and data bases
- the ways used to interconnect computers

Application
On successful completion of the study of the first volume, students will be able to:
- perform number transformations and arithmetic operations in different number systems
- design logic circuits
- use flowcharts to design algorithms

Analysis
On successful completion of the study of the first volume, students will be able to:
- describe the different subsystems of a computer and their functionality
- categorize the main disciplines of Computer Science and its applications

Synthesis
On successful completion of the study of the first volume, students will be able to:
- design logic circuits from logic gates
- describe algorithms using flowcharts

Evaluation
On successful completion of the study of the first volume, students will be able to:
- discuss the overall influence of Computer Science on technology and society at present and in the future

VOLUME 2: PROGRAMMING TECHNIQUES

Knowledge
On successful completion of the study of the second volume, students will know:
- the notion of algorithms, the programming practices and concepts, criteria concerning the correctness of programs, principles and structures for procedural programming
- advanced procedural programming techniques such as recursion and backtracking
- special issues about programming (such as software debugging and documentation)
- basics of object-oriented programming and characteristics of the major programming languages

Understanding
On successful completion of the study of the second volume, students will understand:
- the steps to solve a problem, how to design programs, and the principles to develop programs
- the notion of variables, data types, data structures, parameters, operators and expressions
- communication between main program and sub-programs
- the operation of sorting and searching algorithms
- range of variable declaration

Application
On successful completion of the study of the second volume, students will be able to:
- indicate the attributes of an algorithm
- describe an algorithm with verbal (i.e. pseudo-code) and symbolic (i.e. flowchart) representation
- design algorithms using basic programming practices
- design algorithms using design methodologies
- apply defensive programming techniques
- execute sorting and searching algorithms

Analysis
On successful completion of the study of the second volume, students will be able to:
- categorize the main programming languages

Synthesis
On successful completion of the study of the second volume, students will be able to:
- design algorithms using arrays and linked lists

Evaluation
On successful completion of the study of the second volume, students will be able to:
- choose programmatic structures for implementing algorithms
- assess the appropriateness of program
- assess the efficiency of an algorithm

VOLUME 3: DATA STRUCTURES

Knowledge
On successful completion of the study of the third volume, students will know:
- the notion of a data structure (abstract data type) and its difference from an atomic data type
- the functionality of the data structures: array, list, stack, queue, binary search tree, heap tree

Understanding
On successful completion of the study of the third volume, students will understand:
- the different means to represent a data structure in the computer main memory
- the different algorithms for sorting elements, and the different means for searching elements (linear search, binary search) in an array

Application
On successful completion of the study of the third volume, students will be able to:
- compute the complexity functions of simple algorithms
- compute the order of a complexity function, from its analytic expression
- design variants or/and combinations of the various sorting and searching algorithms
compute the array mapping function, and the implementation method of an array, when they are given its representation, and conversely calculate the address of a random element of the array, from its mapping function
- design variants, extensions or combinations of the basic algorithms for operations on lists, stacks, queues, binary search trees and heap trees

Analysis
On successful completion of the study of the third volume, students will be able to:
- categorize the different kinds of data structures, and distinguish their different applications

Synthesis
On successful completion of the study of the third volume, students will be able to:
- design programs that use the basic data structures (array, list, stack, queue, trees)

Evaluation
On successful completion of the study of the third volume, students will be able to:
- evaluate the performance of a data structure, by using the notions of time and space complexity

VOLUME 4: PROGRAMMING LANGUAGES

Knowledge
On successful completion of the study of the fourth volume, students will know:
- the structure of a program in the C programming language as a set of functions
- the concepts of logical and syntax errors as well as the concept of debugging
- the operation of the decision constructs in the C programming language
- the logical operators and bit-wise logical operations of the C programming language
- how to use appropriate basic data types of the C programming language for storing their data
- the concept of the array and the way to define array variables
- the structured types (struct) to be used both as the type of a variable as well as the type of a component (node) of a linked list
- the concept of dynamic memory and how it is implemented in the C programming language using pointer variables
- the differences between variables passed by value and variables passed by reference as well as how the latter can be exploited by functions for returning values

Understanding
On successful completion of the study of the fourth volume, students will understand:
- the three ways of performing loops in the C programming language (for, while, do while) and in which cases each of them is more advantageous than the others
- how to declare and write functions in the C programming language and how the function returns a value in the environment or performs a task without returning a value (a void function)
- how to distinguish among cases where the use of dynamic memory outweighs the use of tables of specified size
- the concept of a recursive function and the advantages/disadvantages over using iteration
- the concept of modular programming and the role of the stepwise refinement technique in the design of their programs
Application
On successful completion of the study of the fourth volume, students will be able to:
- describe their solutions to computation problems using programs written in the C programming language
- describe the functionality and the results of a simple program in C
- use a simple IDE (Integrated Development Environment - PLI10 uses the Dev-C++ IDE)
- debug programs that have syntax or logical errors
- exploit the potential of dynamic memory in their programs dynamically changing data structures
- debug programs that make use of pointers and dynamic memory
- pass parameters to functions using pointer variables

Analysis
On successful completion of the study of the fourth volume, students will be able to:
- choose appropriate programming constructs and variables (static or dynamic memory) for the basic functions of their programs

Synthesis
On successfully completion of the study of the fourth volume, students will be able to:
- design a program in the C programming language to implement the solution they devise for a computational problem using structured programming techniques (modular programming) and the stepwise refinement methodology

Evaluation
On successful completion of the study of the fourth volume, students will be able to:
- provide an estimate of the memory requirements and execution time for the C functions that they implement (either recursive or iterative)
- optimize parts of their programs to increase their efficiency

Subjects covered:
- Introduction to computer science
- Programming techniques
- Data structures
- Programming languages

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI11 Principles of Software Technology
Module code: PLI11
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek
Learning Outcomes:
SOFTWARE ENGINEERING I
On successful completion of the module, students will be able to:

- Describe and explain the basic concepts of software engineering (software, tools, procedures, methodologies, life cycle etc.)
- Recognize the fundamental role of the basic principles of software engineering in the development of qualitative software and applications
- Describe the different phases in the development of a software application as well as the basic features of the most significant software life-cycle models. Identify the requirements of a software application and use the principles of structured analysis for their detailed specification.
- Use effectively the most known diagrammatic software representation models (data-flow diagrams, state transition diagrams etc.) for the requirements analysis of a software application.
- Design a software application following the principles of structured design (architectural design, interface design, detailed design of modules etc.).
- Explain and apply suitable fault avoidance techniques during the implementation of a software application in order to produce qualitative code without bugs.
- Describe the different stages and explain the different strategies followed during the testing process of a software module or system.

DATA BASES
On successful completion of the module, students will be able to:

- Describe the basic concepts and models of databases as well as the main differences between a database and a database management system.
- Recognize the fundamental need of using database technology in any application that demands efficient organization and management of large-scale data.
- Explain the different methods for data organization and data access (records, indexes, b-trees etc.) in modern database systems.
- Distinguish between the different levels of database analysis and design (conceptual, logical and physical level).
- Use effectively the entity-relationship model for the conceptual design of a database.
- Perform the design of a database in the logical level with use of the relational model.
- Use effectively a theoretical query language (i.e. relational algebra) for data retrieval out of a relational database.
- Implement a database over a modern relational database management system and practically use a standard query language (i.e. SQL) for efficient data organization, management and retrieval.

OPERATING SYSTEMS I
On successful completion of the module, students will be able to:

- Describe the basic functions of an operating system
- Recognize the fundamental role of operating systems in the efficiency of modern systems and applications due to their advanced multi-tasking and multi-user capabilities
- Describe the different methods used for process scheduling in modern operating systems and explain their differences, advantages and disadvantages
- Explain the mutual exclusion problem and use effectively the basic mechanisms offered by a multitasking operating system for process synchronization and communication (semaphores etc.).

- Describe the different main-memory organization methods followed in modern computer systems and identify their advantages and disadvantages.

- Generalize the use of basic memory organization methods (i.e. paging, segmentation) to more complex hybrid memory schemes, which are mainly used in modern computer systems.

- Explain the function of virtual memory organization and distinguish between the different page replacement algorithms used in modern operating systems.

- Solve practical problems and exercises with regard to the above concepts and mechanisms of a modern operating system (process management, CPU scheduling, process synchronization and communication, memory management, virtual memory organization).

Subjects covered:
- Software engineering I
- Operating systems I
- Databases

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI35 Computer Systems Security

Module code: PLI35
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes:

Computer Security
Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand operating system security issues
- Develop and manage access control methods
- Protect an information system from malware attacks
- Understand and utilize risk assessment methods
- Develop an information system Security Plan
- Understand the legal aspects of personal data protection

Network Security
Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand the OSI network security architecture
- Manage Internet security issues
- Develop security methods at the application level
- Manage selected application security systems
- Understand the legal aspects of protection of data communications

Cryptography
Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand the essential mathematical background
- To understand the pros and cons of modern cryptosystems
- Manage a cryptosystem
- Utilize digital signatures
- Understand the legal aspects of using cryptosystems

Subjects covered:
- Computer security
- Network security
- Cryptography

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI37 Informatics and Education

Module code: PLI37
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Subjects covered:
- Didactics of Informatics
- Informatics in education
- Design of educational software

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI44 Signals and Image Processing

Module code: PLI44
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes:
On successful completion of this module, students will be able to:
- Understand basic principles of signals and systems; of fundamental transforms (Fourier, Laplace and Z); of convolution, sampling, frequency response and of the basic principles of digital filters in one-dimensional signals and images.
- Interpret one- or multi-dimensional signals (speech, seismic, heart rate, etc), correctly implement the digitization of continuous-time signals, calculate the frequency content of signals and design basic filters for their processing.
- Apply simple digital image processing techniques, like image enhancement, image segmentation and image description
- Analyze and design continuous-time and discrete-time signal processing systems.

Subjects covered:
- Signals and systems
- Digital signal and image processing
- Image analysis and pattern recognition

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

EKP63 Science Education

Module code: EKP63
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Module general description:
Learning Outcomes: Upon completion of the thematic unit the student will be able to,
- acknowledge the main problems pupils face in understanding basic science concepts and phenomena
- understand and justify the necessity of teaching science
- explain how awareness of pupils’ ideas in science can support organization of science teaching
- concisely describe the general characteristics of pupils’ ideas in science
- cite the most important changes in the role of the science teacher according to the new model of science teaching
- recognize and use teaching tools such as cognitive conflict, analogical thinking and target obstacles
- recognize the basic characteristics and discrepancies between different epistemological positions concerning the nature of scientific knowledge
- describe and distinguish the different ideas used by pupils when understanding and explaining specific science concepts and phenomena
- recognize the role and character of non-formal and informal education in science
- identify the changes undergone in scientific knowledge when transformed into school science and compare the characteristics of the two types of knowledge
- analyze and describe the constitution and organization of school science in different types of educational material

**Subjects covered:**
- Significance of the systematic exploration of science teaching
- Conceptual framework of Science Education
- Contemporary methods of science teaching: general characteristics of science teaching, criteria for the selection of content, learning processes, pacing of teaching and assessment, design and development of teaching material

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Computer Science**

**Description**

This course aims at preparing students to become computing scientists. By choosing the necessary course modules, students may develop their knowledge and skills in specialised fields related to applied Computer Science.

**Learning Outcomes**

Upon successful completion of the program, students will be able to:
- Understand the needs of an enterprise infrastructure and services in ICT
- Understand the techniques and methods of organization and management of information systems
- Understand the fundamental concepts and techniques of software design and development
- Understand the information management technologies
- Evaluate the theoretical concepts and systems in ICT
- Evaluate the features and capabilities of information systems
- Design and implement software systems that meet specific design and performance requirements
- Apply their knowledge and skills to solve problems in ICT systems.
- Apply the compositional principles and analysis of computer systems
- Apply networking and communication technologies in information systems.
- Apply critical thinking in the field of knowledge management

**Requirements**
Applicants to the Computer Science course must possess a High School Certificate from a Greek Unified Upper Secondary School (Eniaio Lykeio), a b' level Technical Vocational Educational School (TEE) or an equivalent Greek or Foreign High School Certificate.

**Classification according to ISCED-2011 of Unesco**

Coding of educational attainment: 6  
Based on the field of Education: 48 Computing

**Classification according to ISCED-2013 of Unesco**

Based on the field of Education: 0610 Information Communication Technologies (ICTs)

**Minimum study duration**

4 academic years

**ECTS credit points**

240

**Learning Material**

Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.  
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.  
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

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**Course Structure**

**1st Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>PLI10</td>
<td>Introduction to Informatics</td>
<td>(C¹, 20 ECTS)</td>
</tr>
<tr>
<td>PLI11</td>
<td>Principles of Software Technology</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td>PLI12</td>
<td>Mathematics for Informatics I</td>
<td>(C, 20 ECTS)</td>
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</tbody>
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**2nd Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PLI20</td>
<td>Discrete Mathematics and Mathematical Logic</td>
<td>(C, 18 ECTS)</td>
</tr>
<tr>
<td>PLI21</td>
<td>Digital Systems</td>
<td>(C, 18 ECTS)</td>
</tr>
<tr>
<td>PLI22</td>
<td>Computer Network Fundamentals</td>
<td>(C, 18 ECTS)</td>
</tr>
<tr>
<td>PLI LAB I</td>
<td>Digital Systems Laboratory Course</td>
<td>(C, 6 ECTS)</td>
</tr>
</tbody>
</table>

**3rd Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLI24</td>
<td>Software Design</td>
<td>(C, 18 ECTS)</td>
</tr>
</tbody>
</table>
PLI30 Foundations of Computer Science (C, 18 ECTS)
PLI31 Artificial Intelligence - Applications (C, 18 ECTS)
PLI LAB II Digital Systems Laboratory Course (C, 6 ECTS)

4th Year
PLI23 Telematics, Internets and Society (O, 20 ECTS)
PLI32 Linear Programming and Modeling (O, 20 ECTS)
PLI35 Computer Systems Security (O, 20 ECTS)
PLI36 Advanced Networks and Services (O, 20 ECTS)
PLI37 Informatics and Education (O, 20 ECTS)
PLI40 Project in Software (O, 20 ECTS)
PLI42 Special Issues in Software Engineering (O, 20 ECTS)
PLI44 Signals and Image Processing (O, 20 ECTS)
PLI47 Distributed Systems (O, 20 ECTS)

Notes:
¹C: Compulsory
²O: Optional

The degree is awarded on completion of 12 course modules and laboratory courses.

Course Modules

**PLI10 Introduction to Informatics**

Module code: PLI10
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes:

**VOLUME 1: INTRODUCTION TO COMPUTER SCIENCE**

Knowledge
On successful completion of the study of the first volume, students will know:

- the historic evolution of computers
- the main disciplines of Computer Science and its applications- the structure of computer systems and the operations between their subsystems- ways to store and represent data and information in a computer
- different number systems and its arithmetic operations
- basic logic gates and circuits
- the main ideas behind programming, algorithms, programming languages, system and application software, data bases, and computer networks

Understanding
On successful completion of the study of the first volume, students will understand:

- the ways to store, transmit, and process data
- the basic arithmetic operations in different number systems
- the process used to design digital circuits- the notions of algorithms, system and application software, and data bases
- the ways used to interconnect computers

**Application**

On successful completion of the study of the first volume, students will be able to:
- perform number transformations and arithmetic operations in different number systems- design logic circuits
- use flowcharts to design algorithms

**Analysis**

On successful completion of the study of the first volume, students will be able to:
- describe the different subsystems of a computer and their functionality
- categorize the main disciplines of Computer Science and its applications

**Synthesis**

On successful completion of the study of the first volume, students will be able to:
- design logic circuits from logic gates
- describe algorithms using flowcharts

**Evaluation**

On successful completion of the study of the first volume, students will be able to:
- discuss the overall influence of Computer Science on technology and society at present and in the future

**VOLUME 2: PROGRAMMING TECHNIQUES**

**Knowledge**

On successful completion of the study of the second volume, students will know:
- the notion of algorithms, the programming practices and concepts, criteria concerning the correctness of programs, principles and structures for procedural programming
- advanced procedural programming techniques such as recursion and backtracking
- special issues about programming (such as software debugging and documentation)
- basics of object-oriented programming and characteristics of the major programming languages

**Understanding**

On successful completion of the study of the second volume, students will understand:
- the steps to solve a problem, how to design programs, and the principles to develop programs
- the notion of variables, data types, data structures, parameters, operators and expressions
- communication between main program and sub-programs
- the operation of sorting and searching algorithms
- range of variable declaration

**Application**

On successful completion of the study of the second volume, students will be able to:
- indicate the attributes of an algorithm
- describe an algorithm with verbal (i.e. pseudo-code) and symbolic (i.e. flowchart) representation
- design algorithms using basic programming practices
- design algorithms using design methodologies
- apply defensive programming techniques- execute sorting and searching algorithms

**Analysis**
On successful completion of the study of the second volume, students will be able to:
- categorize the main programming languages

**Synthesis**

On successful completion of the study of the second volume, students will be able to:
- design algorithms using arrays and linked lists

**Evaluation**

On successful completion of the study of the second volume, students will be able to:
- choose programmatic structures for implementing algorithms
- assess the appropriateness of program
- assess the efficiency of an algorithm

**VOLUME 3: DATA STRUCTURES**

**Knowledge**

On successful completion of the study of the third volume, students will know:
- the notion of a data structure (abstract data type) and its difference from an atomic data type
- the functionality of the data structures: array, list, stack, queue, binary search tree, heap tree

**Understanding**

On successful completion of the study of the third volume, students will understand:
- the different means to represent a data structure in the computer main memory
- the different algorithms for sorting elements, and the different means for searching elements (linear search, binary search) in an array

**Application**

On successful completion of the study of the third volume, students will be able to:
- compute the complexity functions of simple algorithms
- compute the order of a complexity function, from its analytic expression
- design variants or/and combinations of the various sorting and searching algorithms
- compute the array mapping function, and the implementation method of an array, when they are given its representation, and conversely calculate the address of a random element of the array, from its mapping function
- design variants, extensions or combinations of the basic algorithms for operations on lists, stacks, queues, binary search trees and heap trees

**Analysis**

On successful completion of the study of the third volume, students will be able to:
- categorize the different kinds of data structures, and distinguish their different applications

**Synthesis**

On successful completion of the study of the third volume, students will be able to:
- design programs that use the basic data structures (array, list, stack, queue, trees)

**Evaluation**

On successful completion of the study of the third volume, students will be able to:
- evaluate the performance of a data structure, by using the notions of time and space complexity

**VOLUME 4: PROGRAMMING LANGUAGES**

**Knowledge**
On successful completion of the study of the fourth volume, students will know:
- the structure of a program in the C programming language as a set of functions
- the concepts of logical and syntax errors as well as the concept of debugging
- the logical operators and bit-wise logical operations of the C programming language
- how to use appropriate basic data types of the C programming language for storing their data
- the concept of the array and the way to define array variables
- the structured types (struct) to be used both as the type of a variable as well as the type of a component (node) of a linked list
- the concept of dynamic memory and how it is implemented in the C programming language using pointer variables
- the differences between variables passed by value and variables passed by reference as well as how the latter can be exploited by functions for returning values

Understanding
On successful completion of the study of the fourth volume, students will understand:
- the three ways of performing loops in the C programming language (for, while, do - while) and in which cases each of them is more advantageous than the others
- how to declare and write functions in the C programming language and how the function returns a value in the environment or performs a task without returning a value (a void function)
- how to distinguish among cases where the use of dynamic memory outweighs the use of tables of specified size
- the concept of a recursive function and the advantages/disadvantages over using iteration
- the concept of modular programming and the role of the stepwise refinement technique in the design of their programs

Application
On successful completion of the study of the fourth volume, students will be able to:
- describe their solutions to computation problems using programs written in the C programming language
- describe the functionality and the results of a simple program in C
- use a simple IDE (Integrated Development Environment - PLI10 uses the Dev-C++ IDE)
- debug programs that have syntax or logical errors
- exploit the potential of dynamic memory in their programs dynamically changing data structures
- debug programs that make use of pointers and dynamic memory
- pass parameters to functions using pointer variables

Analysis
On successful completion of the study of the fourth volume, students will be able to:
- choose appropriate programming constructs and variables (static or dynamic memory) for the basic functions of their programs

Synthesis
- On successfully completion of the study of the fourth volume, students will be able to:
  - design a program in the C programming language to implement the solution they
devise for a computational problem using structured programming techniques (modular programming) and the stepwise refinement methodology.

**Evaluation**

On successful completion of the study of the fourth volume, students will be able to:
- provide an estimate of the memory requirements and execution time for the C functions that they implement (either recursive or iterative)
- optimize parts of their programs to increase their efficiency

**Subjects covered:**
- Introduction to computer science
- Programming techniques
- Data structures
- Programming language

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**PLI11 Principles of Software Technology**

**Module code:** PLI11

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 1st

**Language:** Greek

**Learning Outcomes:**

**SOFTWARE ENGINEERING I**

On successful completion of the module, students will be able to:
- Describe and explain the basic concepts of software engineering (software, tools, procedures, methodologies, life cycle etc.)
- Recognize the fundamental role of the basic principles of software engineering in the development of qualitative software and applications
- Describe the different phases in the development of a software application as well as the basic features of the most significant software life-cycle models.
- Identify the requirements of a software application and use the principles of structured analysis for their detailed specification.
- Use effectively the most known diagrammatic software representation models (data-flow diagrams, state transition diagrams etc.) for the requirements analysis of a software application.
- Design a software application following the principles of structured design (architectural design, interface design, detailed design of modules etc.).
- Explain and apply suitable fault avoidance techniques during the implementation of a software application in order to produce qualitative code without bugs.
- Describe the different stages and explain the different strategies followed during the testing process of a software module or system.
DATA BASES
On successful completion of the module, students will be able to,

- Describe the basic concepts and models of databases as well as the main differences between a database and a database management system.
- Recognize the fundamental need of using database technology in any application that demands efficient organization and management of large-scale data.
- Explain the different methods for data organization and data access (records, indexes, b-trees etc.) in modern database systems.
- Distinguish between the different levels of database analysis and design (conceptual, logical and physical level).
- Use effectively the entity-relationship model for the conceptual design of a database.
- Perform the design of a database in the logical level with use of the relational model.
- Use effectively a theoretical query language (i.e. relational algebra) for data retrieval out of a relational database.
- Implement a database over a modern relational database management system and practically use a standard query language (i.e. SQL) for efficient data organization, management and retrieval.

OPERATING SYSTEMS I
On successful completion of the module, students will be able to,

- Describe the basic functions of an operating system.
- Recognize the fundamental role of operating systems in the efficiency of modern systems and applications due to their advanced multi-tasking and multi-user capabilities.
- Describe the different methods used for process scheduling in modern operating systems and explain their differences, advantages and disadvantages.
- Explain the mutual exclusion problem and use effectively the basic mechanisms offered by a multitasking operating system for process synchronization and communication (semaphores etc.).
- Describe the different main-memory organization methods followed in modern computer systems and identify their advantages and disadvantages.
- Generalize the use of basic memory organization methods (i.e. paging, segmentation) to more complex hybrid memory schemes, which are mainly used in modern computer systems.
- Explain the function of virtual memory organization and distinguish between the different page replacement algorithms used in modern operating systems.
- Solve practical problems and exercises with regard to the above concepts and mechanisms of a modern operating system (process management, CPU scheduling, process synchronization and communication, memory management, virtual memory organization).

Subjects covered:
- Software engineering I
- Operating systems I
- Databases

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.
Evaluation: Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI12 Mathematics for Informatics I

Module code: PLI12
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek
Learning Outcomes: Upon completing this course:
- Students will expand their knowledge of the three areas of advanced mathematics which compose the syllabus of this course. They will be able to understand basic facts and principles of Linear Algebra, Single Variable Calculus and Probability Theory.
- They will have the skills to use the advanced mathematics tools in order to develop critical thinking and analytical problem solving ability.
- Moreover students will comprehend and appreciate the logical sequence of advanced mathematics, in particular to the role and construction of mathematical proofs and solutions in various problems.
- Finally students will be able to synthesize and apply the concepts and methods described in the syllabus in order to solve interdisciplinary problems and, also, expand their knowledge to a number of applications of mathematics, especially those concerning Computer Science.

Subjects covered:
- Linear algebra
- Single variable calculus
- Elements of probability theory

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI20 Discrete Mathematics and Mathematical Logic

Module code: PLI20
ECTS Credit Points: 18
Module Type: Compulsory
Year: 2n
Language: Greek
Learning Outcomes: Upon successful completion of this module, students will be able to:
- Understand the basic counting techniques of combinatorics, the basic notions of propositional and first-order logic and the basic notions of graph theory.
- Understand the form of counting problems, the expressing potential and limitations of propositional and first-order types and some interesting graph properties.
- Solve counting problems of different forms, check and prove properties of propositional and first-order types and solve graph theory problems focusing on mathematical induction.
- Model various problems as counting and/or graph problems.
- Use and apply basic algorithms and techniques in logic and graph theory.

Subjects covered:
- Discrete mathematics
- Graph theory
- Mathematical logic

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

PLI21 Digital Systems

Module code: PLI21
ECTS Credit Points: 18
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: Aim of this module is to introduce the students to the hardware of computer systems. Specifically, starting from the basic concepts of binary logic and logic circuits the students get familiar with the fundamental building blocks of digital systems. They also acquire the essential knowledge and skills to analyze and design both combinational and sequential circuits. These circuits are the basic components of any computer system. The architecture, structure and organization of the computer as well as of its main units (Central Processing Unit, memory system, busses and input/output subsystem) are then considered. Finally, we deal with microprocessors, focusing on the structure and operation of two basic families of microprocessors (Intel & Motorola) and in programming using an assembly language.

Learning Outcomes:

VOLUME 1: DIGITAL DESIGN

On successful completion of the study of the first volume, students will know:

- The difference between analog and digital signals.
- The advantages of digital against analog systems
- Binary representation of numbers (BCD, sign magnitude, 1’s complement, 2’s complement) and the arithmetic operations between them.
- The fundamentals of error detecting and correcting codes and as examples parity based codes and the Hamming code.
- To differentiate between combinational and sequential circuits.
- Boolean algebra
- Ways of representing logic functions (truth tables, logic representations) and their minimization (using theorems of Boolean algebra, Karnaugh maps).
- Correspondence of simple logic functions to logic gates and the schematic representation of logic functions with logic gates (logic circuits).
- The functionality and the design of complex logic functions which are common in digital systems (comparators, adders, decoders, multiplexers).
- To design large combinational units using as building blocks less complex logical circuits.
- Several elementary sequential circuits (flip-flops) and their function.
- To analyse sequential circuits.
- To design sequential circuits.
- To design registers of different functionality (parallel input, shift register, multifunctional register).

**VOLUME 2: COMPUTER ARCHITECTURE**

On successful completion of the study of the second volume, students will know:
- The units of a computer system and their operation.
- The meaning of architecture, structure, organization and implementation of a computer system.
- Methods for performance evaluation.
- The representation of information.
- The encoding of the machine language instructions and the memory addressing modes.
- Central Processing Unit subunits (register file, shifters, arithmetic/logic unit, multiplier, divider) structure, organization and function.
- Memory units which are used for the implementation of the memory system and their features.
- Memory hierarchy.
- Cache memory (fetch policies, organization, placement and replacement policies and policies for updating higher levels of the memory hierarchy).
- Main memory organization and features (size, word length, bandwidth).
- Busses and their classification (dedicated, shared, CPU-memory busses, system busses, input/output busses, synchronous and asynchronous busses).
- Arbitration
- Input/output organization (programmed Input/Output, interrupts, direct memory access)

**VOLUME 3: MICROPROCESSORS**

On successful completion of the study of the third volume, students will know:
- The meaning of microprocessor, microcomputer and microcontroller.
- The evolution of the microprocessors. - Features of several commercial microprocessors.
- Interfacing peripherals and main memory to microprocessors.
- Programming in assembly language.

**Subjects covered:**
- Digital design I, II
- Computer architecture I
- Microprocessors
**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**PLI22 Computer Network Fundamentals**

**Module code:** PLI22  
**ECTS Credit Points:** 18  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:**

**A) Information Theory and Coding**
- Understand the concept of information, Shannon’s information measure and entropy. Calculate the entropy and amount of information of random events
- Create instantaneous source codes
- Model various discrete sources of information and apply various source coding algorithms in order to calculate the entropy and the redundancy of a source (with or without memory)
- Measure the capacity of various communication (noiseless or noisy) channels
- Explain the process of error detection and correction using various error correction codes
- Estimate the performance of a code and compare among various error codes

**B) Digital Communication**
- Understand the concepts of discrete signals, Fourier transforms, analogue and digital modulation, and sampling
- Examine periodicity of a signal and calculate its period and frequency.
- Use Fourier transforms in order to find the frequencies of a signal.
- Apply various modulation schemes in order to shift a signal from its baseband frequencies to a high frequency band.
- Calculate the required bandwidth of signals after modulation.
- Apply filters in order to manipulate a signal.
- Apply Nyqvist’s theorem in order to calculate the minimum sampling frequency.
- Explain how to convert analogue signals into digital signals.

**C) Computer Networks**
- Understand the concepts of layering in IP and OSI and the basic operations of each layer
- Distinguish between connection oriented and connectionless networks and protocols.
- Distinguish between different types of networks e.g. Local area networks, Wide area networks and their corresponding technologies used e.g. Ethernet, Token Ring, 802.11 etc
- Apply CRC for coding and decoding bits
- Explain the use of framing in physical and link layers and how synchronisation is achieved between sender and receiver.
- Explain how key retransmission protocols like ABP, Go-Back-N, and Selective Repeat work
- Calculate the throughput of these retransmission protocols and compare their performance
- Explain the architecture and protocol operations of 4 major Local area networks (Ethernet 802.3, 802.5, FDDI and 802.11)
- Estimate and compare the performance of these four networks
- Identify three medium access mechanisms.

**Subjects covered:**
- Information theory and coding
- Digital communications
- Computer networks I

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**PLI LAB I Digital Systems Laboratory Course**

ECTS Credit Points: 6
Module Type: Compulsory
Year: 2nd
Language: Greek

**Subjects covered:**
- Digital design
- Computer architecture
- Microprocessors

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**PLI24 Software Design**

Module code: PLI24
ECTS Credit Points: 18
Module Type: Compulsory
Year: 3rd
Language: Greek

**Learning Objectives:**

**Part A: Compilers**

Upon successful completion of the course, the student will be able:
- To explain what a compiler and what an interpreter is and describe the translation stages.
- To use regular expressions and automata for lexical analysis.
- To use context-free grammars and parse trees for syntactic analysis.
- To apply top-down and bottom-up techniques for syntactic analysis.
- To apply grammar transformation techniques to make a grammar suitable for recursive-descend parsing and LL(1) detection.
- To implement a lexical and syntax analyzer using the Java programming language.
- To design and use a symbol table.
- To explain and construct syntactically directed translation schemes.
- To write intermediate code representations and optimization mechanisms.
- To describe principles of target code generation.

**Part B: Software Engineering II _ Object Oriented Analysis and Design**

Upon successful completion of the course, the student will be able:

- To describe and explain the basic concepts of object-oriented software technology (software, tools, processes, methodologies, life cycle, etc.).
- To know ICONIX object-oriented development methodology and, secondarily, Unified Process, as well as the phases, iterations, and activities it involves.
- To use ICONIX methodology for the development of an object-oriented software system.
- To develop analysis models by using UML.
- To develop the use case model and the corresponding diagrams.
- To develop the problem domain model.
- To develop various UML diagrams such as: robustness diagrams, sequence diagrams, class diagrams, state diagrams, software components diagrams, software packages diagrams, and deployment diagrams.
- To develop the software using an object-oriented programming language.
- To conduct quality control (coupling, cohesion, etc.) of the software system.
- To prepare the necessary documentation artifacts.

**Part C: Programming Languages II – Object Oriented Programming**

After the successful completion of this course, the student knows how to develop software applications in java language and he/she is able to do the following:

- To outline and describe the basic object-oriented programming concepts such as class, object, instance, inheritance relationship, aggregation relationship, etc.
- To describe the proper syntax of java data structures, types and operators.
- To implement classes, instances, methods and class relationships.
- To implement the principles data hiding, overriding and polymorphism.
- To write small and medium scale object-oriented applications.
- To read data files and use data bases for data storage.
- To implement exception handling mechanisms.
- To write multi-threaded applications exception handling mechanisms.
- To create graphical user interfaces for applications using java libraries.

**Part D Project Management – Object Oriented Methodology**

Upon successful completion of the course students will be able:

- To describe and explain key concepts of project management (project, project management phases, organizational structures, project scope, scheduling, etc.).
- To understand alternative organization structures for organizing projects and teams.
To describe the project planning processes and use them in building network diagrams for project activities.

To create project plans using Gantt charts.

To perform project network analysis using CPM and PERT project management techniques.

To estimate the required project effort using the Use Case Points method.

To manage resources and perform resource leveling for a project.

To describe and apply cost estimation techniques for a project.

To describe and explain the basic principles of software quality assurance and use quality metrics to measure software quality.

To describe the concept of software risk in software development projects, and predict-manage risks that are likely to occur in a project.

Subjects covered:
- Compilers
- Software engineering II
- Programming languages II - Object oriented programming

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI30 Foundations of Computer Science

Module code: PLI30
ECTS Credit Points: 18
Module Type: Compulsory
Year: 3rd
Language: Greek

Learning Outcomes: The Learning Outcomes are categorized in: a) Knowledge and Understanding, b) Intellectual (Thinking) Skills: Application, and c) Intellectual (Thinking) Skills: Analysis and Synthesis

A) Knowledge and Understanding. On successful completion of the module, students will be able to:

- Describe simple algorithms in pseudocode, explain its functionality, use asymptotic symbols, compute the running time of worst and best cases, write and solve recursive equations, describe the principles of Algorithm Design, Divide and Conquer, Greedy, Dynamic Programming and the techniques of Depth-first search (DFS) and Breadth-first search (BFS).

- Describe and define a Turing machine and its relative concepts (Computations, Function, Grammar without limitations, M-recursive function), record the sequential steps of computation, define the concept of algorithm, identify the halting problem, describe the universal machine Turing, list some well-known intractable problems, describe the dove tailing procedure, the DTIME and NTIME complexity classes and the
classes P, NP, and EXP, describe the class NP via a polynomial verification and short certificate, the meaning of completeness, tractable and hard problems, the role and use of reductions, define the classes of polynomial and exponential space DSPACE and EXPSPACE, describe space and time constructed functions, define and prove the theorems of space and time hierarchy, the approximation algorithm, the probabilistic Turing machine and the features of Monte Carlo and Las Vegas probabilistic algorithms.

- Describe what is a language, its fundamental operations and what a regular expression is, list the characteristic of a finite state machine, describe the process of string acceptance, what is a finite automaton and explain what is the transition function, describe the language acceptable by a deterministic finite automaton and a non deterministic one, name the pumping lemma and its use, define context-free grammar, variables, terminal symbols and derivations, record the basic features of push down automaton and describe the recognition process of a string, explain its transition function, list the two types of strings recognition and the corresponded languages that are acceptable by finite automata, define a deterministic push down automaton, describe the pumping lemma and its use, how a grammar can be transformed into an equivalent one that does not contain unitary rules and explain how the pumping lemma is used for context-free grammars.

B) Intellectual (Thinking) Skills: Application. On successful completion of the module, students will be able to:

- Use the asymptotic analysis in computations of complexity of iterative and recursive algorithms, compute exact asymptotic estimations for solutions of recursive equations, apply the divide and conquer method for the solution of intermediate difficulty problems, use the method of dynamic programming and the greedy method to solve computational problems, represent a graph with the adjacency list and the adjacency matrix, apply the techniques of Depth-first search (DFS) for exploring a graph and the technique Breadth-first search (BFS).

- Prove with the diagonal method that the halting problem is unsolved, prove the important properties of Turing acceptable and Turing decidable languages, prove that the satisfiability SAT is NP complete, prove that a problem is Turing decidable or not, categorize a problem in P, NP or NPC classes, prove the existence of PSPACE-complete problems under reductions of polynomial time (Q-SAT problem), classify problems in classes of logarithmic time.

- Prove the closeness properties of formal languages union, intersection, concatenation and asterisk of Kleene, prove if two regular expressions represent the same language, explain the reason of a finite language being regular, prove if a language is regular or not, transform a non-deterministic finite automaton into a deterministic automaton, prove if a language is context-free or not, design of push down automata, implement pumping lemma for context free languages.

C) Intellectual (Thinking) Skills: Analysis and Synthesis. On successful completion of the module, students will be able to:

- Select the most appropriate algorithm for a particular category of problem instances, compare the rate of growth of two functions using asymptotic notation, prove that a greedy algorithm computes the optimal problem solution, use the methods divide and conquer, the greedy method and the method of dynamic programming in
computational problem solving, design divide and conquer algorithms, greedy algorithms and dynamic programming algorithms, justify complex algorithms and derive their complexity, synthesize or modify known algorithms to solve new computational problems.

- Design simple Turing machines that execute asked computations or accept or decide given languages, identify problems as solvable or not, relate time complexity in various types of Turing machines, synthesize effectively the basic Turing machines in order to create more complicated machines, appraise and recognize the usability of the dovetailing procedure, reduce a given problem of known complexity to another and determine the complexity of the second problem, relate the two space complexity classes and the way they are correlated via the Savitch theorem.

- Identify the regular expression that corresponds to a language, justify why regular languages are closed under intersection, subtraction, union, concatenation, and star Kleene operations, construct a finite automaton for a given regular expression, construct the regular expression corresponding to the language of a given finite automaton, transform a non deterministic finite automaton to a deterministic one that accepts the same language, design the regular expression of a language accepted by a finite automaton and vice versa, explain why a context free grammar is ambiguous, develop algorithms solving decision problems for regular and context free languages.

Subjects covered:
- Algorithms and complexity
- Computation Theory
- Automata and formal languages

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

PLI31 Artificial Intelligence - Applications

Module code: PLI31
ECTS Credit Points: 18
Module Type: Compulsory
Year: 3rd
Language: Greek

Learning Outcomes: After completing PLI31/INF31 a student will be able:
- to streamline problem solving by selecting a suitable representation for the state space and by applying fundamental search algorithms (exhaustive search, heuristic search)
- to represent knowledge in predicate logic and to convert it to a form that can be submitted to reasoning via resolution
- to solve a search/optimization problem using genetic algorithms, by suitably selecting a representation and some genetic operators
- to experimentally decide on the suitable architecture of a neural network to solve a classification/prediction problem
to use the proper programming tools/environments for implementing all techniques mentioned above
- to combine representation, search, prediction and reasoning techniques towards developing systems that implement hybrid approaches

**Subjects covered:**
- Artificial intelligence and expert systems
- Neural networks and applications
- Genetic algorithms and applications

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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### PLI LAB I Digital Systems Laboratory Course

**ECTS Credit Points:** 6  
**Module Type:** Compulsory  
**Year:** 3rd  
**Language:** Greek  
**Subjects covered:**
- Digital design  
- Computer architecture  
- Microprocessors

### PLI23 Telematics, Internets and Society

**Module code:** PLI23  
**ECTS Credit Points:** 20  
**Module Type:** Optional (instead of PLI40 or PLI42)  
**Year:** 4th  
**Language:** Greek  
**Learning Outcomes:** On successful completion of the module, students will be able to,
- Explain and present the basic concepts of modern telematics networks and services.  
- Analyze and design wireless and mobile (GSM, UMTS etc) networks.  
- Explain the addressing schemes of the Internet.  
- Distinguish the routing algorithms and protocols of the Internet.  
- Associate telematics services with distributed object-oriented technology and service-oriented architecture.  
- Discuss the architecture of the World Wide Web (WWW).  
- Compose methods of the HTTP protocol.  
- Create simple WWW pages using HTML and CSS.  
- Construct dynamic WWW applications by inserting client-side (JavaScript) and server-side (PHP) scripts in HTML code.  
- Integrate server-side scripting (PHP) with Data Bases (MySQL).  
- Design data descriptions in the WWW with XML.
- Transform XML descriptions by using XSL.
- Measure and evaluate the performance of Internet and WWW.
- Analyze caching and proxy techniques in the WWW.
- Explain searching and security mechanisms of the WWW.
- Discuss the increasing and diversifying social impact of Information and Communication Technologies.

Subjects covered:
- Telematics
- Internet – Web
- Computers and information society

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI32 Linear Programming and Modeling
Module code: PLI32
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Module general description: The purpose of this module is to provide knowledge and techniques for decision making. It focuses on Modeling Continuous and Discrete Systems and Simulation, on developing mathematical models and designing algorithmic techniques to resolve them, like the simplex method and the method of ellipsoids.

Learning Outcomes: The module consists of three distinct subdivisions: 1) Modeling and Simulation, 2) Foundations of Linear Programming 3) Algorithms for Linear Programming and Game Theory. The learning outcomes include A) Knowledge and Understanding, B) Skills Application, C) Skills Analysis and Synthesis.

A) Knowledge and Understanding. Upon completion of this module, students will be able to:
Distinguish between simulation and emulation, detect whether an activity is deterministic or stochastic, determine the equations that describe a physical system knowing the laws that govern it, construct a mathematical model, analyze a system through the model by changing the system parameters and identify the equilibrium points of a system.
Discern the difference between dependent and independent events, indicate the components of a Petri network, model a system with a Petri network, discriminate among simulation languages and choose a simulation language, distinguish methods of generating random and pseudorandom numbers, be aware of analysis methods of the simulation results, discern the difference between a collection of independent and dependent data.
Be aware of the simplex method and its theoretical foundations, recognize the existence of links between the variables of a linear programming problem, exploit the possibilities and results of the duality theory, determine the optimal solution of a problem from the optimal
solution of the dual, know basic techniques of sensitivity analysis, the method of ellipsoids, and
the interior point methods. Be able to describe the competition between two people with a
game table and know basic elements of game theory.

B) Skills Application. Upon completion of the module, students will be able to:
Explain how the Time verification mechanisms are functioning during the simulation, correlate
Flow Time Mechanisms with simulation methods, apply a method of generating random
samples in order to produce samples that follow a particular distribution.
Formulate mathematical models for everyday life problems, apply the simplex method for
solving general linear programming problems and identify the best alternatives when available.
- Build a linear programming model, implement advanced techniques for the identification and
analysis of the solution of linear programming problems, apply techniques that prevent the
possibility of cycling of the simplex method and use the ellipsoid method for solving linear
programming problems.

C) Skills Analysis and Synthesis. Upon completion of the module, students will be able to:
Model a system with a petri network, analyze a system through the model by changing system
parameters, and write simulation programs in GPSS.
- Use sensitivity analysis techniques and parameterized programming models by
examining the behavior of the optimal solution of a problem.
- Use driving rules for variables estimation, which are incorporated as alternatives to
commercial codes increasing in this way the computational speed of the simplex
method, develop games by regulating competition between two or more players on
the basis of rational criteria.

Subjects covered:
- Modeling and simulation
- Linear programming foundations
- Linear programming algorithms and game theory

Teaching Method: Distance education with five Contact Sessions held at weekends during the
academic year.
Evaluation: Completion of four written assignments during the academic year, the average
grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final
course grade.

PLI35 Computer Systems Security
Module code: PLI35
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek
Learning Outcomes:
Computer Security
Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand operating system security issues
- Develop and manage access control methods
- Protect an information system from malware attacks
- Understand and utilize risk assessment methods
- Develop an information system Security Plan
- Understand the legal aspects of personal data protection

**Network Security**

Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand the OSI network security architecture
- Manage Internet security issues
- Develop security methods at the application level
- Manage selected application security systems
- Understand the legal aspects of protection of data communications

**Cryptography**

Upon completion of this course, students will be able to:
- Understand the terminology of this area
- Understand the essential mathematical background
- To understand the pros and cons of modern cryptosystems
- Manage a cryptosystem
- Utilize digital signatures
- Understand the legal aspects of using cryptosystems

**Subjects covered:**
- Computer security
- Network security
- Cryptography

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PLI36 Advanced Networks and Services**

**Module code:** PLI36
**ECTS Credit Points:** 20
**Module Type:** Optional
**Year:** 4th
**Language:** Greek

**Learning Outcomes:** The PLI-36 offers both basic and advanced knowledge of networks and services on three main pillars:
- The first pillar focuses on conventional Internet networks, which are governed by the widely used IP and TCP protocols. In this context, the offered knowledge covers the Ethernet and its own structural operational principles, the interconnection of networks utilizing routers and switches, the analysis of the IP packet, the basic concepts of fragmentation and addressing, the IPv6 and IPsec protocols, the main procedures and
the basic routing algorithms (such as Bellman-Ford and Dijkstra), the inter-domain (RIP and OSPF) and the intra-domain routing (BGP).

- The second pillar concerns issues related to the network design starting with the types of networks, the key network architectures together with the associated design tools for analyzing packet losses and delays, the fundamental queuing models such as M/M/1, M/G/1, and Erlang, the main algorithms for designing graphs, the bridging regarding the minimum spanning tree, the shortest path, and how is performed the link sharing of the capacity to streams.

- The third pillar extends the outcome knowledge beyond of the IP networks in other types of networks, with emphasis on photonic, wireless, mobile and satellite networks. Furthermore, this pillar covers wider issues regarding appropriate development tools for network designing and telecommunications services.

- The above three pillars are accompanied with open-source tools that complements the theoretical knowledge with hands-on experience.

Subjects covered:
- Computer Networks II
- New directions in networks and services
- Network design issues

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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PLI37 Informatics and Education

Module code: PLI37
ECTS Credit Points: 20
Module Type: Optional
Year: 4\textsuperscript{th}
Language: Greek

Module general description:
The purpose of this module is to study the principal issues and theoretical approaches concerning the integration of the Information and Communication Technologies (ICT) in education. The key points that focuses the content of this module are: teaching and learning computers, learning theories, educational software, open-ended educational environments, the position of ICT in education, teaching Informatics, programming as a subject matter, design of educational software, models and development tools, evaluation of educational software, the prototyping and quality control of educational software.

Learning Outcomes:
PLI-37-I Didactics of Informatics
On successful completion of the study of the first volume:
a) Students will know:
   - the role of Informatics in Education
   - the basic concepts of Didactics of Informatics
- the programming activity as a subject matter
- the role of Informatics in Greek Education
- advanced concepts of Didactics of Informatics (learning structural and object oriented programming, psychology of programming)

b) Students will understand:
- the role informatics as a subject matter in education
- the pedagogical and didactical approaches and principles of Informatics and ICT at all levels of an education system

c) Students will be able to:
- design learning activities and educational scenarios in order to teach informatics as a subject matter
- use appropriate educational software in the teaching of informatics
- apply and evaluate learning activities and educational scenarios into teach informatics as a subject matter

PLI-37--II  Informatics in Education

On successful completion of the study of the second volume:

a) Students will know:
- the pedagogical models and approaches concerning the introduction of Information and Communication Technologies in Education
- the Learning Theories (behaviorism, constructivism, socio-cultural theories activity theory) and Information and Communication Technologies (ICT)
- the role of Information and Communication Technologies in teaching and learning (teaching machines, computer assisted learning, microworlds, multimedia and hypermedia learning, virtual reality, e-learning, simulations, modelling, Logo, educational robotics, edutainment).

b) Students will understand:
- the concept of educational software and its usefulness in the educational process
- the concept of open-ended computing environment and its usefulness in the teaching and learning process
- theoretical issues and principles of educational software: principles of instructional design and evaluation of educational software

c) Students will be able to:
- use appropriate educational software in teaching subjects in various learning areas in primary and secondary education
- use e-learning and distance learning environments in teaching and learning
- consider on the educational applications of the Information and Communications Technologies (ICT)
- design learning activities and educational scenarios for teaching and learning in the curricula of primary and secondary education
- design learning activities with e-learning environments

PLI-37--III  Design of Educational Software

On successful completion of the study of the third volume:

a) Students will know:
- the different types of educational software (multimedia, hypermedia and e-learning)
the principal concepts of design of educational software (interface design, screen design, content design, navigation design, interaction design, application design, metaphors)
the lifecycle design of educational software (design models, development tools, evaluation, quality assurance)

b) Students will understand:
- the purpose of designing educational software
- the purpose of evaluating educational software
- the purpose of quality control and assurance of educational software

c) Students will be able to:
- design multimedia materials for educational use
- design simple educational applications
- use e-learning tools to design distance learning applications
- develop distance and e-learning applications to teach informatics
- evaluate educational software
- evaluate e-learning environments
- evaluate distance learning applications
- apply quantitative and qualitative methods, technics and tools for the evaluation of educational software

Subjects covered:
- Didactics of Informatics
- Informatics in education
- Design of educational software

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI40 Project in Software

Module code: PLI40
ECTS Credit Points: 20
Module Type: Optional instead of PLI23 or PLI42
Year: 4th
Language: Greek

Module general description: The module PLI40, as this is implemented in the current year, includes the preparation of a Graduate Thesis (GT) that resolves, in theoretical or applied level one or more problems that belong in the Information and communication technology (ICT). Thus, PLI40, in the frame of GT, provides the chance for the composition and utilization of the knowledge gained during the study. The scientific responsibility for the preparation of the GT is assigned to a three member Judgment Committee (JC). One of the members is the Supervisor of the Thesis that supports the student according to the principles and practice of the computer science and distance learning.
Learning Outcomes: Upon completing this module, the students will be able to:

- Analyze a complex problem by identifying the basic skills and tools that are necessary for problem solving.
- Design the actions that lead to the solution of the problem, incorporating good practices and composing skills from different scientific fields.
- Implement, evaluate and improve the solution of the problem.
- Incorporate and apply a structured, module and repetitive methodology of problem solving.
- Have an easy going cooperation with the Supervisor and the members of the JC, by showing responsibility and building up communication skills.
- Write a concise Thesis that includes the analysis of the problem, the methodology used and the produced results.
- Defend publicly their Thesis, answering to relative questions.

For the successful realization of the Thesis, it is suggested to incorporate a four phase methodology: conception, processing, development, transition. At the end of each phase the student has to submit an essay to the JC and is evaluated by the Supervisor.

Subjects covered:
- Compilers
- Databases
- Operating systems

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI42 Special Issues in Software Engineering

Module code: PLI42
ECTS Credit Points: 20
Module Type: Optional instead of PLI23 or PLI40
Year: 4th
Language: Greek

General Module Description: The module aims to provide specialization in topics of Software Engineering. In a sense it is the continuation of PLI11 and PLI24 (to a smaller degree), since it only regards the book titled “Software Engineering II”.

Learning Outcomes:

- Describe and explain the term ‘software specifications’.
- Reference three categories of specifications depending on the degree of formality: formal, semi-formal and non formal.
- Indicate the major semi-formal specification production techniques.
- State the features of formal specifications’ languages.
- Have background knowledge on the mathematical tools that are the basis for formal specifications’ languages, such as the propositional calculus, the predicate calculus, logic functions and the set theory.
- Explain and apply the axiomatic and algebraic specifications to describe a piece of software and its functions using equations, recurrence relations and regular expressions.
- Write and interpret Z schemata, as well as basic symbols and operators
- Specify using Z schemata the invariance or the change of a software module state, operations, error handling procedures and data manipulation functions.
- Create complex shapes using the Z notation language and specify complex software operations using functions, sequences and multi-sets.
- Give the formal definition of Petri nets and describe their basic concepts, rules and properties.
- Identify and design Petri nets of three different categories: treaty-event, position-transition and networks of discrete items.
- Use effectively tools for designing Petri nets and their practical application.
- Overturn myths about the application of formal specifications.
- Enumerate and apply the 10 commandments of proper practical application of formal techniques.

SOFTWARE VERIFICATION AND VALIDATION

Upon successful completion of the module, the student will be able to:
- Discern software verification and validation (V&V) activities and understand their position in the software lifecycle.
- Discern the static informal V&V techniques from the dynamic informal V&V techniques Describe the static V&V techniques (static analysis, walkthrough, review, and more) and know their objectives, application points and the respective advantages of each technique.
- Describe and explain the three phases of testing: unit testing, integration testing and validation testing.
- Explain and effectively apply the most important techniques for designing test cases for the functional testing of software (black box testing) such as: equivalence partitioning, boundary value analysis, cause-effect graph.
- Explain and effectively apply the most important techniques for designing test cases for the structural testing of software (white box testing) such as: basic path testing, loop testing.
- Explain and effectively apply the most important techniques for designing test cases for testing the interfaces between the components that make up a software system
- Know the most important issues for the practical application of various software testing techniques, such as top-down integration testing and bottom-up, alpha and beta testing, performance testing, recovery testing, and more.
- Explain and effectively apply the most important debugging methods following a successful testing phase in order to correct the identified bugs, such as brute force techniques, backtracking and techniques for locating the cause of the bug.
- Design and apply performance testing (load & stress testing) for multi-user applications and web applications in particular.
SOFTWARE MANAGEMENT AND SOFTWARE QUALITY

Upon successful completion of the module, the student will be able to:
- Know what software quality is and how it is assured.
- Discern the differences in the process of software quality assurance compared to other products.
- Know the prevalent models of software quality assurance and effectively implement the ISO9126 standard.
- Know what are the internal and external software quality metrics, which is the procedure of measuring them and to what extent they are interrelated.
- Know and effectively apply the Halstead metrics and interpret the meaning of the results.
- Know the fundamental problem and objectives of the Human Computer Interaction field, as well as the basic interaction modelling theories (such as the human processor model, the keystroke level model, Fitts’ Law, Hick-Hyman Law and Power Law of Practice).
- Know and effectively apply the most widely used evaluation methods (heuristic evaluation, cognitive walkthrough, user observation, questionnaires, performance measurement).
- Select the appropriate combination of usability evaluation methods depending on the type of the interactive application and the stage of its development.

Subjects covered:
- Formal specifications
- Verification and Validation
- Software management and software quality

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

PLI44 Signals and Image Processing

Module code: PLI44
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek

Learning Outcomes:
On successful completion of this module, students will be able to:
- Understand basic principles of signals and systems; of fundamental transforms (Fourier, Laplace and Z); of convolution, sampling, frequency response and of the basic principles of digital filters in one-dimensional signals and images.
- Interpret one- or multi-dimensional signals (speech, seismic, heart rate, etc), correctly implement the digitization of continuous-time signals, calculate the frequency content of signals and design basic filters for their processing.
- Apply simple digital image processing techniques, like image enhancement, image segmentation and image description
- Analyze and design continuous-time and discrete-time signal processing systems.

Subjects covered:
- Signals and systems
- Digital signal and image processing
- Image analysis and pattern recognition

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLI47 Distributed Systems
Module code: PLI47
ECTS Credit Points: 20
Module Type: Optional
Year: 4th
Language: Greek
Module general description:
Learning Outcomes:
After completing PLI47 a student will be able:
- to analyze the way distributed systems are operating
- to use Big Data technologies for problem solving
- to analyze the operation of a distributed application
- to design and develop parallel applications using threads in the Java programming language
- to design and develop distributed applications using inter-process communication techniques in Java
- to design and develop distributed applications using the MapReduce programming model and Hadoop, using Java
- to design and develop distributed applications using the Spark distributed engine and the Scala programming language
- to analyze the way modern operating systems and database management systems are operating

Subjects covered:
- Distributed systems
- Operating systems II
- Distributed databases

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
Quality Management and Technology M.Sc.

Description
The programme aims to provide participants with an integrated specialization in quality management and technology, so as to meet employment needs in industries, and to train engineers and other technicians who perform quality control in industries, health care and other services. Its graduate courses are designed to combine the study of statistical methods and other technical tools for the control and the improvement of quality with the study of quality systems and management principles.

Learning Outcomes
The MSc program on QUALITY MANAGEMENT and TECHNOLOGY prepares specialists with expertise in technology of quality control and assurance.

- Offers further training of specialized personnel, which will staff the quality control and quality assurance departments of manufacturing units, and the institutions of service providers of public and private sector.
- At the level of skills and abilities the graduates of the MSc program in QUALITY MANAGEMENT and TECHNOLOGY know:
  - Statistical tools and measuring techniques for "in-line" and "off-line" quality control.
  - Developing methodologies to improve quality, based on measurements made and targets set.
  - The implementation of specialized techniques of statistical quality control.
  - To design quality management techniques during the development and production of a product.
  - The implementation of standards of quality assurance and total quality management, as well as models for quality costs and customer-supplier relationships.
  - The implementation of environmental management systems, management of quality inspection systems (internal and external inspections), the organization of laboratory tests, checks and verifications and the study of reliability and maintenance systems.

Requirements
Applicants to the Programme must possess an undergraduate degree in a related field from a Greek Public University, Technological Educational Institute or an equivalent degree. Knowledge of Greek language at C1 level and very good knowledge of English language are required.
20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (Α80)”.

Minimum study duration
2 academic years for University graduates and 3 academic years for Technical Educational Institute graduates

ECTS credit points
120

Classification according to ISCED-2011 of Unesco:
- Based on the level of Education: 7

Classification according to ISCED-2013 of Unesco:
- Based on the field of Education: 0710 Engineering and engineering trades

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.
Contact

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Course Structure

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Notes:

¹C : Compulsory
²DIP40: Course Module DIP40 is compulsory for Technical Institute graduates in their first year of studies. Therefore, the minimum course duration, in this case, is 3 years.

The requirements in order to obtain the degree are the following:

- The students must attend and pass four graduate courses of the programme. Course DIP 40 cannot substitute a graduate course.
- The students must submit a dissertation. The examining committee of the dissertation consists of at least two members of the tutors of the programme.

Course Modules

DIP40 Mathematics and Mechanical Drawing for Quality Assurance (Undergraduate level)

Module code: DIP40
Module Type: Compulsory for Technical Educational Institute graduates, Optional for University graduates
Year: 1st
Language: Greek

Module general description: The module under the code DIP40 is an undergraduate level module and it is an elective module for the students having a University degree. They decide to follow this module either for refreshing or strengthening their knowledge in Maths in order to facilitate their studies in the graduate modules of DIP. It is formed by two independent subjects on Maths for Quality Assurance and Mechanical Drawing. The students may follow either both or only one of the subjects, in addition to the graduate modules of the 1st academic year. Since the Mathematical background of the students having a higher education degree from a Technical Educational Institute is not solid, they are obliged to follow the first part of the subject of DIP40 (Mathematics for Quality Assurance) during the 1st year of their graduate studies, while the second part of DIP40 is also elective for them.
For this group of students Mathematics for Quality Assurance is prerequisite for the modules DIP50, DIP60 and DIP61. As a result, students having a Technological higher education degree, during their 1st year of graduate studies may follow the DIP51 module in addition to DIP40.

Mathematics for Quality Assurance


Sets and relations, functions, Real numbers (introduction, topology of the real line).


Mechanical Drawing


Learning Outcomes: After completing this module, students are expected to be able to:

- formulate a physical problem or a physical process described by one or two variables in differential or/and integral form and solve the problem. In addition has the necessary theoretical background of finding optimum solutions for a appropriate formulated physical problems.
- use vector algebra in its generic form (scalar and vector products) and to project vectors representing physical quantities in specified directions. In parallel the student can define the normal direction for a given plane surface
- solve linear algebraic systems (which is the outcome of a series of physical problems), using basic knowledge of matrix algebra
- build the necessary prerequisite background needed to follow the courses on Probability, Statistics and Quality Control Techniques, Statistical Quality Control and Sampling (DIP 50)

Subjects covered:

- Mathematics for Quality Assurance
- Mechanical Drawing

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
DIP50 Basic Tools and Methods for Quality Control

Module code: DIP50
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description:

Probability
Probability models and probability, the scope of statistics, the role of probability in statistics. Basic probability theory, interpretations and definitions of probability, probability space and events, axiomatic foundation and basic laws, symmetric experiments and combinatorial analysis, conditional probability. Random variables and characteristics of their distributions, symmetric experiments and combinatorial analysis, conditional probability. Random variables and univariate distributions, joint discrete and continuous distributions, independence, descriptive measures of distributions, the mean of a random variable and of a function of a random variable, other descriptive measures of univariate and bivariate distributions, useful inequalities. Useful probability models, the binomial, hypergeometric, negative binomial and Poisson distributions, the Poisson process, the normal distribution, the exponential distribution and applications of reliability, the uniform, lognormal, gamma, Weibull, and bivariate normal distributions, use of the Minitab statistical package.

Statistics
Methods of descriptive statistics, data types and data collection, description of the distribution of a data-set, arithmetic measures, histograms, the stem and leaf diagram, the quantile plot, box plots, graphics for attribute data, comparison of distributions of two data sets, graphics for the appropriateness of theoretical distributions. Sampling distributions, statistical functions and their distributions, the sample mean and its distributional properties, sampling from the Bernoulli and the Poisson population, sampling from a normal population, the chi-squared the t and the F distribution. Parameter estimation and testing hypotheses, point estimation, criteria and desirable properties of estimators, basic characteristics of confidence intervals and tests, tests of hypotheses and tests of significance, operating characteristic curve and power of the test, confidence intervals and tests for the mean of a population and for the difference of two population means with the use of independent samples, estimation and testing of the mean-difference with paired samples, confidence intervals and tests for a single proportion and for the difference of two proportions with independent and large samples, confidence intervals and tests for the variance and the standard deviation of a normal distribution, estimation and testing for the ratio of variances of two normal distributions with independent samples. Regression analysis, regression models and their utility, simple linear regression, correlation analysis, multiple linear regression, fitting, hypothesis testing, estimation of a mean and prediction of a future observation, stepwise regression. Introduction to the theory of errors and the statistical analysis of measurement systems, measurement errors and properties of measurement systems, evaluation of repeatability and reproducibility, formulae of random-error propagation. Use of the Minitab statistical package

Quality Control Techniques, Statistical Quality Control and Sampling
Introduction to metrology and calibration, measurement systems, instruments, standards and errors of measurement, metrology, the calibration of instruments and quality assurance,
measurement instruments for length, measurement instruments of mass, uncertainty of measurement.

Introduction to statistical quality control, histograms, cause and effect diagrams, Pareto analysis, check sheets, flow charts, a brief presentation of the main control charts for attributes and variables, other tools for statistical quality control, use of the Minitab statistical package. Acceptance sampling for attributes, simple sampling and characteristic curve, rectifying sampling, the MIL_STD-105E (ANSI-ASQC Z1.4), acceptance sampling for variables, the MIL-STD-414 (ANSI/ASQC Z1.9), use of the Minitab statistical package.

**Learning Outcomes:** After completing this module, students are expected to be able to,

- identify the basic elements of a probability model and use laws of the axiomatic theory of probability to find unconditional and conditional probabilities.
- describe univariate and bivariate probability distributions and calculate probabilities, moments and descriptive measures for specified distributions.
- select appropriate probability models in order to describe the variability of measurable quality characteristics and calculate probabilities and percentiles of well-known distributions by means of formulae, tables or the Minitab statistical package.
- use descriptive measures and graphical procedures to perform exploratory data analysis.
- identify proper statistics and their corresponding sampling distributions for estimation and tests relating to means, proportions and variances of performance characteristics.
- find confidence intervals and perform tests of hypotheses in one and two-sample problems.
- apply simple and multiple linear regression analyses, correlation analysis and methods of selecting an appropriate model.
- distinguish the categories of measurement errors, apply the laws of propagation of random and systematic errors and estimate the variability due to repeatability, reproducibility, and the uncertainty of measurement.
- understand the function of measurement systems and measuring instruments, select an instrument based on its metrological characteristics and explain the process of calibration and the associated documents.
- apply the 7 main tools of statistical quality control, understand the application of 15 additional tools and select the appropriate tool for confronting specific problems.
- select, construct and interpret the proper control chart to monitor a process.
- design plans of acceptance sampling for attributes, interpret characteristic curves and apply appropriate standards (MIL-STD-105E, ANSI/ASQC Z1.4, etc).
- determine sampling plans for variables and apply the system MIL-STD-414 (ANSI/ASQC Z1.9).

**Subjects covered:**
- Probability and Statistics
- Quality Control Techniques
- Statistical Quality Control & Sampling

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DIP51 Quality Planning and Organization**

**Module code:** DIP51  
**ECTS Credit Points:** 30  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Module general description:**

**Quality Planning and Quality Management**


**Total Quality**

Introduction in Total Quality Management (TQM), The model of TQM, Similarities and differences among Quality Assurance (QA) systems and TQM., Methodology for Quality Improvement, Tools for quality improvement (bench marking, brainstorming, Pareto Figure, Histogram, Quality Control chart, Quality team, Quality Circles. Gurus of Quality, Quality Prizes, European Prize of Quality, Malcom Baldridge, Deming prize.  

**Supplier Customer Relationships and Quality Cost**


**Learning Outcomes:** After completing this module, students are expected to be able to:

- understand the term Total Quality Control (TQC), the parameters affecting it, and how it can be applied in practice.  
- plan and develop the product / service quality[including the failure mode and effects analysis (FMEA)], and design the production processes involved.  
- have a good background on total quality management (TQM) and the various currently applied Quality Assurance Systems (similarities, differences) and total quality prizes (EU, USA, Japan).
apply the most commonly used tools and techniques (brainstorming, affinity diagram, tree diagram, cause and effect diagram, benchmarking, control diagram, histogram, Pareto diagram, scatter diagram) for quality improvement. 5. have a solid knowledge of two of the most important and successful ISO systems; that is ISO 9001: 2008 and ISO 22000:2005 for product quality and food quality and safety, respectively.

- measure, calculate, analyze and evaluate the quality cost by taking into account the occurrence of various failures of different origin.
- understand and apply the various techniques for optimizing the quality cost (cost reduction in conjunction with quality improvement).
- apply a program toward suppliers’ assurance, assessment, and certification. 9. understand the importance of product safety and consumer protection within the legislative frame of EU.
- comply with the EU legislative frame for Quality development, CE labeling, and safe food trade (HACCP, ISO 22000).

Subjects covered:
- Quality Planning
- Quality Management
- Total Quality
- Supplier - Customer Relationships
- Quality Cost

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

DIP60 Advanced Tools and Methods for Quality Control

Module code: DIP60
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description:

Statistical Process Control
Introduction to statistical process control, chance and assignable causes, assignable causes and statistical process control, Process capability indices, accuracy and precision, use of time series diagrams in statistical process control, the use of hypothesis testing in assignable causes search, type I and II error, operating characteristic curve, in-control and out of control process, searching for mean shifts, time-series diagrams and histograms. X-bar charts, R-charts and s-charts. improving the sensitivity of Shewhart control charts, rational subgroup selection, applying the central limit theorem in control charts. Moving range and moving average, I-MR control charts, moving average control charts, EWMA and CUSUM charts, control charts for medians. Control charts for attributes, p-, c- and u-charts, sample size determination for p-charts, Demerit and Q charts, statistical process control for short production runs. Defects per
million objects (DPMO) and first trial yield, 6 sigma program, quality control techniques for high yield processes, rejection control charts, acceptance process level, pre-control charts, ISO-9001 standard and quality control.

Use of the Minitab statistical package for case studies.

**Design and Analysis of Experiments**

Use of designed experiments for process control improvement, principles of experimental design (response variable, factor, level, treatment, experimental unit, background variable, blocking, noise factor, experimental error), completely randomized experiments with one factor, graphical analysis, one way analysis of variance, multiple comparisons, block designs and Latin squares, random effects, estimation of missing values, factorial designs with more than one factors, main effects and interactions, random effects models and mixed models. 2f factorial designs, 22 and 23 factorials, factorial designs and regression models. Blocking and confounding, fractional designs, resolution of a fractional design. 3f factorial designs, linear and quadratic terms of main effects. Use of the Minitab statistical package for case studies.

**Procedures and Techniques for Continuous Improvement of Quality**

Off-line quality improvement and control techniques, the usefulness of off-line quality control methods, the Taguchi approach for experimental design and off-line quality control, Orthogonal factorial arrays (designs), interaction tables, factorial designs for off-line experiments. Performance measures, the Taguchi approach for selecting performance measures, variability-control factors, target-control factors, data transformation in the performance measures approach, Box-Cox transformation. Taguchi’s orthogonal arrays, the multi-level formation, dummy-level, and virtual level techniques, the technique of composition and confounding, selecting optimal factor levels. Tolerance design, Taguchi’s approach to tolerance design and analysis. Response surface methods and designs, special response surface designs, optimal experimental designs, the evolutionary operation method. Continuous improvement techniques, risk analysis, the Deming circle. Use of the Minitab statistical package for case studies.

**Learning Outcomes:** After completing this module, students are expected to be able to,

- discriminate between random (common) causes and assignable (special) causes which are present in manufacturing process.
- understand how Statistical Process Control (SPC) can be used to monitor a manufacturing process and improve its performance.
- apply quality control tools (control charts for variables and attributes, estimation of process capability indices) in a manufacturing process so as to achieve an optimum process level in terms of target value and variability.
- understand and exploit a six-sigma improvement model.
- indentify single-factor and multi-factor experiments as well as complete block experiments.
- use experimental design theory (one or two way ANOVA, Latin squares etc) to investigate the effects of one or more factors over a response variable (characteristic of interest).
- discriminate between random and fixed effects models. Explain when each of them is applicable in a real data problem.
- manipulate full and fractional designs to perform statistical analyses of experiments involving factors with two or three levels.
- employ Taguchi’s loss function approach to establish a value base for the development of quality products.
- use Taguchi’s philosophy for off-line quality control by setting up appropriate inner and outer array designs and by analysing relevant performance measures, in order to determine the appropriate production process conditions so that the process and/or the final product is made robust against the effects of uncontrollable (noise) factors.
- exploit Taguchi’s lists of orthogonal arrays for setting up economical designs for experiments requiring the study of many multi-level factors.
- understand and apply response surface methodology for modelling the shape of a process’ or a product’s response.
- apply the methods of Evolutionary Operation (EVOP).

**Subjects covered:**
- Statistical Process Control
- Design and Analysis of Experiments
- Procedures and Techniques for Continuous Improvement of Quality

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**DIP61 Special Topics on Quality**

**Module code:** DIP61

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 2nd

**Language:** Greek

**Module general description/Content:** The Course DIP 61 "Special Topics for Quality " covers four themes in four volumes listed below:

**Volume A: Environmental Management Systems, EAP, Patra, 2008.**

The 1st Volume covers issues related to Environmental Problems and Legislative Framework (Greece, Europe, International Community) while major environmental problems are analyzed such as ozone layer depletion, global warming, biodiversity decline, air pollution, contamination water etc. Also analyzed the concepts of Environmental Management, the History of the development of Environmental Management Systems, the European EMAS approach is described, as well as the initiative «Responsible Care". The main part is dedicated to the presentation and analysis of ISO 14001 (Requirements Standard, Comparison of standards 14001 and 9001). Finally the Eco-Management and Audit Scheme – EMAS is analyzed and what is the EMS Certification and what is the role of environmental inspectors, Finally, the volume ends with the Analysis of Product Life Cycle Assessment (LCA), and the various eco-labels (Europe and abroad)

**Volume II: Auditing Quality Systems EAP, Patra, 2001.**

The 2nd Volume substantially covers the issue of Auditing Quality Systems and focuses primarily on the ISO 9001: 2008. Basic concepts of quality are presented and analyzed, as well
as the requirements and paragraphs of the standard. The basic types and kinds of audits are analyzed. Finally the design and implementation of the inspection and the role of the inspector and the inspection team are described.

**Volume III: Organization of Testing and Inspection Laboratories EAP, Patra, 2008.**

In Volume 3 the basic concepts related to measurements, metrology and inspection and testing laboratories are presented. The emphasis is on the analysis of ISO 17025: 2005 (Requirements of the standard, design and implementation of the standard). It also presents and analyzes the main measures and identifies the objectives in the implementation of ISO 17025: 2005 Inspection and Testing Laboratories.

**Volume D: Reliability and Maintenance, EAP, Patra, 2002.**

The fourth volume consists of two subjects, the Reliability and Maintenance. The first part presents the basic concepts / definitions of reliability. The characteristics and the assessment of the reliability techniques are analyzed while also emphasis is given on the utilization of reliability data in Risk Analysis. The second part presents the basic concepts of Maintenance and analyzes the significance and importance of this. It then analyzes the systems and maintenance policies and the second part concludes with the presentation and analysis of Total Productive Maintenance (activity, results)

There is also additional text packages photocopied and given to students

A PACKAGE (166 pp.): DIP61 / Audits of quality management systems

B. PACKAGE (116 pp.): DIP61 / systems reliability Themes (M. Koutra)

**Learning Outcomes:** Due to the particularities of the course DIP61 (four different subjects) the learning outcomes should be allocated to each subject in each Volume (section)

**Volume A: Environmental Management Systems**

Through the content of the 1st Volume students will:

- understand and appreciate the significance and the importance of environmental management in a company or organization through the analysis of the main environmental problems
- have access to and understanding of the legislative framework governing the issues of Environmental Management at national, European and international level
- have the ability to understand and analyze the philosophy and content of the environmental standard ISO 14001 and be able to study the results of its application
- have the ability to understand and apply the LCA methodology in real businesses and organizations
- Finally they will gain knowledge about the eco-labels and their contribution to Environmental Management

**Volume II: Auditing Quality Systems**

Through the content of the 2nd Volume students will:

- gain theoretical knowledge and ability to interpret and evaluate paragraphs of the ISO 9001
- have the opportunity to learn the types of audits, to identify good and bad practices in the auditing process through case studies
- have the opportunity to compose reports of compliance or non-compliance to the standard under inspection and evaluate the state of implementation of the standards in the business or organization
- understand the role and dynamics of quality auditor and his team in the implementation of Quality Management Systems

Volume III: Organization of Testing and Inspection

Through the content of the 3rd Volume students will:
- understand the importance of measurement and will be able recognize the functions of testing and inspection laboratory
- understand the basic principles and requirements of traceability measurements and the stages of the accreditation process
- understand the requirements of ISO 17052, and assess the criticality to implement the standard effectively.
- be able to draft procedures and documents of the QMS and to monitor and evaluate the state of implementation of the standard
- be able to specify objectives and metrics in the context of ISO 17052 and to assess their contribution to improving the effectiveness of the standard

Volume D: Reliability and Maintenance

Through the content of the 3rd Volume students will:
- understand the importance of reliability and gain knowledge of its parameters
- understand the meaning and types of failure through examples and applications
- become familiar and use measuring methods of MTTF reliability, FTA, using statistical software packages like Minitab
- be able to handle and process reliability data and distinguishing the levels of data reliability
- be able to recognize the difference between the concepts of risk and reliability through examples and applications
- understand the importance of maintenance to improve quality
- analyze and use important concepts such as Delay Time Analysis (downtime), Average repair time, etc. through examples
- design and evaluate maintenance policies and will have the opportunity to organize a maintenance department utilizing the philosophy of Total Productive Maintenance

Combined Learning Outcomes for the course DIP61

The specific course has the ability due to its content (four different objects) to provide a range of learning outcomes, covering both the theory about the quality in general and the implementation of Quality Management Systems and the functioning of the Quality support structures (Laboratories control and Test).

Overall, students in DIP61 at the end of the course will:
- understand and analyze a number of important concepts such as the Reliability / Maintenance, Measurement, Inspection and Environmental Management
- have the opportunity to meet, get acquainted and use a range of tools, techniques and methods to improve the quality
- have the chance to use measurement data, making analysis and generating reports regarding auditing quality management systems.
- understand the nature and content of several quality standards (ISO 9001, ISO 14001, ISO 17025) and will be able to evaluate the results of these systems

Subjects covered:
- Quality and the Environment
- Quality System Audits
- Organization of Calibration and Testing Laboratories
- Reliability and Maintenance

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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### Environmental Design

**Description**

The target of the postgraduate course is the development of critical thinking, the acquisition of advanced knowledge and the development of skills related to the sustainable management and protection of the environment from the scientists dealing with the design, the control and the management of technical infrastructure, buildings, urban public space, landscape, cities, productive activities as well as the control of climate change or the adaptation to it.

**Learning Outcomes**

After having successfully completed the Course, and depending on the chosen direction, students are expected to:

- Understand the basic principles of sustainability, environmental legislation and environmental assessment as well as carry out environmental impacts studies.
- Understand the principles of environmental processes and pollution, their impact on human beings and the influence of manmade activities on environment.
- Be able to design infrastructure projects (transportation, energy, hydraulic, coastal protection including protection from erosion, pollution protection etc.), buildings, cities and productive activities in a sustainably environmental way.
- Be able to understand climate change phenomenon and its impacts, implement ways to reduce greenhouse gas emissions and adapt to a world of different climate.

**Requirements**

Applicants to the Programme must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

**Note:**

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the
Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Minimum study duration
2 academic years

ECTS credit points
120

Classification according to ISCED-2011 of Unesco
- Based on the level of Education: 7
- Based on the field of Education: Environmental Protection

Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0712 “Environmental protection technology”

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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Divisions
The Postgraduate Programme leads to the acquisition of a Master’s Degree in “Environmental Design” in one of the following divisions:
- Environmental Design of Infrastructure
- Environmental Design of Cities and Buildings
- Environmental Design for the Mitigation of Climate Change

### Course Structure
The programme consists of thirteen Modules and a Postgraduate Dissertation and leads to the acquisition of a Master’s Degree in “Environmental Design” in one of the four (3) divisions.

### Choosing a division is compulsory. The first Module PSH50 “Sustainability - Environmental Assessment” is a core module and is common in all (3) divisions.

#### Division 1: “Environmental Design of Infrastructure”

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>ECTS Credit Points</th>
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</thead>
<tbody>
<tr>
<td>PSH50</td>
<td>Sustainability - Environmental Assessment</td>
<td>C¹, 20 ECTS</td>
</tr>
<tr>
<td>PSH51</td>
<td>Environmental Urban and Transportation Design</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td>PSE53</td>
<td>Environmental Design of Energy, Hydraulic and Marine Projects</td>
<td>C, 20 ECTS</td>
</tr>
</tbody>
</table>

#### 2nd Year of Studies

<table>
<thead>
<tr>
<th>Module Code</th>
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<th>ECTS Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSH61</td>
<td>Technology to Address Environmental Impacts</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td></td>
<td>Postgraduate Dissertation</td>
<td>C, 40 ECTS</td>
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#### Division 2: “Environmental Design of Cities and Buildings”

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>PSH50</td>
<td>Sustainability - Environmental Assessment</td>
<td>C¹, 20 ECTS</td>
</tr>
<tr>
<td>PSH51</td>
<td>Environmental Urban and Transportation Design</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td>PSP53</td>
<td>Environmental Urban Planning and Design of Open Spaces</td>
<td>C, 20 ECTS</td>
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#### 2nd Year of Studies

<table>
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<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>ECTS Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSP62</td>
<td>Environmental Design of Buildings</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td></td>
<td>Postgraduate Dissertation</td>
<td>C, 40 ECTS</td>
</tr>
</tbody>
</table>

#### Division 3: “Environmental Design for the Mitigation of Climate Change”

<table>
<thead>
<tr>
<th>Module Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PSH50</td>
<td>Sustainability - Environmental Assessment</td>
<td>C¹, 20 ECTS</td>
</tr>
<tr>
<td>PSK51</td>
<td>Greenhouse Effect - Climate Change</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td>PSK52</td>
<td>Limitation of Greenhouse Gas Emissions</td>
<td>C, 20 ECTS</td>
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</table>

#### 2nd Year of Studies

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<th>ECTS Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSK50</td>
<td>Adaptation in a World of Different Climate</td>
<td>C, 20 ECTS</td>
</tr>
<tr>
<td></td>
<td>Postgraduate Dissertation (40 ECTS)</td>
<td>C, 40 ECTS</td>
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</tbody>
</table>

**Note:**

¹C : Compulsory

### Course Modules

#### Division 1: “Environmental Design of Infrastructure”

- **PSH50 Sustainability - Environmental Assessment**
  - **Module code:** PSH50
  - **ECTS Credit Points:** 20
Module Type: Compulsory in all Divisions  
Year: 1st  
Language: Greek  

Module general description: The purpose of the Module is to develop critical thinking and instill into students advanced knowledge, expertise and theoretical background that is necessary for the environmental design of the program's subject matters. In particular, the following are considered:

- Sustainability, Political Ecology  
- Economics, Sociology and Psychology of the Environment, Environmental Ethics  
- Soil and Water Contamination, Air Pollution  
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment  
- Environmental Legislation  

Learning Outcomes: After having completed the Module, students are expected to have comprehended the following so that they can carry on with the other modules of the program in an effective way:

- Sustainability, Political Ecology: origin, definitions, issues, impacts, sustainability policies. The objective of political ecology, its main currents and approaches, its application field.  
- Economics, Sociology, Psychology of the Environment, Environmental Ethics: basic principles, main currents and application field of these subject matters.  
- Soil and Water Contamination, Air Pollution: the problem and basic principles of environmental pollution, its sources, the spatial and geographic data, its impact on health, ecosystems and environment.  
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment: basic principles, methodology and scope of application.  
- Environmental legislation: basic principles of environmental legislation.  

Subjects covered:

- Sustainability, Political Ecology  
- Environmental economics, Sociology and Psychology of the Environment, Environmental Ethics  
- Soil, Water and Air Pollution  
- Environmental Assessment, Environmental Impacts Assessment, Environmental Risk Assessment  
- Environmental Legislation  

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.  

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.  

PSH51 Environmental Urban and Transportation Planning  
Module code: PSH51  
ECTS Credit Points: 20
**Module Type:** Compulsory in the 1st and 2nd Divisions (Environmental Design of Infrastructure & Environmental Design of Cities and Buildings)  
**Year:** 1st  
**Language:** Greek

**Module general description:** The purpose of the Module is to develop critical thinking and instill in students advanced knowledge and expertise to understand the issues of human geography, environmental urban planning and environmental design of transport infrastructure and other technical infrastructure networks throughout their life cycle. In particular, the following are considered:

- Introduction to Human Geography and Environmental Urban Planning  
- Environmental Impacts of Transportation Infrastructure Construction  
- Environmental Impacts of Transportation Infrastructure Usage  
- Environmental Impacts of Other Technical Infrastructure Networks Construction and Usage  
- Infrastructure Accessibility

**Learning Outcomes:** After having completed the Module, students are expected to have understood the following:

- Introduction to Human Geography and Environmental Urban Planning: basic principles of human geography in order to comprehend the human pressure on the environment and on environmental urban planning.  
- Environmental Impacts of Transportation Infrastructure Construction: environmental impacts during the construction of land (road, rail), air and sea transportation projects. Special emphasis is given to the effects on the microclimate, water resources, natural environment, ecosystems, landscape's aesthetics, manmade activities and cultural heritage.  
- Environmental Impacts of Transportation Infrastructure Usage: impacts on the environment during the maintenance of land, air and maritime transport infrastructure and as well as its usage and by vehicles, orbit transportation systems, track-airplanes, ships. This cognitive subject, in combination with the above-mentioned one, provide scientists expertise to design transportation infrastructure in an environmental way.  
- Environmental Impacts of Other Technical Infrastructure Networks Construction and Usage: environmental impacts during the construction and usage of other technical infrastructure networks, such as hydraulic, energy, etc.  
- Infrastructure Accessibility: the concerning and design of accessibility to infrastructure.

**Subjects covered:**

- Introduction to Human Geography and Environmental Urban Design  
- Environmental Impacts from the Construction of Transportation Infrastructure  
- Environmental Impacts from the use of Transportation Infrastructure  
- Environmental Impacts from the Construction and Use of Other Technical Infrastructure Networks  
- Infrastructure Accessibility

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PSE53 Environmental Design of Energy, Hydraulic and Marine Projects

**Module code:** PSE53  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in the 1st Division (Environmental Design of Infrastructure)  
**Year:** 1st  
**Language:** Greek

**Module general description:** The purpose of the Module is to develop critical thinking, instill in students advanced knowledge and hone their skills for the environmental design of major infrastructure projects, such as coastal and marine projects, hydraulic projects, energy projects, as well as addressing the problems of erosion, protection and restoration of soil. In particular, the following are considered:

- Environmental Design of Coastal and Marine Projects
- Erosion, Protection and Restoration of Soil
- Environmental Design of Hydraulic Projects
- Environmental Design of Energy Projects

**Learning Outcomes:** After having completed the Module, students are expected to have comprehended the following so that they are able to design the infrastructure projects in an environmental way:

- Environmental Design of Coastal and Marine Projects: understand the marine and coastal processes (waves, wave currents, sediment transport, morphodynamics) in order to design coastal protection projects. Understanding and implementation of integrated coastal zone management.
- Erosion, Protection and Restoration of Soil: understand the phenomena of erosion, soil protection methods from erosion, restoring eroded and contaminated soils.
- Environmental Design of Hydraulic Projects: study the total water circuit (dams, water tunneling and pipelines, water purification, sewage pipelines, disposal of treated effluent) and its impacts on the environment in order to design hydraulic projects in a properly environmental way.
- Environmental Design of Energy Projects: study the overall circuit of energy that is produced by fossil fuels (exploration, extraction, transportation, processing, management), renewable energy sources (hydroelectric, wind, solar, biomass, geothermal) and nuclear energy as well as their impacts on the environment in order to design energy projects in a properly environmental way.

**Subjects covered:**

- Environmental Design of Coastal and Marine Projects
- Erosion and Protection, Remediation of Soil
- Environmental Design of Hydraulic Infrastructure
- Environmental Design of Energy Infrastructure

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PSH61 Technology to Address Environmental Impacts**

**Modulecode:** PSH61  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in the 1st Division (Environmental Design of Infrastructure)  
**Year:** 2nd  
**Language:** Greek  
**Module general description:** The purpose of the Module is to develop critical thinking, impart advanced knowledge to students and hone their skills for managing, treating and addressing pollution. In particular, the following are considered:  
- Wastewater Management and Treatment  
- Solid Waste Management and Treatment  
- Management and Mitigation of Greenhouse Gas Emissions and Climate Change  
- Noise and Radiation Pollution  
**Learning Outcomes:** The purpose of the Module is to develop critical thinking, impart advanced knowledge to students and hone their skills for managing, treating and addressing pollution. In particular, the following are considered:  
- Wastewater Management and Treatment  
- Solid Waste Management and Treatment  
- Management and Mitigation of Greenhouse Gas Emissions and Climate Change  
- Noise and Radiation Pollution  
**Subjects covered:**  
- Wastewater Management and Treatment  
- Solid Waste Management and Treatment  
- Management and Mitigation of Greenhouse Gas Emissions and Climate Change  
- Noise and Radiation Pollution  
**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year  
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**Division 2: «Environmental Design of Cities and Buildings»**

**PSH50 Sustainability - Environmental Assessment**

**Module code:** PSH50  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in all Divisions  
**Year:** 1st  
**Language:** Greek  
**Module general description:** The purpose of the Module is to develop critical thinking and instill into students advanced knowledge, expertise and theoretical background that is
necessary for the environmental design of the program's subject matters. In particular, the following are considered:

- Sustainability, Political Ecology
- Economics, Sociology and Psychology of the Environment, Environmental Ethics
- Soil and Water Contamination, Air Pollution
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment
- Environmental Legislation

**Learning Outcomes:** After having completed the Module, students are expected to have comprehended the following so that they can carry on with the other modules of the program in an effective way:

- Sustainability, Political Ecology: origin, definitions, issues, impacts, sustainability policies. The objective of political ecology, its main currents and approaches, its application field.
- Economics, Sociology, Psychology of the Environment, Environmental Ethics: basic principles, main currents and application field of these subject matters.
- Soil and Water Contamination, Air Pollution: the problem and basic principles of environmental pollution, its sources, the spatial and geographic data, its impact on health, ecosystems and environment.
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment: basic principles, methodology and scope of application.
- Environmental legislation: basic principles of environmental legislation.

**Subjects covered:**

- Sustainability, Political Ecology
- Environmental economics, Sociology and Psychology of the Environment, Environmental Ethics
- Soil, Water and Air Pollution
- Environmental Assessment, Environmental Impacts Assessment, Environmental Risk Assessment
- Environmental Legislation

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**PSH51 Environmental Urban and Transportation Planning**

**Module code:** PSH51  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in the 1st and 2nd Divisions (Environmental Design of Infrastructure & Environmental Design of Cities and Buildings)  
**Year:** 1st  
**Language:** Greek
Module general description: The purpose of the Module is to develop critical thinking and instill in students advanced knowledge and expertise to understand the issues of human geography, environmental urban planning and environmental design of transport infrastructure and other technical infrastructure networks throughout their life cycle. In particular, the following are considered:

- Introduction to Human Geography and Environmental Urban Planning
- Environmental Impacts of Transportation Infrastructure Construction
- Environmental Impacts of Transportation Infrastructure Usage
- Environmental Impacts of Other Technical Infrastructure Networks Construction and Usage
- Infrastructure Accessibility

Learning Outcomes: After having completed the Module, students are expected to have understood the following:

- Introduction to Human Geography and Environmental Urban Planning: basic principles of human geography in order to comprehend the human pressure on the environment and on environmental urban planning.
- Environmental Impacts of Transportation Infrastructure Construction: environmental impacts during the construction of land (road, rail), air and sea transportation projects. Special emphasis is given to the effects on the microclimate, water resources, natural environment, ecosystems, landscape’s aesthetics, manmade activities and cultural heritage.
- Environmental Impacts of Transportation Infrastructure Usage: impacts on the environment during the maintenance of land, air and maritime transport infrastructure and as well as its usage and by vehicles, orbit transportation systems, track-airplanes, ships. This cognitive subject, in combination with the above-mentioned one, provide scientists expertise to design transportation infrastructure in an environmental way.
- Environmental Impacts of Other Technical Infrastructure Networks Construction and Usage: environmental impacts during the construction and usage of other technical infrastructure networks, such as hydraulic, energy, etc.
- Infrastructure Accessibility: the concerning and design of accessibility to infrastructure.

Subjects covered:

- Introduction to Human Geography and Environmental Urban Design
- Environmental Impacts from the Construction of Transportation Infrastructure
- Environmental Impacts from the use of Transportation Infrastructure
- Environmental Impacts from the Construction and Use of Other Technical Infrastructure Networks
- Infrastructure Accessibility

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PSP53 Environmental Urban Planning and Design of Open Spaces
Module code: PSP53
ECTS Credit Points: 20
Module Type: Compulsory in the 2nd Division (Environmental Design of Cities and Buildings)
Year: 1st
Language: Greek

Module general description: subject matters that are developed in this Module are added to the knowledge acquired in the two previous general modules concerning environmental urban planning and design of open spaces and landscape, that aims to the sustainable management of urban space and the improvement of urban living conditions. The environmental urban planning, combined with the principles of environmental design of buildings, aims to address the problems of architectural design and management of the built environment in terms of sustainable development and environmental protection.

Learning Outcomes: After having completed the module, students are expected to have acquired the following skills:
- Understanding of the climate and its impact on the design and construction of buildings
- Expertise in capturing solar radiation and heat storage and knowledge of mechanisms of ventilation and natural cooling of buildings
- Utilization of solar radiation for heating and cooling of buildings using passive solar systems.
- Understanding of the thermal balance of buildings and its correlation with the need for energy saving
- Understanding of the light physics, perception process and vision mechanism
- Understanding of the factors and mechanisms that formulate thermal and visual comfort feeling
- Knowledge of the basic tools of environmental design of buildings, environmental analysis software, legislation, energy and environmental regulations
- Understanding of environmental problems in the small scale of urban space and assessment of plants function in the surrounding area of the building in relation to the energy function
- Knowledge of renovation technologies and energy upgrading of buildings
- Knowledge of renewable energy sources and their contribution to the heating and cooling energy demand and load of buildings.

Subjects covered:
- Environmental Adaptation of Traditional Architecture
- Principles and Practices of Environmental Urban Design
- Environmental Urban Design in Greece and Worldwide
- Environmental Design of Open Spaces

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
PSP62 Environmental Design of Buildings

Module code: PSP62
ECTS Credit Points: 20
Module Type: Compulsory in the 2nd Division (Environmental Design of Cities and Buildings)
Year: 2nd
Language: Greek

Module general description: The aim of the Module is to give the necessary knowledge in order to take into account the principles that are related to environmental protection, saving energy and creating comfort conditions (both thermal and optical) for users from the early stages of the conception of the architectural project. The expected result is the production of qualitative architectural design by exploiting the possibilities offered by the natural environment through the bioclimatic design and the use of renewable energy. Besides the optimization of the energy performance of the new constructions, the module targets to the integrated approach of the energy upgrading and renovation of the existing building stock.

Learning Outcomes: After having completed the module, students are expected to have acquired the following skills:
- Understanding of the climate and its impact on the design and construction of buildings
- Expertise in capturing solar radiation and heat storage and knowledge of mechanisms of ventilation and natural cooling of buildings
- Utilization of solar radiation for heating and cooling of buildings using passive solar systems.
- Understanding of the thermal balance of buildings and its correlation with the need for energy saving
- Understanding of the light physics, perception process and vision mechanism
- Understanding of the factors and mechanisms that formulate thermal and visual comfort feeling
- Knowledge of the basic tools of environmental design of buildings, environmental analysis software, legislation, energy and environmental regulations
- Understanding of environmental problems in the small scale of urban space and assessment of plants function in the surrounding area of the building in relation to the energy function
- Knowledge of renovation technologies and energy upgrading of buildings
- Knowledge of renewable energy sources and their contribution to the heating and cooling energy demand and load of buildings.

Subjects covered:
- Environmental Design of Buildings
- Environmental Design of Building's Surrounding Area
- Environmental Upgrading of Existing Buildings

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
Division 3: “Environmental Design for the Mitigation of Climate Change”

PSH50 Sustainability - Environmental Assessment

Module code: PSH50
ECTS Credit Points: 20
Module Type: Compulsory in all Divisions
Year: 1st
Language: Greek

Module general description: The purpose of the Module is to develop critical thinking and instill into students advanced knowledge, expertise and theoretical background that is necessary for the environmental design of the program's subject matters. In particular, the following are considered:
- Sustainability, Political Ecology
- Economics, Sociology and Psychology of the Environment, Environmental Ethics
- Soil and Water Contamination, Air Pollution
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment
- Environmental Legislation

Learning Outcomes: After having completed the Module, students are expected to have comprehended the following so that they can carry on with the other modules of the program in an effective way:
- Sustainability, Political Ecology: origin, definitions, issues, impacts, sustainability policies. The objective of political ecology, its main currents and approaches, its application field.
- Economics, Sociology, Psychology of the Environment, Environmental Ethics: basic principles, main currents and application field of these subject matters.
- Soil and Water Contamination, Air Pollution: the problem and basic principles of environmental pollution, its sources, the spatial and geographic data, its impact on health, ecosystems and environment.
- Environmental Assessment, Environmental Impacts Studies, Environmental Risk Assessment: basic principles, methodology and scope of application.
- Environmental legislation: basic principles of environmental legislation.

Subjects covered:
- Sustainability, Political Ecology
- Environmental economics, Sociology and Psychology of the Environment, Environmental Ethics
- Soil, Water and Air Pollution
- Environmental Assessment, Environmental Impacts Assessment, Environmental Risk Assessment
- Environmental Legislation

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PSK51 Greenhouse Effect - Climate Change**

**Module code:** PSK51  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in the 3rd Division (Environmental Design for the Mitigation of Climate Change)  
**Year:** 1st  
**Language:** Greek  
**Module general description:** The purpose of the Module is to develop critical thinking and instill into students advanced knowledge and expertise in the phenomenon of global warming, its causes, its correlation with the economy and future scenarios for the climate. In particular, it examines:
- Greenhouse Effect  
- Natural and Anthropogenic Emissions of Greenhouse Gases  
- Correlation of Greenhouse Gases with Energy and Economy  
- Scenarios for the Future Climate Earth  

**Learning Outcomes:** After having completed the Module, students are expected to have comprehended the greenhouse effect, the natural and anthropogenic causes and sources of greenhouse gases, the correlation of greenhouse emissions with the overall circuit of energy as it is used by humans and economic activities, as well as the scenarios for the future earth's climate.

**Subjects covered:**
- Greenhouse Effect – Climate – Climate Change  
- Natural and Anthropogenic Emissions of Greenhouse Gases  
- Correlation of Greenhouse Gases with Energy and Economy  
- Scenarios for the Future Climate of Earth  

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year  
**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PSK52 Limitation of Greenhouse Gas Emissions**

**Module code:** PSK52  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory in the 3rd Division (Environmental Design for the Mitigation of Climate Change)  
**Year:** 1st  
**Language:** Greek  
**Module general description:** The purpose of the Module is to develop critical thinking, instill in students advanced knowledge and hone their skills for the managing and technological
restrictions of greenhouse gas emissions, the use of renewable energy sources as well as the agreements concerning greenhouse gas limitation. In particular, the following are considered:

- Managing Limitation of Greenhouse Gas Emissions
- Technology Limitation of Greenhouse Gas Emissions
- Conventional and Renewable Energy Sources
- National and International Policies to Reduce Greenhouse Gas Emissions - International Agreements

**Learning Outcomes:** After having completed the Module, students are expected to have understood the ways to reduce greenhouse gas emissions, the conventional and renewable energy sources concerning, as well as the policies and agreements to limit greenhouse gas emissions. They will be able to suggest ways that reduce greenhouse gas emissions and plan processes that have reduced carbon footprint.

**Subjects covered:**
- Managing Limitation of Greenhouse Gas Emissions
- Technology Limitation of Greenhouse Gas Emissions
- Conventional and Renewable Energy Sources
- National and International Policies to Reduce Greenhouse Gas Emissions - International Agreements

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PSK60 Adaptation in a World of Different Climate**

**Module code:** PSK60

**ECTS Credit Points:** 20

**Module Type:** Compulsory in the 3rd Division (Environmental Design for the Mitigation of Climate Change)

**Year:** 2nd

**Language:** Greek

**Module general description:** The purpose of the Module is to develop critical thinking, and instill into students advanced knowledge as well as hone their skills about the impacts of climate change and the adaptation in a world of different climate. In particular, the following are considered:

- Future Climate Impacts on Earth and Ecosystems
- Future Climate Impacts on Human Being
- Future Climate Impacts on Manmade Activities
- Adaptation of Human Being and Manmade Activities

**Learning Outcomes:** After having completed the Module, students are expected to have understood climate change impacts on the environment, ecosystems, humans and manmade activities. They will be capable of proposing ways of the adaptation of human beings and their activities in a future world of different climate.

**Subjects covered:**
- Impacts of Future Climate on Earth and Ecosystems
- Impacts of Future Climate on Human Being and Manmade Activities
- Adaptation of Human Being and Manmade Activities

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Advanced Studies in Physics MSc**

**Description**

The Course aims to offer Natural Science Graduates advanced knowledge on the physical-chemical properties of solid material and surfaces, and allied scientific fields.

**Learning Outcomes**

After successful completion of the Program of Studies, the students should be able to:

- Understand in depth the basic laws and principles of modern physics and their applications to contemporary areas of science, building on the theoretical background and knowledge acquired through their studies and their systematic exposure to the main applications.
- Develop all necessary skills to attack and solve advanced problems that arise in all areas of modern physics in mathematically sound and complete way.
- Be aware and deepen their understanding of front line research areas through their dissertation work on selected problems of current interest and activity, aiming at the accumulation of the necessary knowledge and skills for future engagement in doctoral studies.

**Requirements**

Applicants to the Advanced Studies in Physics course must possess an undergraduate degree in Physics from a Greek Public University, a Studies in Natural Sciences degree from the Hellenic Open University course or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

**Note:**

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*. The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Minimum study duration**
2 academic years

**ECTS study duration**
120

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 44 Physical Sciences

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0533 Physis

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

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**Course Structure**

**1st Year**
- PSF50 Advanced Studies in Physics (C¹, 20 ECTS)
- PSF51 Mathematical Methods of Physics (C, 20 ECTS)
- PSF60 Advanced Studies in Quantum Physics (C, 20 ECTS)
2nd Year
PSF61 Structure of Matter and Universe \( (O^2, 20 \text{ ECTS}) \)
PSF62 Science of Materials and Devices \( (O, 20 \text{ ECTS}) \)
DISSERTATION \( (C, 40 \text{ ECTS}) \)

Notes:
C¹: Compulsory
O²: Optional

The master's degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules

PSF50 Advanced Studies in Classical Physics
Module code: PSF50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: The successful completion of PSF50 aims at the following scientific objectives,
- Derivation of the equations of motion through Variational Principles.
- Complete determination and analysis of the motion of physical systems in configuration space through the solution of Lagrange’s Equations.
- Complete determination and analysis of the motion of physical systems in phase space through the solution of Hamilton’s equations. Poisson Brackets formalism.
- Analysis and complete solution of the problem of small oscillations (Normal Modes).
- Lagrangean and Hamiltonian formulation of Continuum Mechanics for mechanical systems and Classical Field Theory.
- Maxwell’s equations for Electrodynamics and their solution for various macroscopic physical systems.
- Study and complete analysis of the electromagnetic properties of physical systems, Conductors, Dielectrics and materials with magnetic properties.
- Formulation and analysis of the kinematic and electromagnetic behavior of physical systems in the framework of Special Relativity.
- Study and solution of problems related to radiation phenomena of accelerating electric charges.

Subjects covered:
- Advanced Studies in Classical Mechanics
- Advanced Studies in Classical Electrodynamics

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
**PSF51 Mathematical Methods in Physics**

**Module code:** PSF51  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Learning Outcomes**  
Students who will complete the requirements of the course will be able to analyze and model physical processes and phenomena through advanced mathematical methods and produce analytical solutions for certain cases. In particular the students will be able to:  
- utilize basic elements of complex mathematical analysis and especially the integral theorems to evaluate definite integrals  
- solve ordinary second order differential equations, commonly appearing in physics, using the acquired knowledge of the properties and structure of the related special functions  
- apply integral transforms to solve physical problems  
- utilize the knowledge on special functions, separation of variables method, and different coordinate systems to solve partial differential equations  
- formulate physical problems as variational problems and obtain analytical solutions  
- calculate the probability distributions of random variables and their functions, and being able to analyze experimental results  

**Subjects covered:**  
- Mathematical Methods in Physics  
- Mathematical Methods of Experimental Data Analysis  

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**PSF60 Advanced Studies in Quantum Physics**

**Module code:** PSF60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Learning Outcomes:** Upon completion of the course the student is able to,  
- Comprehend and apply the laws of quantum physics to the real world.  
- Acquire technical skills for solving complex problems.  
- Analyze a variety of exactly solvable systems involving bound states and scattering processes.  
- Develop and apply approximation methods to the study of systems arising in atomic, molecular, nuclear and solid state physics  
- Compare the theoretical predictions to the experimental results.  
- Evaluate modern results (those that are described in published scientific journals) based on extensive knowledge of the fundamental laws of quantum physics.
Subjects covered:
- Non-Relativistic Quantum Mechanics
- Quantum Chemistry

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PSF61 Structure of Matter and the Universe
Module code: PSF61
ECTS Credit Points: 20
Module Type: Optional
Year: 2nd
Language: Greek
Learning Outcomes: After completing module PSF 61 students,
- Will have obtained advanced knowledge in Solid State Physics, Particle Physics, Quantum Field Theory (especially Gauge Theories), Astrophysics and Cosmology.
- Will be able to combine this knowledge in order to understand and realize the common roots of all these different specialized areas of Physics which describe the Universe of the Small (microcosm) and the Large (macrocosm).
- Because of the size and variety of the scientific material covered, students will acquire necessary scientific skills such as becoming methodical, focusing on the important, finding key-note material, obtaining critical thinking, discipline, and meeting deadlines.
- Analyzing and combining knowledge, they will be progressively led towards the understanding of the common base of the studied scientific areas of Physics.
- Organizing and combining the postgraduate knowledge, students will be able to reorganize their undergraduate knowledge, thus building strong foundations for the acquisition of scientific thinking.
- Having changed their way of thinking, together with the new and specialized obtained knowledge, students will become aware of the world they live in and will be capable of using their skills and critical thinking in other aspects of their lives.

Subjects covered:
- Elementary Particles
- Nuclei
- Solid State
- Astrophysics

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PSF62 Science of Materials and Devices
Module code: PSF62
ECTS Credit Points: 20
Module Type: Optional
General description
The optional course “Science of Materials and Devices” of the Hellenic Open University aims to explore the fundamental electrical, optical, structural and electronic properties of different classes of advanced materials and the basic physical concepts that determine the functionality, operation and performance of various electrical, optical/photonic and electronic devices constructed using these materials for a wide range of applications. The course also covers in detail the relationships which exist between the materials’ properties and the device operation/performance. Emphasis is given on established materials and devices using a device-motivated approach. Examples of materials covered include metals, semiconductors, polymers, magnetic materials and superconductors whereas devices such as diodes, transistors, photodetectors, photovoltaics, lasers and sensors used particularly for lighting, energy and electronic applications are discussed in depth, aiming to obtain an excellent understanding of both material properties and physical phenomena governing device operation.

Learning Outcomes:
The optional module “Science of Materials and Devices” of the Hellenic Open University generally aims at the basic understanding and, further, at advancing the knowledge of its postgraduate students, that are enrolled at the MSc Course “Advanced Studies in Physics”, in the Physics of various Material Categories and of Optoelectronic/Photonic Devices and Devices in Microelectronics that are employed in advanced applications and whose functionality is based on varying fundamental properties of the materials studied.

The main aim for the students is to obtain both general and more specialized knowledge in the subjects of Materials Science and Devices based on those Materials. Priority and focus is given a) on understanding the behavior of electrons in solid state materials and on how this behavior translates into separating them in metals, semiconductors and dielectrics, b) at studying in detail the basic fabrication and characterization processes and the fundamental physical and chemical properties of materials such as Metals, Semiconductors, Polymers, Magnetic and Ceramic Materials, and c) on their application in various Optoelectronic and Photonic Structures and Devices as well as Devices in Microelectronics such as the p-n junction, electronic diodes, light emitting diodes and photodiodes/photodetectors, bipolar junction (BJTs) and field effect transistors (MOSFETs), photovoltaic(solar) cells, lasers and sensors aiming at understanding in depth the main principles of their operation.

The main objective is the understanding of the most important fundamental optoelectronic and structural properties of the materials studied and the basic principles of operation as well as the physics of the aforementioned devices.

At the end and the successful completion of this module, the postgraduate students are expected to have gained in depth knowledge both of the fundamental properties of the aforementioned classes of materials and of the physics and the principles of operation that are behind their applications in advanced structures and devices mainly in the area of Optoelectronics/Photonics and Energy.

Subjects covered:
- Metals-Semiconductors
- Microelectronics
- Sensors and Bio-Sensors
- Lasers and Optical Electronics
- Material Science
- Polymer Science

**Evaluation:** Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**Waste Management MSc**

**Description**
The aims of the course are to provide specialized knowledge on waste management techniques and purification processes and to develop understanding of the complex environmental systems, which are affected by waste disposal.

**Learning Outcomes**
They include the supply of specialized knowledge in the following subjects of waste management (wastewater, solid waste and air pollution): technologies of waste treatment, methodologies of reclamation, understanding the multicomplex structure and functions of the environment which is the final receptor of the wastes, acquiring knowledge relevant to the legislation of waste management for the protection of human health and of the environmental quality, selection of technologies for solving problems related to point pollution sources, planning and designing recycling systems, assessing the economic and environmental parameters of alternative waste treatment systems (mechanical separation, thermal methods with emphasis on incineration, biological methods such as composting and anaerobic digestion), and to compare alternative management scenarios which are based on these technologies. Also, knowledge will be offered in evaluating the natural environmental conditions, the impacts of the contaminants on human health, the methodologies for evaluation of environmental conditions, as well as for restoration and reclamation of the environment. Through the preparation of their thesis, the students must be capable of addressing practical aspects related to waste management in the (terrestrial and aqueous) environment and in the human societies.

**Requirements**
Applicants to the Waste Management course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

*Note:*
Where previously mentioned:
a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.  

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.  
The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.  
*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.  

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**Minimum study duration**

2 academic years

**ECTS credit points**

120

**Classification according to ISCED-2011 of Unesco**

- Based on the level of Education: 7  
- Based on the field of Education: 85 Environmental Protection

**Classification according to ISCED-2013 of Unesco**

- Based on the field of Education: 0712 Environmental Protection and Technology

**Learning Material**

Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.  

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.  

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

---

**Contact**

**Student Records:**
Tel.: ++30-2610 367332. Fax: ++30-2610 367110. E-mail: dia@eap.gr  

**General Information:**
Course Structure

1st Year

DIA50 Natural Environment and Pollution (C¹, 20ECTS)
DIA51 Solid Waste Management (C, 20ECTS)
DIA60 Liquid Waste Management (C, 20ECTS)
DIA61 Air Pollution Management (C, 20ECTS)

2nd Year

DIA51 Solid Waste Management (C, 20ECTS)
DIA60 Liquid Waste Management (C, 20ECTS)
DIA61 Air Pollution Management (C, 20ECTS)
DISSERTATION (C, 40ECTS)

Note:
C¹: Compulsory

The requirements in order to obtain the degree are the following:
- The students must attend and pass four courses of the programme.
- The students must submit a dissertation. The examining committee of the dissertation consists of three members of the Academic Research Staff or tutors of the programme.

Course Modules

DIA50 Natural Environment and Pollution

Module code: DIA50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description:

The soil environment as waste receiver


The marine environment as waste receiver


The atmosphere as waste receiver

**Waste disposal and environmental impact**


**Learning Outcomes:** At the end of the thematic unit DIA 50 the students will achieve a good understanding of,

- the physical chemical, biological and geological processes occurring on land in the aquatic and atmospheric environment in relation to the presence of pollutants.
- the assessment of the quality of the environment
- the environmental impact of the waste.

At the end of the thematic unit DIA 50 the students will have the ability to,

- write scientific papers
- apply the knowledge in assessing the environmental quality
- understand the environmental problems
- to apply methodologies in decontaminating the physical environment.

**Subjects covered:**

- The terrestrial environment as waste recipient
- The marine environment as waste recipient
- The atmosphere as waste recipient
- Waste disposal and its impacts on the environment

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**DIA51 Solid Waste Management**

**Module code:** DIA51

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 1st/2nd

**Language:** Greek

**Module general description:**

Legal framework for the management of residential and other nonhazardous solid wastes (RNSW). Sources, classification, composition and minimisation of RNSW. Temporary storage and

**Hazardous wastes**


**Solid agricultural wastes**


**Learning Outcomes:** With this Thematic units the students acquire an integrated knowledge of solid waste management issues

In particular, they become capable to:

- Determine the quantitative and qualitative characteristics of solid wastes generated by municipalities and productive activities such as agriculture and mining
- Follow the relevant legislation, but also the processes that generate it and the current legal trends
- Design the basic characteristics of a solid waste collection system
- Design the basic characteristics of a recycling system
- Design the basic characteristics of a sanitary landfill
- Assess the economic and environmental issues of alternative waste treatment systems (mechanical separation, thermal methods with an emphasis on incineration, biological methods such as composting and anaerobic digestion) and to compare alternative management scenario that are based on these technologies
- Evaluate construction and demolition waste, as well as mining waste management issues
- Evaluate special waste management issues (car tyres, lamps, oils, batteries, etc.)
- Evaluate the characteristics that render a certain waste hazardous (e.g. reactivity, corrosivity, explosivity, toxicity, radiation etc)
- Propose methods for hazardous waste management (e.g. stabilization/solidification)
- Propose methods of contaminated soils remediation
- Propose methods of agricultural and animal breeding waste management
- There is a special emphasis on the prospect of valorization of solid wastes for the production of energy and useful materials

**Subjects covered:**

- Household and other nonhazardous wastes
- Hazardous wastes
- Solid agricultural wastes

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DIA60 Liquid Waste Management**

**Module code:** DIA60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st/2nd  
**Language:** Greek  
**Module general description:**

**Municipal wastewaters**


**Industrial Wastewaters**


**Agricultural wastewaters**

Design and selection of agricultural wastewater treatment and disposal facilities. Land disposal of agricultural wastewaters for irrigation and fertilisation. Energetic valorisation of agricultural wastewaters.

**Learning Outcomes:** With the completion of this series of courses, the students are expected to be capable of,

- understanding the qualitative characteristics of the municipal wastewaters and the legal framework concerning the wastewaters and the environmental protection.
- understanding the preparatory, primary, secondary and tertiary treatment of the municipal wastewaters
- planning and designing municipal wastewaters treatment plants.
- understanding the qualitative-quantitative characteristics of the industrial wastewaters, and also their physical, chemical and biological treatment processes
- understanding the methodologies and the ways of municipal and agricultural wastewater reuse, and disposal

**Subjects covered:**

- Municipal liquid wastes
- Industrial liquid wastes
- Agricultural liquid wastes

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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### DIA61 Air Pollution Management

**Module code:** DIA61  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1<sup>st</sup>/2<sup>nd</sup>  
**Language:** Greek

**Module general description:**

- **Atmospheric pollutants and emission control technology I**  

- **Atmospheric pollutants and emission control technology II**  
  Analytical methods for the identification and measurement of atmospheric pollutants. Air quality and atmospheric pollution indicators. Telescopic detection of atmospheric pollutants,

**Learning Outcomes:** After completing this module, students will be expected to be able to:

- have clarified the picture of main atmospheric pollution sources (both industrial and urban) and the corresponding pollutants emitted for their country as well as for broader regions
- be informed about the spirit, the content and the future evolution (trend) of laws concerning both emissions and quality of ambient air
- be able to understand the design principles for both gaseous and particulate pollutants retention systems
- be able to evaluate and eventually propose/select a technology to solve an air pollution problem from a point (industrial) source
- be able to understand and apply basic principles of atmospheric sampling and monitoring of gaseous and particulate atmospheric pollutants
- be able to evaluate air pollution monitoring results in terms of human health risks and air quality indexes

**Subjects covered:**

- Atmospheric pollutants and technology of emission control

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**Engineering Project Management MSc**

**Description**

The course aims to train professional engineers to move into higher management positions within the construction services industry.

**Learning Outcomes**

The objective of the postgraduate program entitled "Engineering Project Management" is to train professional engineers to move into higher administrative positions in all phases of analysis, design and creation of construction projects. To achieve this objective, postgraduate students should study the following Topics/Courses: DCHT50 - Principles of Construction Project Organization and Management, DCHT51 - Construction Project Analysis and Design, DCHT60 - Construction Law and Construction Safety and DCHT61 - Construction Economics and Management. After successful completion of DCHT50, postgraduate students will be able to comprehend and apply the principles of business administration, to organize and manage a construction site and will have in-depth knowledge of information systems in construction management. Successful completion of DCHT51 leads to in-depth knowledge of analysis and design of structures, of principles of construction technologies as well as of building materials and construction equipment. DCHT60 intends to the comprehension of construction law and safety and of environmental impact of construction projects and construction sites. Finally, after successful completion of DCHT61, the postgraduate students will know in-depth the principles of engineering economics, how to achieve successful construction planning and estimation as well as successful construction project scheduling and control.

**Requirements**

Applicants to the Engineering Project Management course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

20% of the offered positions shall be occupied by candidates with proven ten-year professional experience.

**Note:**

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Minimum study duration
2 academic years

ECTS credit points
120

Classification according to ISCED-2011 of Unesco
- Based on the level of Education: 7
- Based on the field of Education: 52 Engineering and engineering trades

Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0732 Bulding and civil engineering

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
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Course Structure
1st Year
DCHT50 Principles of Construction Project Organization and Management (C¹,20 ECTS)
DCHT51 Construction Project Analysis and Design (C,20 ECTS)
DCHT60 Construction Law and Construction Safety (C,20 ECTS)
DCHT61 Construction Economics and Management (C,20 ECTS)

2nd Year
DCHT60 Construction Law and Construction Safety (C,20 ECTS)
DCHT61 Construction Economics and Management (C,20 ECTS)
DISSERTATION (C,40 ECTS)

Note:
C¹: Compulsory

The master's degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules

DCHT50 Principles of Construction Project Organization and Management
Module code: DCHT50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Learning Outcomes: Students who complete the study of this subject area should be able to:
- Describe the organizational and financial structure of businesses, particularly contracting firms, management systems, strategic planning and financial management policy.
- Describe the organizational structure of the construction site (technical and administrative staff, equipment, mechanical installations and other facilities).
- Apply management rules for company and construction site personnel.
- Apply management rules for equipment, suppliers and materials used for construction.
- Evaluate alternatives concerning the location and layout of the site and the specific characteristics depending on the size and characteristics of the construction project.
- Prepare the necessary studies for the organization of the construction site and the mobilization of the necessary equipment and installations.
- Prepare technical and financial offers for participation in tenders for projects and studies and be able to apply the procedures for awarding and executing construction projects.
- Select and use information systems for construction management in company’s headquarters and construction site.
- Use application software for construction management (project management packages, databases, spreadsheets).
- Use advanced systems and information technology in managing technical projects.

Subjects covered:
- Principles of business administration
- Construction site organization and management
- Information systems in construction management
**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade. More information is available.

### DCHT51 Construction Project Analysis and Design

- **Module code:** DCHT51
- **ECTS Credit Points:** 20
- **Module Type:** Compulsory
- **Year:** 1st
- **Language:** Greek

**Learning Outcomes:** Students who complete the study of this subject area should be able to:

- Evaluate the key parameters that define the geometry and the planning of a road and its design stages and evaluate the elements that have to do with the structures to be included in the design as well as with data management systems for the pavements of roads.
- Know the general characteristics, types, principles of design and construction methods of bridges.
- Organize the management of analysis and design of dams, identify the stages of design, organize the construction management of a dam, evaluate the qualifications for the assignment of the design of a dam and execute the necessary restoration works for the environment.
- Describe the progress of the subsoil investigation, to apply modern methods of surveying works and their instruments and implement measurements and monitoring for technical projects.
- Recommend solutions and actions for safe temporary and special assistive structures, implement basic principles of construction formwork in various constructions and propose aesthetically acceptable solutions for contemporary precast structures.
- Evaluate the importance of quality control of construction materials and recognize the capabilities and features of industrialization.
- Set the properties on the quality of materials used in most civil engineering structures and more specifically of aggregates, steel, concrete, asphalt and masonry materials.
- Recommend safe solutions for the construction and repair of specific engineering projects using composites with cement matrix and bonding materials with adhesives.
- Evaluate the productivity of major machinery of construction projects based on their structure and functioning.

### Subjects covered:

- Analysis and design of structures
- Principles of construction technologies
- Building materials and construction equipment

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.
**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade. More information is available.

**DCHT60 Construction Law and Construction Safety**

**Module code:** DCHT60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st / 2nd  
**Language:** Greek

**Learning Outcomes:** Students who complete the study of this subject area should be able to:
- to know the basic legislation, that conditions at the preliminary study stage to the implementation study of a project
- to know the basic legislation, that conditions the assign stage and the stage of construction of a project.
- to know the basic legislation, that conditions the safety and health of workers more generally and workers in technical projects more specifically.
- to recognize natural, chemical, biological dangers in a jobsite and to propose methods to face these situations in a jobsite
- to manage emergency situations in jobsites and technical projects.
- to know the methodological approach of forming the study, the analysis and the confrontation of environmental impacts from technical projects.
- to evaluate and rate the dangers and face the environmental impacts.
- to be informed about the international, European and national legislation, relative with the protection of environment.
- to know the content of Environmental Impact Assessment, public participation and the process of approval
- to be informed about the administrative process in obtaining license of an installation

**Subjects covered:**
- Construction Law  
- Construction safety  
- Environmental impacts of construction projects and construction sites

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**DCHT61 Construction Economics and Management**

**Module code:** DCHT61  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st / 2nd
Language: Greek

Learning Outcomes: Students who complete the study of this subject area should be able to:
- Apply established methods for economic evaluation of investment plans.
- Assess the machinery value in time (depreciation) and evaluate replacement plans.
- Analyze the financial structure of companies and evaluate the financial risks.
- Evaluate the economic feasibility of public projects and determine financing alternatives.
- Develop the work breakdown structure of a project within the project management process.
- Apply established network analysis methods for project scheduling and develop the project Gantt chart.
- Develop resource allocation plans in single or multiple projects.
- Develop project cash flow diagrams considering capital availability.
- Propose effective solutions for project crashing.
- Perform project monitoring and control analysis.
- Perform risk management analysis in project construction or operation.
- Organize the project delivery process and develop maintenance and rehabilitation plans.
- Utilize project management software.

Subjects covered:
- Engineering economics
- Construction planning and estimation
- Construction project scheduling and control

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Earthquake Engineering and Seismic-Resistant Structures MSc

Description
The scope of the programme is to provide specialized studies and knowledge to Civil Engineers in the area of Earthquake Engineering and Seismic-Resistant Structures, which will contribute to the elevation of the technical potential of the country educationally and professionally. The course provides the necessary theoretical background in seismology and soil and structural dynamics and emphasizes seismic design and repair and strengthening of building structures made of reinforced concrete, steel or other materials.

Learning Outcomes
The students who successfully complete the four units of studies are in a position to:
- to analyze structural dynamics problems in sub-problems and then properly synthesize them, to evaluate structural models and computational methods as related to the
dynamic response of structures, to evaluate the results of dynamic structural analyses pertaining to structural engineering practice.

- to perform or evaluate the seismic design of concrete, steel or composite structures
- to identify structures with a high seismic vulnerability and to redesign any vulnerable structure through repairing or strengthening crucial weak elements. Furthermore, a basic knowledge will be acquired for the assessment of the structural capacity and the design of the necessary restoration works for monumental structures, ensuring the preservation of the monument and the architectural heritage.

Requirements

Applicants to the Earthquake Engineering and Seismic-Resistant Structures course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

Note:

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

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Minimum study duration

2 academic years

ECTS credit points

120

Classification according to ISCED-2011 of Unesco

- Based on the level of Education: 7
- Based on the field of Education: 58 Architecture and building
Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0732 Building and civil engineering

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

*Student Records:*
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*General Information:*
Tel.: ++30-2610 367300. Fax: ++30-2610 367110. E-mail: info@eap.gr

**Course Structure**

<table>
<thead>
<tr>
<th>Year</th>
<th>Module Code</th>
<th>ECTS Credit Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Year</td>
<td>SMA50 Dynamic Analysis of Structures</td>
<td>(C¹, 20 ECTS)</td>
</tr>
<tr>
<td></td>
<td>SMA51 Technical Seismology and Soil Dynamics</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td></td>
<td>SMA60 Design of Seismic Resistant Structures</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td>2nd Year</td>
<td>SMA61 Seismic Damages, Repairs and Reinforcements</td>
<td>(C, 20 ECTS)</td>
</tr>
<tr>
<td></td>
<td>DISSERTATION</td>
<td>(C, 40 ECTS)</td>
</tr>
</tbody>
</table>

**Note:**
C¹: Compulsory

Students are awarded a Masters degree upon successful completion of four modules and a dissertation.

**Course Modules**

### SMA50 Dynamic Analysis of Structures
**Module code:** SMA50  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  
**Module general description:**
I. Basic characteristics of a structural dynamics problem: dynamic loads, structural modelling, dynamic response. Analysis of free vibrations of a single degree of freedom system and determination of its response to harmonic or transient forces in the time or frequency domain.
taking also into account the effect of viscous damping. Derivation of the equations of motion of a multi degree of freedom system (structure) with the aid of the mass, stiffness and damping matrices of that system. Determination of natural frequencies and modal shapes of the structure.

Determination of the dynamic response of multi degree of freedom systems (structures) by the modal superposition method or by the stepwise time integration of the equations of motion. The dynamic forces may be harmonic or general transient ones including seismic forces in conjunction with rigid soil. Concept of the response spectra and the design spectra. Determination of the maximum structural seismic response by using modal superposition in conjunction with response or design spectra.

II. Determination of the dynamic response of inelastic multi degree of freedom systems (structures) either by stepwise time integration of the equations of motion or by other special methods. Definition and computation of ductility factor, damage index and behaviour factor of a structure.

Description and application of the Greek Seismic Code and Eurocode 8 for the seismic design of a simple building structure. Influence of the soil-structure interaction phenomenon on the structural dynamic response. Use of seismic base isolation in structures to reduce the seismic stresses.

III. Definition of random variables and random processes in structural dynamics. Mean value and standard deviation. Determination of the stochastic dynamic response of linear single and multi degree of freedom systems (structures) subjected to random loading. Determination of the stochastic dynamic response of simple non-linear structures or simple continuous systems under random loading. Modelling of random fields and analysis of the structural seismic vulnerability with the aid of stochastic structural dynamics.

Learning Outcomes: After the successful completion of the above course, the student will be able to,

- Describe problems of free and forced vibrations of single and multi degrees of freedom structures, under elastic or inelastic material behavior and determine their response to dynamic and especially seismic loads under deterministic or stochastic conditions of analysis.

- Distinguish and compute the mass, stiffness and damping matrices of a structure, use the above for the computation of the dynamic response of this structure with the aid of the method of superposition of modes-response spectra or the method of the time integration of the equations of motion and finally apply all the above in the framework of seismic codes for the design of a structure.

- Analyse a problem of structural dynamics into subproblems (e.g., determination of modal frequencies and shapes, or modeling reduction of a complex system into a simpler one or use of the substructuring method in soil-structure interaction), synthesize appropriately subproblems (e.g., use of the method of modal superposition), evaluate models of systems and methods of determination of dynamic response of structures and assess analysis and synthesis results as they are related to practice.

Subjects covered:

- Dynamic analysis of structures
- Earthquake engineering
- Advanced topics of dynamics of structures and earthquake engineering
**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

<table>
<thead>
<tr>
<th>SMA51 Technical Seismology and Soil Dynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module code:</strong> SMA51</td>
</tr>
<tr>
<td><strong>ECTS Credit Points:</strong> 20</td>
</tr>
<tr>
<td><strong>Module Type:</strong> Compulsory</td>
</tr>
<tr>
<td><strong>Year:</strong> 1st</td>
</tr>
<tr>
<td><strong>Language:</strong> Greek</td>
</tr>
</tbody>
</table>
| **Module general description:** Technical Seismology


Generation and Propagation of Seismic Waves

Dynamic theory of elasticity. Stress and strain. Hooke’s law between stresses and strains. Equations of motion in terms of displacements. Fracture mechanics of brittle materials and seismic faults. Propagation, reflection and diffraction of seismic waves. Primary (P), Shear (S), Rayleigh (R) and Love (L) waves in the full space or the half-space soil medium under homogeneous or non-homogeneous conditions. Material and geometrical damping in soils.

Dynamics of Soils and Foundations

Basic concepts from soil mechanics and wave propagation. Laboratory and field tests for the determination of soil properties. Soil behaviour under monotonic and cyclic shear deformation. Methods for determining the dynamic response of soils and foundations. Seismic motions of soil and site effects. Consolidation and liquefaction of soils. Seismic design of slopes, dams and retaining walls. Seismic design of foundations and piles.

**Learning Outcomes:** On successful completion of the module, students will have understood the nature of the earthquakes and the response of soil formations during the seismic motion. In this way, they will be able to assess the seismic risk of civil engineering works, an important issue for the seismic design of structures. More specifically, the following subjects will be studied: the fracture on the causative fault and the generation of the earthquakes; the recording of the seismic motion and the measure of its intensity; the generation and the propagation of the seismic waves; the basic principles of seismic hazard analyses; the seismic response of soil formations; the effect of the ground response on the seismic motion that is applied at the base of the structures; and the seismic design of natural slopes, dams, embankments, retaining walls and shallow and deep foundations.

**Subjects covered:**
- Engineering seismology
- Generation and propagation of seismic waves
- Seismic response of soils and dynamics of geostructures and foundations
**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**SMA60 Design of Seismic-Resistant Structures**

**Module code:** SMA60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek  

**Module general description:**

**Seismic Design of Reinforced Concrete Structures**  

**Seismic Design of Steel Structures**  

**Composite Structures**  

**Learning Outcomes:** On successful completion of the module, students will be able to:

- Understand the basic principles for the seismic design of reinforced concrete structures.
- Understand the basic characteristics of the behaviour of reinforced concrete members under cyclic forces and displacements.
- Know basic principles for the proper planning of earthquake-resistant reinforced concrete structures.
- Determine proper detailing for reinforced concrete members under cyclic loading.
- Understand the basic principles for the seismic design of steel structures.
- Know the mechanical characteristics of steel, steel beams, columns and connections under cyclic loading.
- Apply proper detailing rules for different types of steel structures under cyclic loading.
- Explain 2nd order effects in the seismic response of steel structures.
- Understand the role of diaphragms, semi-rigid connections, axial forces and foundations in the seismic response of steel structures.
- Understand the basic principles for the seismic design of steel-concrete composite structures.
- Explain the role of shear connection in composite structures.
- Design composite beams, slabs and columns.

Subjects covered:
- Seismic Design of Reinforced Concrete Structures
- Seismic Design of Steel Structures
- Seismic Design of Composite Structures

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

SMA61 Seismic Damage, Repair and Strengthening of Structures

Module code: SMA61
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description:

Assessment of Seismic Damages, Repairs and Strengthening of Reinforced Concrete Buildings

Assessment of Seismic Damages, Repairs and Strengthening of Traditional and Monumental Buildings
Basic principles for the repair, strengthening and restoration of traditional and monumental buildings made of (mainly) masonry or wood. Methods of analysis and design as influenced by the law governing traditional and monumental buildings. Mechanical characteristics of building materials (stone, brick, mortar, wood). Traditional ways of analysing, designing and building these buildings. Typical damages in masonry walls under in-plane or lateral seismic loads. Assessment of damages and methods for repair, strengthening and restoration. Description of
a typical repair, strengthening and restoration methodology for a monumental masonry structure.

**Learning Outcomes:** After the successful completion of the above course, the student will:

- Be able to understand the causes of seismic damage and recognise the relevant deficiencies of reinforced concrete (RC) and masonry structures.
- Have the basic knowledge to estimate or evaluate the seismic capacity of the above structures, using approximate or more accurate methods, according to Eurocode, Greek and International Standards.
- Know and be able to choose appropriate strategies for the redesign of existing structures.
- Know the materials and technologies of intervention for repair or strengthening.
- Be aware of the models simulating the contact between old and new materials and other models, provided in European and Greek Standards, to enhance the seismic capacity of RC or masonry elements either by increasing their ductility or by increasing their strength.
- Be able to design and evaluate the capacity of repaired or strengthened RC and masonry components, depending on the selected intervention.

**Subjects covered:**

- Seismic Damage Evaluation, Repair and Strengthening of Reinforced Concrete Buildings
- Seismic Damage Evaluation, Repair and Strengthening of Traditional and Monumental Buildings

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Environmental Catalysis for Pollution Abatement and Clean Energy Production MSc**

**Description**

The programme is mainly addressed to Chemists, Chemical Engineers, Physicists, Environmental Scientists and Engineers as well as to Geologists and Materials Scientists and Engineers. The main goal of the program is the detailed study of the catalytic science and technology and their applications in producing clean energy and in the environmental protection.

**Learning Outcomes**

The graduates are expected to be able to contribute to the development of novel catalysts and catalytic processes (or to the improvement of existing ones) related to the catalytic destruction of pollutants and to the production of environmentally friendly fuels.

**Requirements**
Applicants to the Catalysis and Environmental Protection course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

**Note:**
Where previously mentioned:
a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Minimum study duration**
- 2 academic years

**ECTS credit points**
- 120

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 85 Environmental Protection

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0712 Environmental Protection Technology

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

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**Course Structure**

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<td>KPP71 Catalytic Surfaces</td>
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<td>(C, 20 ECTS)</td>
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</tr>
</tbody>
</table>

**Note:**
C¹: Compulsory

**Requirements for the acquisition of the master's degree**

- The students must attend and pass the aforementioned four courses of the programme.
- The students must submit a dissertation. The examining committee of the dissertation consists of three members of the Academic Research Staff or tutors of the programme.

**Course Modules**

**KPP70 Catalysis**

*Module code:* KPP70  
*ECTS Credit Points:* 20  
*Module Type:* Compulsory  
*Year:* 1st  
*Language:* Greek  

*Module general description:*

**Homogeneous and Enzyme Catalysis**

Introduction and Terminology (a short description of catalysis, homogenous and heterogeneous catalysis, catalysis and chemical equilibria, catalytic cycle, catalytic activity, selectivity and stability, the general mechanism of catalytic action)

Catalysis in acidic and alkaline solutions (organic reactions catalyzed by acids, proton donors, carbenium ions, proton catalysis of molecules with heteroatoms containing a lone pair of electrons, catalysis through protonation of the carbon, carbon double bond, proton catalysis of parafinic hydrocarbons, catalysis in alkaline solutions, acid-base simultaneous catalysis, acid catalysis in solutions of macromolecules)
Catalysis by transition metal complexes (the catalytic action of the transition metal ions in solutions, organic reactions catalyzed by transition metal complexes, a short introduction in the structure and properties of the transition metal complexes, mechanisms of selected organic reactions catalyzed by transition metal complexes in solutions, the catalytic action of transition metal complexes supported on various supports, catalysis at the interface of two liquids, catalysis by clusters)

Enzyme catalysis (the general characteristics of the enzymes and the enzyme action, preparation, structure and active sites of the enzymes, acid base enzyme catalysis, metal -enzyme catalysis, formal kinetics and mechanisms of the enzyme reactions, the influence of pH on the activity of the reactions catalyzed by enzymes).

Heterogeneous Catalysis

Heterogeneous acid-base catalysis: zeolites (development of acid-base surface sites on solid oxides e.g. MgO, γ-Al2O3, SiO2, γ-Al2O3-SiO2 used as catalysts, the structure and surface properties of zeolites, the catalytic action of zeolites, fluid catalytic cracking, shape-selective catalysis)

Catalysis on the metallic surfaces: hydrogenation, dehydrogenation and hydrogenolysis of the hydrocarbons (the surface characteristics of the transition metals, the mechanism of hydrogenation of alkenes: an interpretation based on the hydrogen chemisorption, the relationship between the energy of the Fermi level and the strength of the metal-hydrogen chemisorptive bond, the mechanism of hydrogenation of alkenes: an interpretation based on the ethylene chemisorption, hydrogenation of the carbon, carbon triple bond, hydrogenation of the aromatic hydrocarbons, dehydrogenation and hydrogenolysis of alkanes, structure sensitive reactions, hydrogenation and hydrogenolysis of organic compounds with heteroatoms)

Catalysis on the metallic surfaces: hydrogenation of CO and catalytic synthesis of NH3 (introduction to the hydrogenation of CO, chemisorption of CO on metallic surfaces: the main experimental observations, chemisorption of CO on metallic surfaces: orbitals interactions, interactions of the C atomic orbitals with the orbitals of the transition metals, interpretation of the experimental observation based on the orbital interactions, methanation, F-T synthesis of hydrocarbons, production of oxygen compounds over rhodium supported catalysts, methanol production, the catalytic synthesis of NH3: the development of the industrial catalyst, the catalytic synthesis of NH3: the reaction mechanism)

Catalysis on the metallic surfaces: catalytic oxidations (catalytic oxidations on the transition metal surfaces, selective oxidation of ethylene to ethylene oxide: the catalyst, the old reaction mechanism and the modern reaction mechanism, oxidation of CO over the Pd(1 1 1) crystal face: CO and O2 chemisorption and the reaction mechanism)

Catalytic oxidation over the surface of the transition metal oxides (electrical and surface properties of the transition metal oxides, the Mars and Van-Krevelen general oxidation mechanism, catalytic production of maleic anhydride, pthalic anhydride, formaldehyde from methanol and sulphuric acid, partial oxidation and amoxidation of propene, selective catalytic reduction of NO, catalytic combustion of volatile organic compounds)

Hydrorefining reactions over the surface of transition metal sulphides (the hydorefining of the petroleum fractions, selection, preparation and activation of the hydorefining catalyst, the nature of the active sites, mechanisms of reactions taking place upon the hydorefining of the oil fractions)
Surface Science
Introduction to the Surface science (surfaces and solid-solid interfaces, bulk structure and surface structure of a solid, surfaces-interfaces and modern technologies, clean surfaces at atomic level and very high vacuum)
Fundamentals concepts and technologies of the high vacuum (concepts of the kinetic theory of the gases, basic concepts and mechanisms of the gas flow in vacuum, calculations relevant to the molecular flow, pumping and production of high vacuum)
Surface analysis (low energy electrons and surface sensitivity, the physicochemical ground of the photoemission, the physicochemical ground of production of the Auger electrons, X-ray photoelectron and X-ray Auger electron spectrosopies-XPS and XAES, general characteristics of the XP and XAE spectra, the XPS surface analysis, technological applications of the surface analysis using XPS/XAES)
The surface structure (surface lattices and notation of the super structures, determination of the surface structure by low energy electron diffraction or high electron reflection, tunnelling and atomic force microscopy for studying surfaces)
Electronic properties of surfaces (surface electronic density, determination of the work function, metal-semiconductor interfaces).
Atomic motion at surfaces (surface vibrations, surface diffusions and surface melting)
Thin films at surfaces (mode of development of thin films, production of films at solid surfaces by epitaxial molecular beam)

Learning Outcomes: After completing this module, students will be expected to be able to:
- Present in details the fundamental concepts and methods of homogeneous, enzymatic and heterogeneous catalysis (e.g. activity, selectivity, stability of catalysts, parameters for estimating activity and selectivity, active sites, catalytic cycle, deactivation and regeneration, general mechanism of catalytic action).
- Classify catalysts and catalytic reactions in important groups and present in details the various aspects of catalytic action for each group (e.g. catalysis by protons in solutions and surfaces, homogeneous catalysis by organometallic complexes, catalysis by enzymes, catalytic action of transition metals, oxides and sulphides).
- Present the fundamental concepts and methods of Surface Science and their applications in heterogeneous catalysis (e.g).
- Explain the contribution of catalysis in chemical industry, destruction of pollutants and improvement of fossil fuels as well as in the development of environmentally friendly fuels and chemical processes.
- Choice the best catalyst for a given catalytic reaction.
- Combine various catalytic materials for performing a complex chemical process

Subjects covered:
- Homogeneous Catalysis
- Enzyme Catalysis
- Heterogeneous Catalysis
- Surface Science

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
**KPP71 Catalytic Surfaces**

**Module code:** KPP71  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1\textsuperscript{st}  
**Language:** Greek

**Catalysts Preparation**
- Structure and Morphology of Solid Catalysts (Active Phases, Catalytic Carriers, Stabilizers, Modifiers, Chemical or Electronic Promoters, Shaped Solid Catalysts, Monolithic Catalysts, Structural Changes of Solid Catalysts upon Catalytic Processes, Nomenclature for Solid Catalysts)
- Preparation of Supported Catalysts (Dry and Wet Impregnation, Deposition-Precipitation, Study of Oxidic Carriers Surface, Oxide-Water Interface, Interactions between the Oxidic Carrier Surface and Active Phase Precursor Ions upon Impregnation, Equilibrium Deposition Filtration Technique, Comparison of Aqueous Solutions Impregnation Techniques, Heterogenization of Homogeneous Catalysts-Grafting, Preparation of Supported Catalysts with Different Supported Phase Macro-distributions in Pre-shaped Carrier Bodies)

**Catalysts Characterization**
- Physical Characteristics Determination of Solid Catalysts (Determination of the Solid Catalyst Texture, Determination of Solid Catalysts and Carriers Particles and Microparticles Size, Determination of Solid Catalysts Bodies Mechanical Strength, Determination of Components Macro-distribution in Catalyst Bodies, Determination of Geometrical Characteristics of Supported Phases in Solid Catalysts)
- Determination of Chemical Composition of Solid Catalysts (Methods of Elemental Analysis of Solid Catalysts, Methods of Structural Analysis of Solid Catalysts)

**Catalyst Evaluation**
- Kinetics of Reactions on the Catalytic Surfaces (The Mechanism of the Heterogeneous Catalytic Action, Adsorption, Surface Kinetics)
- The Influence of Mass and Heat Transfer Limitations on the Kinetics of Heterogeneous Catalytic Processes (External Mass Transfer Phenomena, Internal Mass Transfer Phenomena)
- Laboratory Catalytic Reactors (Classification of the Laboratory Catalytic Reactors, Transient Reactors, Steady State Reactors).
Learning Outcomes: Upon completion of the module, the student will be able to:
- describe the structural parts of a solid catalyst
- describe the necessary physicochemical characteristics of the structural parts of a solid catalyst, in order this to be suitable for specific catalytic processes
- explain how the physicochemical characteristics of a solid catalyst can be changed upon a catalytic process
- report and describe the main preparation techniques of supports, unsupported and supported catalysts
- describe the interface oxide / aqueous solution
- select the appropriate physicochemical techniques for the determination of specific: (a) physical, (b) total chemical and (c) surface chemical characteristics of the solid catalysts
- describe the basic principles, the corresponding experimental setups and the corresponding experimental procedures of the main techniques used for the determination of the physical, total chemical and surface chemical characteristics of the solid catalysts
- describe qualitatively and quantitatively the reaction kinetics on the catalytic surfaces, as well as the influence of mass and heat transfer phenomena on the kinetics
- describe the most important types of catalytic reactors
- select the most appropriate lab catalytic reactor for a specific study

Subjects covered:
- Structure of solid catalysts
- Synthesis of solid catalysts
- Characterization of catalytic surfaces
- Catalytic reaction engineering

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

KPP 80: Pollution Abatement Processes
Module code: KPP80
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek

Module general description: The purpose of this module is to educate students on issues concerning advanced adsorption, catalytic and photocatalytic pollution abatement processes, namely processes of pollutants destruction or retention on adsorbent surfaces.

Learning Outcomes: After completing this module, the student should be able to:
- Describe the formation of the main gaseous and liquid pollutants emitted from mobile and stationary sources and explain the necessity of controlling their emissions by presenting the negative impact these pollutants have on the Environment.
- Describe the structure and composition of the interface developed between an adsorbent and the aqueous phase.
- Present qualitatively and quantitatively the adsorption of various substances from gas and liquid phase on the surface of adsorbents.
- Select the suitable adsorbent for gas and liquid phase abatement processes.
- Propose suitable adsorption technologies for application in the corresponding abatement processes.
- State the main catalytic and adsorption methods (both, primary and secondary measures) for controlling these emissions and describe their operation.
- Propose state of the Art or potentially promising catalysts for the catalytic emission control processes and to justify their choice based on the requirements that a catalyst should fulfill for specific control process, pollutant and source.
- Describe the established as well as the potentially promising applications of the catalytic combustion for either the primary or secondary emission control of atmospheric pollutants such as the NOx or the volatile organic compounds (VOCs).
- Describe the impact of emitted chlorofluorocarbons (CFCs) on stratospheric ozone and the climate change and give examples of catalytic and non-catalytic processes which are used to destroy or to exploit existing CFCs stocks.
- Define basic concepts in the field of photocatalysis and describe photocatalytic processes for the processing of wastewater and potable water treatment.

Subjects covered:
- Catalytic Processes for Pollution Abatement
- Adsorption Processes for Pollution Abatement

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

KPP81: Clean Energy Production
Module code: KPP81
ECTS Credit Points: 2
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: The purpose of this module is to educate students on issues concerning advanced processes related to the clean energy production. More precisely this module aims to familiarize students with the main refinery processes and especially with those targeting to the production of environmental friendly conventional fuels (hydrodesulphurization), the production of biofuels (bioethanol, biodiesel, renewable diesel, and biogas) and the production, storage and use of hydrogen (Fuel Cells) for the production of electric energy.

Learning Outcomes: After completing this module, the student should be able to:
- Describe the basics of the operation of a petroleum refinery and state the main products.
- Describe the chemistry, operational conditions and requirements from the catalysts for the main catalytic processes in a petroleum refinery (reforming, isomerization, catalytic pyrolysis and hydrotreatment).
- Discuss the importance of biofuels for the sustainable growth.
- Describe the production of the main biofuels (bioethanol, biodiesel, renewable diesel, biogas, liquid synthetic fuels from gasification of lignocellulosic biomass, liquid biofuels from liquefaction/pyrolysis of lignocellulosic biomass, biofuels from microalgae, and biohydrogen) and discuss their role in the environmental protection.
- Propose suitable catalysts for biofuels production processes.
- Explain the necessity of introducing hydrogen to the energy balance of our planet and state the relevant problems which are currently opposing the hydrogen economy.
- Describe the chemistry, operational conditions and requirements from the catalysts for the catalytic processes for the production of hydrogen from hydrocarbons (steam or CO2 reforming, catalytic partial oxidation and autothermal reforming).
- Describe processes for the production of hydrogen which are based on the electrolytic, thermochemical or photocatalytic decomposition of water.

**Subjects covered:**
- Production of clean petroleum fuels
- Methods for the exploitation of biomass for biofuels production
- Production, storage, transportation and use of hydrogen as alternative fuel

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### Master's in Mathematics MSc

**Description**
The programme is addressed to mathematicians and intends to offer a more profound understanding of several topics of pure and applied mathematics and as well as of basic concepts of mathematical education.

**Learning Outcomes**
The program provides a masters level science degree using methods for distance learning emphasizing on realizable outcomes for students with mathematical background.

On the successful completion of the program students will
- have a systematic understanding and knowledge of the fundamental and advanced concepts, theorems and methods of Real Analysis, of Linear Algebra and of Stochastic Mathematics
- be experienced in developing mathematical models for phenomena arising in the physical sciences, in medicine or in Technology,
- be able to analyze and solve the mathematical problems involved in the modelling process using analytical or numerical methods including differential equations and/or integral equations,
- get experienced in using a scientific software, like Mathematica, for studying numerically mathematical problems,
be able to use the Mathematica software, along with other scientific softwares, in teaching mathematics in all education study cycles.

Moreover, the program offers several optional modules. After successfully completed their particular choice of modules the students will acquire special knowledge and understanding. In particular:

By choosing the division in Pure Mathematics the students will be able to:
- to assimilate complex mathematical ideas and arguments from the area of Analysis or from the areas of Algebra and Geometry
- apply the acquired knowledge to the study of problems in other branches of mathematics and in Mathematics education

By choosing the division in applied Mathematics the students will be able to:
- solve mathematical problems that model complex physical phenomena

By choosing the division in Mathematics Education the students will be able to:
- understand in depth the development and the historical evolution of mathematical ideas, mathematical structures and mathematical fields and
- use effectively the acquired knowledge in advancing the teaching techniques in Mathematics education

General skills that the students will be able to demonstrate, upon completing the program “Postgraduate Studies in Mathematics”:
- comprehensive understanding and efficient use of complex mathematical concepts and arguments
- development of mathematical and physical intuition
- clarity in arguments and effective oral communication on mathematical ideas and conclusions about mathematics
- effective communication in scientific writing about a mathematical issue
- ability to present their thesis to a relative scientific audience
- ability to advance knowledge and understanding through independent learning
- development of relevant skills for performing scientific research in the field of their specialization, in the frame of a PhD course.

Prerequisites

Applicants to the Master in Mathematics course must possess an undergraduate degree in mathematics or applied mathematics from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*. 
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Minimum study duration
2 academic years

ECTS credit points
120

Classification according to ISCED-2011 of Unesco
- Based on the level of Education: 7
- Based on the field of Education: 46 Mathematics and statistics

Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0541 Mathematics

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
Student Records:
Tel.: ++30-2610 367332. Fax: ++30-2610 367110. E-mail: msm@eap.gr

General Information:
Tel.: ++30-2610 367300. Fax: ++30-2610 367110. E-mail: info@eap.gr

Divisions
The Postgraduate Programme leads to the acquisition of a Master’s Degree “Master’s in Mathematics” in one of the following divisions:
- Pure Mathematics (MSM83 or MSM85)
- Applied Mathematics (ΜΣΜ82 or ΜΣΜ84)
- Mathematics Education (ΜΣΜ81)

Course Structure

1st Year
MSM70 Fundamental Theories and Methods in Mathematics (C¹, 30 ECTS)
MSM71 Mathematical Models in Sciences (C, 30 ECTS)

2nd Year
MSM80 Computational Methods and software for Mathematics (C, 20 ECTS)
MSM81 Historical evolution and Mathematics Didactics (O², 20 ECTS)
MSM82 Applied Mathematical modelling (O, 20 ECTS)
MSM83 Analysis (O, 20 ECTS)
MSM84 Stochastic Mathematics (O, 20 ECTS)
MSM85 Algebra and Geometry (O, 20 ECTS)
MSM86 Dissertation (C, 20 ECTS)

Notes:
C¹: Compulsory
O²: Optional

The requirements in order to obtain the degree are the following:
- The students must attend and pass four courses of the programme.
- The students must submit a dissertation. The examining committee of the dissertation consists of three members of the Academic Research Staff or tutors of the programme.

Course Modules

MSM70 Fundamental Theories and Methods in Mathematics
Module code: MSM70
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek
Module general description:
Learning Outcomes for MSM70
On successful completion of the Module MSM50 “Mathematical Models in Science and Modern Technology” the students will have the opportunity to develop the following skills:
- comprehend basic theorems of Analysis concerning the theory of metric spaces
- comprehend the basic theorems of Linear Algebra concerning the following topics: structure of vector spaces, linear transformations, Jordan canonical form of linear transformations,
- apply techniques from linear algebra in modeling problems arising from natural sciences,
- apply techniques from linear algebra to the study of linear systems, linear differential equations, Markov chains, linear programming,
- comprehend basic notions of probability theory and apply techniques from this theory in modeling problems,

**General outcomes**

On successful completion of the module MSM50 the student will be able to
- acquire a knowledge and understanding of basic mathematical theories
- obtain the necessary background to follow the other modules of the program

**Subjects Covered**
- Real Analysis
- Linear Algebra
- Elements of Probability Theory

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**MSM71 Mathematical Models in Sciences**

**Module code:** MSM71  
**ECTS Credit Points:** 30  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Learning Outcomes**

On successful completion of the Module MSM71 “Mathematical Models in Science and Modern Technology” the students will have the opportunity to develop the following skills:
- know contexts in which systems of autonomous ordinary differential equations or quasilinear first-order partial differential equations provide relevant models and appreciate general features of such models and what may be learned from them;
- be able to find and classify critical points in autonomous ODE problems, and be able to infer qualitative behavior in the phase plane;
- be able to solve quasilinear PDEs using the method of characteristics, including the construction of weak solutions (fans and shocks);
- investigate the existence, uniqueness and stability of the solution of a Boundary Value Problem, related to Ordinary Differential Equation (ODE) or to a system of ODEs,
- identify and classify a Partial Differential Equation (PDE) and an Integral Equation (IE),
- apply standard analytical techniques in order to solve a PDE or an IE, such as the Separation of Variables, the use of integral transforms, and the use of the Fundamental solution of the corresponding Differential Operator,
- determine the subspace into which an exact solution of an inhomogeneous equation of a Linear Operator exists,
- investigate the well-posedness of a Mathematical problem, consisted of an ODE, a PDE or an IE and auxiliary conditions, construct a self consistent mathematical model that describes a physical process, such as the potential distribution, the flow of a substance.
or the wave propagation in a medium, and to formulate the corresponding mathematical Boundary and/or Initial Value Problem.

- determine the Green’s function for a Boundary Value Problem, using analytical techniques,
- apply the method of Separation of variables, the use of integral transforms, the Green’s method and the corresponding integral representation for solving a Boundary Value Problem

**General outcomes**

On successful completion of the module MSM60 the student will be able to

- express a physical problem in mathematical terms
- to organize and use the acquired knowledge for solving a specific problem
- to be able to understand and present up to date scientific reports in the field of PDEs, IEs and their applications in the Physical Sciences.

**Prerequisites**

Differential and Integral Calculus in one and multi dimensions, Linear Algebra, Functional Analysis, Ordinary Differential Equations.

**Subjects Covered**

- Analytical methods for mathematical modelling in Science and Modern Technology
- Differential equations
- Integral equations

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**MSM80 Computational Methods and software for Mathematics**

**Module code:** MSM80  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek

**Learning Outcomes**

On successful completion of the Module MSM80 “Computational Methods and software for Mathematics” the students will have the opportunity to develop the following skills:

- To be familiar with the software package Mathematica and learn how to solve mathematical problems with it.
- To use the software for teaching mathematics at various educational levels.
- To study linear and nonlinear problems and to solve them computationally.
- To use methods of Fourier series and then numerical methods for solving ordinary differential equations.
- To utilize the basic theory and methods of partial differential equations in order to solve problems computationally.
- To solve numerically problems of partial differential equations with the method of finite differences.

**General learning outcomes**

Successful completion of the module MSM61 gives the student the opportunity:

- To be able to study and solve problems of science with various methods of applied mathematics.
- To utilize the computer packages in teaching and research.
- To organize and use the knowledge gained in solving specific problems.

The knowledge of the computer package can contribute to preparing dissertations and scientific publications in the area of mathematics and physical sciences.

**Subjects Covered**

- Computational mathematics (Numerical and symbolic computational techniques and methods with the aid of computational systems - packages)
- Computational applications in mathematical modeling
- Educational software.

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**MSM81 Historical evolution and Mathematics Didactics**

**Module code:** MSM81  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Division:** Mathematics Education  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes**

The module MSM81: Historical evolution and Mathematics Didactics consists of three subsections.

- **ΜΣΜ 81_1:** The subsection "Fundamentals and Mathematics Basic Concepts, Mathematics Philosophy"  
- **ΜΣΜ 81_2:** The subsection, "Cognitive Science and Mathematics"  
- **ΜΣΜ 81_3:** The subsection "Mathematical Education"

On successful completion of this module students are expected to:

- develop a critical annotation ability in modern philosophy in mathematics topics  
- perceive in depth mathematical concepts and structures evolution  
- perceive Mathematics evolution  
- Analytical educational objectives are to follow:  
- Students to be able to distinguish the differences among the logicism, formalism and Intusionism, and the impact of Reasoning effect in the above mentioned philosophical schemes.
Students to be able to analyze issues related with ontologies in philosophical Mathematical trends.

- Students to be able to manage mathematical truth arguments within the related philosophical schemes.
- Students be able to include philosophical questions related with mathematics nature in teaching procedure.
- Students be able to evaluate an axiomatic system structure, to study its consistency and to perceive its axiomatic fundamental evolution.

Graduate students activated participation in two levels is required: a. in pursuing free sources (i.e. open access journals) of reliable literature in order to enhance their critical analysis, b. in applying their knowledge in mathematical education.

- Postgraduate students are now able to substantiate their aspect through their experience, in addition with reliable bibliographical references.
- This section focus on developing student’s skills in order to handle a large amount of knowledge, for indexing scientific papers and creating critical reviews.
- In addition, students become familiar on dealing with journals papers in order to export basic conclusions.
- A key point is that students are to conduct their own "study cases".
- Finally, a hole the section is related with cognitive science and mathematics interaction.

**Subjects Covered**
- Development of fundamental mathematical concepts
- Invariant and Contemporary trends in Mathematical Education
- Foundations of mathematics and contemporary mathematical theories

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**MSM82 Applied Mathematical modelling**

- **Module code:** MSM82
- **ECTS Credit Points:** 20
- **Module Type:** Optional (Students choose between course modules MSM82 and MSM84)
- **Division:** Applied Mathematics
- **Year:** 2nd
- **Language:** Greek

**Learning Outcomes**

On successful completion of the Module MSM82 "Applied Mathematical modelling", the students will
- Comprehend and describe in mathematical terms processes arising in physics, biomedical sciences and continuum mechanics
- Identify and express the driving mechanisms of physical and biological phenomena including fluid flow, blood flow, the heartbeat cycle, electrochemical pulses in the nerve, tumour growth,
- Analyze, reproduce and develop mathematical models concerning wave propagation and scattering, heat and mass transfer,
- Apply analytical methods for solving the governing mathematical problems, (separation of variables, methods for solving integral equations, perturbation methods, calculus of variations, etc.)
- Make parametric study and obtain estimates on the accuracy and stability of a model
- Use mathematical packages (i.e. Mathematica, Matlab, etc.) in order to confirm the obtained results, make predictions and further exploit a model or investigate a process.
- Develop and analyse a simulation model using Octave Matlab
- Evaluate a mathematical model by studying its solution analytically, numerically and via a corresponding simulation process.

General outcomes
On successful completion of the Module MSM82 the students will
- Get motivation for doing further research on mathematical modelling and especially on subjects of mathematical physics, mathematical biology and continuum mechanics.
- Be experienced and able to apply mathematical methods for modelling processes in a variety of scientific areas
- Reveal the mathematical model underlying the physical process.
- Understand and present a scientific report, paper on the relevant fields in scientific audience and in the public
- Communicate with scientists and engineers from different areas

Subjects Covered
- Mathematical modeling
- Simulation
- Mathematical modeling Applications in Science, Medicine and Technology

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

MSM83 Analysis
Module code: MSM83
ECTS Credit Points: 20
Module Type: Optional (Students choose between course modules MSM83 and MSM85)
Division: Pure Mathematics
Year: 2nd
Language: Greek
The module contains the basic elements of Functional Analysis and Operator Theory.
Learning Outcomes
On successful completion of the Module MSM 83 “Analysis” the students will have the opportunity to develop the following skills:

- comprehend basic theorems of Functional Analysis such as the Hahn-Banach Theorem, the Open Mapping theorem and the Uniform Boundedness Principle
- comprehend the basic elements of the theory of normed linear spaces
- comprehend the basic elements of the theory concerning the classical Banach spaces,
- comprehend the basic elements of the theory of Hilbert spaces
- be able to apply techniques from Functional Analysis and Operator Theory to problems from the theory of Differential Equations

**General outcomes**

On successful completion of the module MSM 83 the student will be able to:

- understand basic fields of Mathematical Analysis
- acquire the necessary techniques from Mathematical Analysis in order to study problems from other areas of mathematics

**Subjects Covered**

- Elements of Operator Theory
- Functional Analysis

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**MSM84 Stochastic Mathematics**

**Module code:** MSM84

**ECTS Credit Points:** 20

**Module Type:** Optional (Students choose between course modules MSM84 and MSM82)

**Division:** Applied Mathematics

**Year:** 2nd

**Language:** Greek

The module contains the basic elements of Probability Theory, the basic elements of the theory of Stochastic Processes and applications to Stochastic Modeling.

**Learning Outcomes**

On successful completion of the Module MSM 664 “Stochastic Modeling” the students will have the opportunity to develop the following skills:

- comprehend basic elements of Probability Theory: probability space, random variables, independence, probability distribution function, laws of large numbers, central limit theorem
- comprehend the basic elements of the theory of Stochastic Processes: discrete stochastic processes, continuous stochastic processes, Markov chains, random walks
- comprehend basic elements of the theory of Stochastic Modeling: Queueing Theory, Reliability Theory
- be able to apply techniques of Stochastic Modeling to the study of problems arising from other scientific areas such as finance, environmental sciences, engineering etc.
General outcomes
On successful completion of the module MSM 84 the student will be able to:
- understand the basic elements of the Theory of Probability and Stochastic Processes
- construct and study stochastic models for problems arising from various scientific areas.

Subjects Covered
- Probability Theory
- Stochastic Processes
- Stochastic Modeling

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

MSM85 Algebra and Geometry

Module code: MSM85
ECTS Credit Points: 20
Module Type: Optional (Students choose between course modules MSM85 and MSM83)
Division: Pure Mathematics
Year: 2nd
Language: Greek

The module contains
- the basic elements of Number Theory and its applications to Cryptography
- the basic elements of Group Theory
- the theory of Euclidean spaces and their groups of isometries

Learning Outcomes for MSM 85
On successful completion of the Module MSM 665 “Algebra and Geometry” the students will have the opportunity to develop the following skills:
- comprehend the basic elements of Number Theory
- comprehend how Number Theory applies to Cryptography
- comprehend the basic elements of Group Theory
- understand the structure of Euclidean spaces
- understand the structure of the group of isometries of the Euclidean space, especially of the Euclidean space of dimension 2 and 3
- be able to find and study the symmetries of simple geometric figures

General outcomes
On successful completion of the module MSM 85 the student will be able to:
- understand the basic elements of Number Theory and its applications to Cryptography
- understand the structure of the Euclidean space and of its isometries
- understand the interaction of Group Theory and Geometry in the study of Euclidean spaces

Subjects Covered
- Number Theory
- Group Theory  
- Groups and Geometry

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**Master's in Information System MSc**

**Description**

The aim of this programme is to offer its students the opportunity to acquire specialized knowledge in Information and Communication Technologies, and to prepare for professional work in the design, development and management of integrated information systems. The program is targeted at science and technology graduates and covers the design and development of programs and systems, the management and the quality of system development, and advanced issues in telecommunications and networking.

**Learning Outcomes**

- To understand that Information Technology (IT), is an applied Engineering Science, which provides a set of evidence-based principles, methodologies and techniques that can lead to the development of quality software products
- To understand that programming languages are the technical foundation, on which the required algorithmic concepts -as problem solving methodologies - and the required software engineering concepts -as an approach to the problem of the development of software systems- are developed
- To apply the basic concepts of the logic design and the computer architecture theory in order to design and analyze circuits and to evaluate the performance of different architectures
- To apply modern methodologies in the design and the development of large software system, such as the object-oriented development philosophy and the unified modeling language
- To combine the knowledge gained from the design of databases and the operating systems with a high level programming language, in order to proceed to the design and the implementation of simple information systems
- To apply the knowledge gained from the study of the communication protocols and the computer network theory in order to propose technological solutions at network level (simple, complex networks), at network and IT systems security, and to use network provided development services

**Requirements**
Applicants to the Master’s degree must possess a University degree in any field of science and engineering, except computing and/or electrical engineering. Knowledge of Greek language at C1 level and very good knowledge of English language are required.

**Note:**
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (Α80)”.

**Contact**

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**Minimum study duration**

2 academic years

**ECTS credit points**

120

**Classification according to ISCED-2011 of Unesco**

- Based on the level of Education: 7
- Based on the field of Education: 48 Computing

**Classification according to ISCED-2013 of Unesco**

- Based on the field of Education: 0610 Information and Communication Technologies (ICTs)

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Course Structure

1st Year
- PLS50 Fundamental Specialization in Theory and Software (C¹, 30 ECTS)
- PLS51 Fundamental Specialization in Computer Architecture and Computer Networks (C, 30 ECTS)

2nd Year
- PLS60 Specialization in Software Engineering (O², 20 ECTS)
- PLS61 Software Design and Management (O, 20 ECTS)
- PLS62 Specialization in Networks and Communications (O, 20 ECTS)
- Dissertation (C, 20 ECTS)

Notes:
- C¹: Compulsory
- O²: Optional

The Master’s Degree will be awarded upon successful completion of at least four (4) modules of the Program and submission of a dissertation (and subsequent successful examination) in accordance with the terms of the General Regulations for the Submission of Dissertations.

Course Modules

PLS50 Fundamental Specialization in Theory and Software

Module code: PLS50
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek

General Description: A main goal of the PLS50 Module is the students to understand that programming languages are the technical substance on which the required notions of algorithms (as methodologies of problem solving) and of software engineering (as an approach to the problem of software systems development) are developed.

In a combined coverage of the subjects “Programming Languages”, “Algorithms and Complexity” and “Software Engineering”, the goal is the student to acquire basic knowledge for problem solving algorithms, techniques, tools and languages of programming, as well as, principles of programs’ development and theoretical and applied knowledge regarding the feasibility, or the practicality of the algorithmic solutions of certain problems.

Learning outcomes: With the successful completion of the module, the students will know, understand and be in a position to perform the following.
Knowledge:
- To specify the elements constituting a programming language and a computer program.
- To write source code containing programming structures of sequence, repetition and selection.
- To describe and to define data structures and their usage.
- To report known algorithms and the problems that these solve.
- To define complexity measures.
- To describe the process of software systems’ development.
- To specify the differences between object oriented and structured analysis and design of software systems.

Comprehension/Application:
- To author algorithms in the form of pseudocode.
- To transform an algorithm to a computer program.
- To implement data structures.
- To implement modular programs and abstract data types.
- To explain the representation of data structures in memory and the use of pointers.
- To analyze the complexity of an algorithm, applying a certain methodology and known techniques.
- To discover the algorithm that is most suitable for a certain problem.
- To explain the difference between complexity classes.
- To specify, analyze, design, implement, check and maintain software, by following systematic processes of software development.

Problem solving:
- To compare programming techniques for implementing specific actions.
- To select among algorithms and data structures for solving specific problems.
- To create effective solutions by developing algorithms and data structures as combinations and/or extensions of existing ones for solving specific problems.
- To analyze the complexity of an algorithm, combining and extending known techniques.
- To propose alternative choices and to compare their advantages, during the stages of developing software systems.

Syllabus

Programming languages
Learning of the C language, with emphasis on data types, control structures, data structures, functions and structured programming. Advanced programming techniques with static and dynamic memory management, files’ and pointers’ management, recursion, parameters’ passing by reference, strings’ management, dynamic data structures and C preprocessor’s commands.

Data structures and Algorithms
Study of structures for the organization and the effective processing of data. Linear (lists, queues, stacks) and non-linear (binary trees and heaps) data structures. Hashing techniques. Sorting algorithms. Representation of graphs, basic and advanced algorithms of Graph Theory. Introduction to general algorithmic techniques (greedy algorithms, divide-and-conquer algorithms, dynamic programming). Analysis of algorithms’ complexity.
Software Engineering
Methods, tools and processes for the development and maintenance of software systems. Life-cycle models, techniques of developing specifications, methodologies of software development, correctness checking. Modeling data and processes through data flow diagrams, program structure diagrams, data dictionaries, state transition diagrams and entity-relationship diagrams. Introduction to object oriented Software Engineering.

Subjects covered:
- Algorithms and complexity
- Programming languages
- Software engineering

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of eight written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLS51 Fundamental Specialization in Computer Architecture and Computer Networks
Module code: PLS51
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek

Learning outcomes
Upon completion of PLS51 the student will be capable:
- To analyze and design combinatorial digital circuits using representation techniques including logical function expressions and Boolean algebra
- To analyze and design sequential digital circuits using techniques including state machine diagrams, state tables and excitation tables
- To make use of all the basic concepts needed to understand Instruction Set Architectures (ISA) and assembly instruction constructs with emphasis on RISC instruction set architectures.
- To assess the performance of different computer architectures analyzing techniques for memory system organization (main and cache memories) and command parallelism techniques and their impact on processing performance (program execution speed)
- To evaluate the performance of computer networks applying different interconnection technologies at different levels of the OSI reference model (layers 2 and 3)
- To design and configure computer networks and hierarchical network structures for efficient routing of information and multiple applications support

Subjects covered
- Digital systems
- Computer architecture
- Computer networks

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.
**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

**PLS60 Specialization in Software Engineering**

**Module code:** PLS60  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 2nd  
**Language:** Greek  

**Learning Outcomes:** The student, after having completed the PLS60 module, he will be able:
- To exploit all the basic concepts which are essential for the understanding of the design and of the implementation of a database system, as well as to exploit the conceptual modeling techniques that are used in database systems
- To fully exploit the basic relational data model as well as the integrity constraints and the update operations
- To implement from scratch a database, to insert data into this database and finally to manage such a database by executing through it various database queries
- To describe and comprehend the properties of the processes, and also the way these properties communicate with each other, and to implement simple scenarios of inter-process communication
- To describe in details all the concepts which are related to the security of an operational system, like the malware (virus, worms, etc.), the protection mechanisms and the security models
- To combine the knowledge s/he has obtained, regarding the databases and the operational systems, by using a high level programming language in order to proceed to a level where s/he will be able to design and implement simple information systems (i.e., in a MySQL, PHP and Apache Server environment)
- To utilize network provided development services (elastic computing, mash ups, etc.).

**Subjects covered:**
- Data management  
- Operating systems  
- Modern programming paradigms

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

**PLS61 Software Design and Management**

**Module code:** PLS61  
**ECTS Credit Points:** 20  
**Module Type:** Optional
Year: 2nd
Language: Greek

Learning Outcomes:
After completing PLS61 students should be able to:
- understand that the solution to a software systems development problem is based on a solid theoretical background containing concepts of modern software technology methodologies.
- know how to apply modern software technology methodologies for the design of large software systems, such as the object oriented development philosophy and UML.
- design modern complex software with the support of CASE tools
- know the fundamental concepts of object-oriented analysis and design of software systems.
- transform design-level class diagrams to object-oriented code (Java)
- know the basic concepts of software project management and manage the basic parameters of a software development project (i.e. cost, time and effort)
- estimate and analyze the various types of risks a software development project may face during its lifespan
- know the basic concepts, the metrics, as well as the widely used standards of software quality assurance
- know the fundamental concepts of the scientific area of human computer interaction (theoretical foundation, mental models, interaction techniques and technologies)
- design interactive software systems deploying methodologies and tools that assure the usability of user interfaces
- evaluate the usability of software applications

Subjects covered:
- Software design
- Software quality and management
- Human - Computer interaction

Teaching Method: Distance education with five Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

PLS62 Specialization in Networks and Communications
Module code: PLS62
ECTS Credit Points: 20
Module Type: Optional
Year: 2nd
Language: Greek

Learning Outcomes: After concluding this module students should be able to fully comprehend and efficiently treat the following items.
Knowledge:
- Define Network Architectures
- Select the appropriate network protocols for specific applications, select algorithms and cryptography schemes, select error correction coding schemes for transmission and storage systems
- To estimate protocol and system performance bounds

**Understanding/Application:**
- Apply addressing schemes in data networks
- Design/implement multimedia communication systems
- Apply security mechanisms in data networks and information systems
- Undertake network programming and programming of ciphering/deciphering systems/protocols.

**Problems:**
- Assess/Compare the performance of network protocols and applications
- Compare the performance of security mechanisms in networks and systems
- Compare the performance of cryptography schemes
- Decode cipher-text
- Compile technology solutions in the networking and security domains

**Subjects covered:**
- Advanced topics in computer networks
- Digital communications
- Cryptography and network security

**Teaching Method:** Distance education with five Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

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**Master’s in Teaching Natural Science MSc**

**Description**
Description: This Course is designed to offer scientific knowledge as well as technology and methodological skills to Secondary Science teachers. Upon the completion of this course graduates will:
- have a more scientific approach to teaching Physics, Chemistry and Biology
- be able to understand and convey to students, through educational processes, classical and modern theories of Natural Sciences and their role within the unified scientific world
- have acquired requisite skills and scientific competence for using experiments to investigate and prove scientific theories and hypotheses
- have acquired special methodological training to design and carry out educational projects at school or within the wider educational community, or local community
- will have required level of competence to use information technology to design and produce electronic learning material
Requirements

Applicants to the Master in Teaching Natural Sciences course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

Note:
Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)“.

Minimum study duration

2 academic years

ECTS credit points

120

Classification according to ISCED-2011 of Unesco

- Based on the level of Education: 7
- Based on the field of Education: 44 Physical Sciences

Classification according to ISCED-2013 of Unesco

- Based on the field of Education: 0538 Physical Sciences involving Physics, Chemistry and Biology

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact

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Course Structure

1st Year
KFE51 Motion, Constitution and Basic Interactions of Matter (O¹, 20 ECTS)
KFE52 Organization and Interaction at Molecular Level (O, 20 ECTS)
KFE53 Organization of Matter in Life Systems (O, 20 ECTS)
KFE60 Natural Sciences: History, Science and Educational Methodology (O, 20 ECTS)

2nd Year
KFE51 Motion, Constitution and Basic Interactions of Matter (O, 20 ECTS)
KFE52 Organization and Interaction at Molecular Level (O, 20 ECTS)
KFE53 Organization of Matter in Life Systems (O, 20 ECTS)
KFE60 Natural Sciences: History, Science and Educational Methodology (O, 20 ECTS)
KFE61 Issues in Contemporary Physics (O, 20 ECTS)
Dissertation (C², 40 ECTS)

Notes:
O¹: Optional
C²: Compulsory

The master's degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules

KFE 51 Motion, Constitution and Fundamental Interactions of Matter

Module code: KFE51
ECTS Credit Points: 20
Module Type: Optional
Year: 1st / 2nd
Language: Greek
Learning Outcomes
By the end of this course, students will be able to,
Describe the laws of motion and the conservation laws of Newtonian Mechanics, the Lorentz transformations of special relativity, the harmonic oscillator in the presence of friction and driving forces, the Fermat principle and the applications of geometrical optics, the laws of Statistical Mechanics and Thermodynamics, the physics of waves and the propagation of electromagnetic waves, the interference and diffraction phenomena, the laws of electrostatics and magnetostatics, the radiation from an accelerated charge and the basic principles of quantum mechanics.

Apply the laws of classical mechanics and evaluate the planetary motion, solve the equations of motion using numerical methods, explain the relativistic phenomena of radiation, the Doppler effect and the aberration of light, calculate the dipole radiation pattern and the refractive index of low density and dense materials, examine the absorption and the scattering of light, demonstrate the operation of thermal machines, the black body radiation and the transmission of acoustic waves. Explain the electric field effects in the atmosphere, the operating principle of electron microscopes and electric motors, the plasma oscillations, the Bohm-Aharonov effect, the bremsstrahlung and the synchrotron radiation.

Examine complicated phenomena using the basic laws of physics, compare modern physics with classical physics analogues, the Fermat’s principle with the principle of least action and quantum electrodynamics, and demonstrate the limits of the classical approach to microcosm as well as the use of the thought experiments in physics.

Subjects covered
- Elementary particles and cosmology.

Teaching Method: Distance education with six Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

KFES2 Organization and Interaction at Molecular Level

Module code: KFES2
ECTS Credit Points: 20
Module Type: Optional
Year: 1st / 2nd
Language: Greek

Learning Outcomes: The learning outcomes of the module KFE-52, of the post graduate program Master in Teaching Natural Sciences, focus on providing expertise to teachers of Natural Sciences, in the field of "Organization and interactions of matter at the molecular level", according to the modern requirements of the science of chemistry, in order to upgrade the quality of their work. The learning objectives of the module KFE-52 emphasize on distance educating chemistry to students from different backgrounds (Physics, Chemistry, Biology, etc.).
Aim of this module is to provide to the students: a) a summary of General and Inorganic Chemistry under the focus of modern perception of the structural composition of matter, b) an aspect of the physicochemical properties of matter and the modern methodology for the characterization of matter, and c) an introduction to the structure, properties, and characterization of the compounds of carbon.

**Subjects covered:**
- A review of the general and inorganic chemistry through the scope of the modern view about the composition of matter
- Physicochemical examination of matter. Development of a modern methodology for the characterization of matter
- Structure, properties, and characterization of carbon compounds

**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**KFE53 Organization of Matter in Life Systems**

**Module code:** KFE53

**ECTS Credit Points:** 20

**Module Type:** Optional

**Year:** 1st / 2nd

**Language:** Greek

**Learning Outcomes:** After completing this module, students will be expected to be able to:
- Obtain a broad knowledge regarding basic and applied areas of Biosciences, such as Basic and Clinical Biochemistry, Molecular and Cell Biology, as well as Physiology.
- Understand, investigate and highlight, through the educational process, the scientific importance of both traditional and modern achievements of Biosciences and of their role in prevention and treatment of biologically-based problems in the modern world.
- Obtain the scientific expertise and the abilities that are required in order to seek for reliable bibliography and to use both conventional and novel experimental procedures for the establishment of biological knowledge.
- Acquire the scientific proficiency to plan and execute advanced educational procedures regarding biologically-interesting and significant health issues within the secondary education school environment, the broader educational community and the local society.

**Subjects covered:**
- Basic concepts of Biochemistry, Cell Biology and Molecular Biology
- Genetic information flow, Molecular Mechanisms of Gene Expression Regulation
- Genetic Engineering-Transgenic Systems. Fundamental methodologies of Molecular Biology
- Cell communication: Intercellular and intracellular communication physiology
- Cell Cycle: Regulatory mechanisms of cell growth and cell division
**Teaching Method:** Distance education with six Contact Sessions held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**KFE60 Natural Sciences: History, Science and Educational Methodology**

**Module code:** KFE60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 1st / 2nd  
**Language:** Greek

**Learning Outcomes:** The module KFE60 covers selected chapters from the following disciplines: History of Science, Philosophy of Science, Didactics of Science.

The Learning outcomes of this module focus in providing the necessary knowledge and skills to pre-service and in-service secondary science teachers in order to support their professional development.

**Subjects covered:**
- History of Natural Sciences
- Philosophy of Natural Sciences
- Selection from the Didactics of Natural Sciences

1. **History of Natural Sciences**

2. **Philosophy of Natural Sciences**

3. **Selection from the Didactics of Natural Sciences**

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**KFE61 Issues in Contemporary Physics**

**Module code:** KFE61  
**ECTS Credit Points:** 20  
**Module Type:** Optional
Year: 2nd
Language: Greek

Learning outcomes: The student after completing the module KFE61 of the post graduate program Master in Teaching Natural Sciences will comprehend:
the basic principles of quantum mechanics, the principle of uncertainty, the wave nature of matter, the duality of particle-wave, the meaning of spin, the stability of matter, the hydrogen atom and the harmonic oscillator. He will be able also to solve Schrodinger equation for simple one-dimensional potentials, like the motion of a particle in a square well potential and the quantum mechanical tunneling. He will know the spectrum of elementary particles, their fundamental interactions and the Feynman diagrams for their interpretation. He will understand the dynamics of the universe by solving Friedmann equations and he will be familiar with the geometry and the physics of black holes.

Subjects covered:
- Modern aspects of particle physics and cosmo-theory
- Modern aspects of material science
- Experimental methods and technology

Teaching Method: Distance education with six Contact Sessions held at weekends during the academic year.

Evaluation: Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Pervasive and Mobile Computing System MSc

Description
The Program aims to establish systematic training of students on the design and development of Pervasive and Mobile Computing systems. The program builds upon students' knowledge in Computer Science and Telecommunications and advances it on issues such Software System Design, Computer Networks, Digital Systems, Human-Computer Interaction, Operating Systems and Distributed Systems. The program is not limited to providing knowledge but also focuses on skill acquisition in designing mobile and pervasive computing systems, requirement analysis, evaluation and selection of technology solutions, analysis of service quality and performance systems, application and service design, through real-life case studies and applications.

Learning Outcomes
- Understand the fundamental concepts of Pervasive Computing
- Analyze problems and case studies of pervasive computing systems and choose the appropriate technological solutions
- Understand basic principles of wireless networking, cellular networks and ad hoc sensor networks
- Understand design principles, implementation methods and evaluation criteria for Pervasive - Computing Systems
Understand principles of interaction design and human-centered design

Requirements

Applicants to Pervasive and Mobile Computing Systems Msc course must possess an undergraduate degree in a related field from a Greek Public University or an equivalent degree.

Knowledge of Greek language at C1 level and very good knowledge of English language are required.

Basic computer and Internet skills are necessary for the successful participation in the course.

Note:

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

Minimum study duration

2 academic years

ECTS credit points

120

Classification according to ISCED-2011 of Unesco

- Based on the level of Education: 7
- Based on the field of Education: 48 Computing

Classification according to ISCED-2013 of Unesco

- Based on the field of Education: 0619 Information and Communication Technologies (ICTs) not elsewhere classified

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.

Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact

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Course Structure

**1st Year**
- SDY50 Software and Networking Technologies (C¹, 30 ECTS)
- SDY51 Ubiquitous and Global Computing Systems (C, 30 ECTS)

**2nd Year**
- SDY60 Analysis and Design of Hardware / Software Systems (C, 20 ECTS)
- SDY61 Mobile Computing Systems (O², 20 ECTS)
- SDY62 Embedded Systems (O, 20 ECTS)
- Dissertation (C, 20 ECTS)

**Notes:**
- C¹: Compulsory
- O²: Optional

The master's degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules

**SDY50 Software and Networking Technologies**

**Module code:** SDY50  
**ECTS Credit Points:** 30  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Learning Outcomes:**
- Point and define the basic concepts of Pervasive Computing (PerCom)
- Appraise the gravity of addressing privacy issues in PerCom
- Tabulate positioning technologies
- Explain the techniques for multi-sensor data fusion
- Appraise the role of distributed systems and middleware in PerCom systems
- Review specialized topics on distributed systems (system models, inter-process communication, operating systems, distributed file systems, peer-to-peer networks, web services)
- Analyze distributed systems’ problems and case studies and select the most appropriate technologies and tools to implement distributed systems
- Appraise the role of wireless networks in PerCom systems
- Point and define the basic concepts of wireless networking technologies
- Express the operation principles of mobile cellular networks
- Discuss the basic principles of ad hoc wireless sensor networks

**Subjects covered:**
- Wireless Networks: Protocols, Services and Applications
- Distributed Systems: Advanced Design Issues
- Middleware Design

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

### SDY51 Ubiquitous and global computing systems

**Module code:** SDY51
**ECTS Credit Points:** 30
**Module Type:** Compulsory
**Year:** 1st
**Language:** Greek

**Learning Outcomes:**
- Understanding of basic principles of mobile & ubiquitous computing
- Knowledge on various architectures and operational models of pervasive computer systems
- Understanding of design principles for pervasive computing systems
- Knowledge on development methodologies for pervasive computing systems
- Understanding of basic principles of human-computer interaction in pervasive computing systems
- Understanding the distinction between explicit and implicit interaction in pervasive computing systems
- Analysis, application and assessment of tagging and scanning technologies
- Understanding the principles of the "Internet of Things (IoT)"
- Understanding of the notion of "context" in pervasive computing systems
- Analysis of context models in pervasive computing systems
- Application of design and development principles for context-aware pervasive computing systems
- Understanding of architectures and characteristics of intelligent pervasive computing systems
- Understanding of concepts related with Ambient Intelligence (AmI)
Understanding and application of methodologies and criteria for evaluating pervasive computing systems
- Application of pervasive computing systems via case studies
- Synthesis of design principles, methodologies and technologies for the development of low and mid-fidelity prototypes (mock-ups, Android apps) of pervasive computing systems
- Knowledge of the international literature in the area of pervasive computing systems

**Subjects covered:**
- Ubiquitous and Global Computing Systems: Architectures
- Ubiquitous and Global Computing Systems: Design and Programming issues
- Ubiquitous and Global Computing Systems: Special Development Issues

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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### SDY60 Analysis and Design of Hardware / Software Systems

**Module code:** SDY60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek

**Subjects covered:**
- Interaction and Appliance Design
- Performance Analysis of Large scale Systems
- Case Studies and Applications

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of six written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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### SDY61 Mobile computing systems

**Module code:** SDY61  
**ECTS Credit Points:** 20  
**Module Type:** Optional  
**Year:** 2nd  
**Language:** Greek

**Learning Outcomes:** After the completion of SDY61 module, the students will be capable to,
- Discuss and describe design issues for wireless mobile networks as well as to point the use of them
- Analyze, study and evaluate specialized topics of wireless mobile networks such as quality of service and security
- Assess and evaluate the user friendliness and non-functional requirements of mobile computing systems
- Prepare, organize, experiment and design mobile computing services
- Understand and point the need of adaptation of mobile computing applications to the user demands
- Analyze, assess and discuss problems and case studies of mobile computing applications as well as to select, modify and develop the appropriate implementation technologies

Subjects covered:
- Mobile Wireless Networks: Advanced Design Issues
- Mobile Computing applications Design
- Case Studies and Applications

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of seven written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

SDY62 Embedded systems

Module code: SDY62
ECTS Credit Points: 20
Module Type: Optional
Year: 2nd
Language: Greek

Learning Outcomes:
- Understand the basic design principles of embedded systems
- Gain experience in the design of embedded systems hardware
- Ability to implement digital circuits in FPGAs
- Design of special processors using FPGAs
- Obtain basic knowledge of hardware/software co-design
- Apply architecture design techniques and methodologies for the development of embedded systems
- Problem analysis and case study of embedded systems
- Understand and apply evaluation criteria of embedded systems
- Evaluate performance of applications using embedded systems

Subjects covered:
- Digital Systems Design
- Embedded Systems Design
- Case Studies and Applications

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.
**Evaluation:** Completion of written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
Graphic Arts-Multimedia (MA)

Description

The aim of the course is to provide specialized knowledge in field of Graphic Arts and Multimedia Technology.

The course harmoniously combines knowledge: a) in the field of visual communication and visual arts, communication design and creative design for print and digital media b) in the wider scientific and technological fields of graphic arts, publishing, printing, typography and packaging, and c) in the area of multimedia application design, interaction design and interface design.

The course offers students the opportunity to cultivate their creativity and acquire knowledge and skills in creative design for both printed and digital media. More specifically it aims to develop skills and knowledge in the administrative, managerial, technological and production processes of graphic arts, publishing, printing, design and production of packaging, as well as in multimedia design and the development of interactive applications and interfaces for digital media. During their studies, students develop critical-interpretative skills as well as analytical-synthetic skills, thus obtaining an interdisciplinary approach to problem solving. They are therefore able to cooperate within interdisciplinary workgroups, fully understanding the processes and skills involved in the area of design for multimedia and graphic arts.

Graduates of the Master's program, depending on their experience and expertise, can work in the following areas:

A) Creative design, graphic design and communication design
Creative design and visual communication design for print and digital media. Artistic Design Editing for digital or printed media (art direction). Graphic design and typography. Graphical Interface design, User Experience design.

B) Engineering Graphic Arts Technology
Highly Skilled Administrative positions in pre-press and printing, Editing of design publications and production of printed publications, administration and management systems of printed publications, MIS, JDF, JMF, Printalk systems, Cross-media publishing Technologies, Premedia Technologies, budgeting, Quality control, Application of the ISO-12647 quality process, Organization and production planning, Management, Marketing, Sales (as representatives for machinery and equipment), graphic arts Network management, Colour management, management of CIELAB CIELCH color spaces, measurement, certification, and identification of color differences, ink mix for package printing and special color mixing, Digital files
management for pre-press, Technical Security, use of specialized graphic arts software, packaging total design, Custom packaging prepress.

C) Technologies for multimedia design


The Graphic Arts Multimedia Master of Arts course can be provisionally taught in English.

Requirements

Applicants to the Graphic Arts - Multimedia course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Skills and knowledge in visual arts, an artistic background, computer usage (especially in software relevant to the course) as well as internet and e-mail skills are considered necessary for the completion of the course.

Knowledge of English language at B2 level is required.

Note:

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes' departments are all the degree holders of Greek Universities and Technological Educational Institutes' departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

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Minimum study duration

2 academic years

ECTS credit points

120

Classification according to ISCED-2011 of Unesco

- Based on the level of Education: 7
- Based on the field of Education: 21 Arts
Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0219 - History of the Art, Communication, Design, Printing, Multimedia not elsewhere classified

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

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Course Structure
1st Year
GTP50 Art and Communication in Graphic Arts (C¹, 30 ECTS)
GTP51 Graphic Design (C, 30 ECTS)
2nd Year
GTP60 Graphic Arts Technology (C, 20 ECTS)
GTP61 Informatics - Multimedia (C, 20 ECTS)
Master’s dissertation (C, 20 ECTS)
Note:
C¹: Compulsory

The master’s degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules

GTP50 Art and Communication in Graphic Arts
Module code: GTP50
ECTS Credit Points: 30
Module Type: Compulsory
Year: 1st
Language: Greek
Module general description: Introduces key theories in visual communication, visual design, history of art and aesthetics, comprising an array of reading material and exercises. The material is carefully selected and aims at enhancing the analytical and synthetic skills needed to understand cultural texts and the role of graphic arts in their making. Students will acquire the
necessary skills in understanding graphic arts in the wider context of cultural production as well as the theoretical background for creating visual compositions within a rapidly changing new media environment.

**Learning Outcomes:**

Knowledge & understanding

On successful completion of the module, students will be able to,

- Understand the visual encoding and language as a powerful tool of communication
- Get a global perception of the history of art and comprehend the reflection of the history of art in the contemporary creative process and the role of the reference, appropriation and citation.
- Get acquainted with history, theory and practice of visual design and also communication studies and semiotics, media and cultural studies; and therefore be able to appreciate the medium’s role in the creative process and reception of its result.
- Intellectual (thinking) and creative skills: interpretation, evaluation and synthesis
- On successful completion of the module, students will be able to,
- Analyze, interpret and recognize specific characteristics associated to historical, social and media-related aspects of the examined artwork.
- Comprehend through the application of theory, the way that media reflect and at the same time configure the societies that produce them.
- Develop visual thinking, recognize styles and encodings, keys and methods of artists and graphic designers.
- Interpret, evaluate and criticize visual projects and obtain intellectual tools for the synthesis of their own visual projects.

**Subjects covered:**

- History of art - History of Graphic Arts
- Visual Communication
- Colour - Basic Principles of Visual Communication
- Visual Perception

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**GTP51 Graphic design**

**Module code:** GTP51  
**ECTS Credit Points:** 30  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Module general description:** This module is specifically designed so that it can be independently attended without necessarily attending all other modules, should students choose to do so. Aim of the module is to familiarise students with those elements used in the creation of printed material, using both typography and image, as well as to introduce them to
a more systematic study of the various application areas of graphic design communication. Through this module and in addition to learning graphic design history, students will be given the opportunity for a thorough study of handling fonts typography, photography and graphic design for print media (such as books, press, posters, packaging, etc.).

**Learning Outcomes:**
- You will become familiar with the design elements used to create two dimensional communication designs, in printed or digital form. You will also become acquainted with the typical application areas of graphic design in its various instantiations.
- You will be able to refer to the evolution of typography and of graphic design.
- You will be able to semantically analyze visual design and photographic images.
- You will be able to conduct visual experimentations, of communicative and aesthetic nature; experimentation involves the selection and manipulation of elements, typographic or graphical, and creating a designed composition. You will also be able to do design experiments with structuring a visual image and selecting appropriate photographic elements.
- You will familiarize with visual composition targeted to specific communication objectives. You will be able to communicate certain concepts or messages, by the use of visual language.
- You will be able to apply the use of typographic elements, graphic and photographic elements, in your designs.
- You will be able to compose images using basic elements and principles of visual composition. You will cultivate your creativity and gain skills in visual communication using various media (printed or electronic).
- You will be able to judge and evaluate visual designs in respect to their overall aesthetic and communicative value.

**Subjects covered:**
- Type Design
- Photography
- Graphic Design, design for print media
- Design Process
- Audiovisual Content techniques
- Design and Interactivity

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**GTP60 Graphic Arts Technology**

**Module code:** GTP60  
**ECTS Credit Points:** 20  
**Module Type:** Compulsory  
**Year:** 2nd  
**Language:** Greek
Module general description: This module focuses exclusively on the technological dimension of graphic arts. The rapid development of this field, in the context of an equally rapidly emerging Information Society, has resulted in the total automation of the production process. All modern methods leading to the finalising and finishing of printed material are thoroughly examined in this module. Considering the fact that the potential offered by various printing methods does indeed limit the boundaries of how graphic design ideas can be implemented in print, the particular module is very important even for those students who will not work in the technological aspect of the printing process, after successfully completing this Course.

Learning Outcomes: At the end of this course the student should be able to,

- Define the full preprint procedure
- Know the whole process of montage
- Describe the process of galley proof development
- Sort the printing methods based on the printing machines and the requirements of print making
- Describe the whole procedure of flexography, heliography and silk print
- Describe the post printing procedure.

Subjects covered:
- Pre-press
- Printing
- Finishing Procedures - Post Press Process
- Print Media Management

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

GTP61 Informatics - Multimedia

Module code: GTP61
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Module general description: The module on "Informatics - Multimedia" firstly studies the aspects of computer science that relate to the design, manipulation and display of multimedia content. It thoroughly examines the main features of multimedia and their application through a stage-by-stage analysis of the design and development of a multimedia application. This module aims at providing students with the theoretical and technical knowledge as well as the requisite skills for creating well-designed, user friendly and functional audiovisual interactive products for communication.

Learning Outcomes: Upon completion of module GTP61 students,

- Will have comprehended design technology on computer systems
- Will have comprehended the technology of each individual component that constitutes a computer system, as regards both hardware and software.
- Will have developed skills in the design and production of multimedia tools with the use of various application programs
- Will have developed pedagogical presentation skills (particularly for topics of multimedia content)
- Will have developed creative skills for the composition of an artistic event project.

Subjects covered:
- Computers and Programming
- Multimedia Applications, Software, Networks
- Architectural Analysis and Design with Digital Media

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

Lighting Design (MA)

Description
The Post-graduate Studies Program “Lighting Design” aims at an in depth study of issues concerning the combination of the art and the science of lighting used widely both in a theoretical and applied level. Particular issues, on which the PSP focuses, constitute the perception of light, its effect on humans, the relationship of art to lighting, the physics of lighting, issues of natural and artificial lighting from a scientific, artistic and technological point of view, lighting composition combining artificial and natural lighting and its computer simulation.

The PSP aims at the specialization of scientists so as to a) become able to deal with research or undertake professional practice in the wider field of lighting design, lighting technology, their applications in the built environment and artistic installations, as well as to investigate such areas of interest in relation to the psychology of visual perception and b) attain comprehensive scientific command on the above knowledge areas, so as to be capable of supporting applications and facing problems that often occur in the professional or artistic activity which they already practice, while cultivating their creativity.

Learning Outcomes
With the completion of the Graduate Program Lighting Design a student is expected to:
- Know basic concepts regarding the properties of natural and artificial light.
- Handle the various aspects of light in fields such as architecture, interior design, theater, photography, etc.
- Have adequate knowledge of the ways in which light affects humans.
- Be able to design solutions aiming at the attainment of artistic expressive goals.
- Distinguish the basic principles of radiometry and photometry.
- Be aware of the classification of colors and their mixing methods.
- Discern the types of shadows and their applications in the sciences and the arts.
- Analyze the requirements of a lighting project.
- Calculate the conditions of visual comfort.
- Design integrated technical solutions.
- Calculate the costs of the equipment as well as of its operation and maintenance.
- Conduct research and develop designs at a high level of expertise and artistic sensibility.

Requirements

Applicants to the “Lighting Design” course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an
Skills and knowledge in visual arts, an artistic background, computer usage (especially in software relevant to the course) as well as internet and e-mail skills are considered necessary for the completion of the course.
Knowledge of English language at B2 level is required.

Note:
Where previously mentioned:
a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.
b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*. The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.

*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)".

Minimum study duration
2 academic years

ECTS credit points
120

Classification according to ISCED-2011 of Unesco
- Based on the level of Education: 7
- Based on the field of Education: 21 Arts
Classification according to ISCED-2013 of Unesco
- Based on the field of Education: 0218 - Inter-disciplinary programmes and qualifications involving Psychology, History of the light, Physics, Biology, Electricity, Audio-visual techniques

Learning Material
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.
Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

Contact
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Course Structure
1st Year
SFP50 Art, Light and the Psychology of Perception (C¹, 20 ECTS)
SFP51 General principles of lighting and physiology of visual perception (C, 20 ECTS)
SFP60 Lighting technology and link to production (C, 20 ECTS)
2nd Year
SFP61 Architectural lighting design and visualization applications (C, 20 ECTS)
Masters thesis (C, 40 ECTS)
Note:
C¹: Compulsory

The master's degree is awarded upon completion of 4 course modules and a dissertation.

Course Modules
SFP50 Art, Light and the Psychology of Perception
Module code: SFP50
ECTS Credit Points: 20
Module Type: Compulsory
Year: 1st
Language: Greek
Learning Outcomes: Upon completion of the graduate program the student will,
- Have knowledge of basic concepts related to the properties of natural and artificial light.
- Identify the various methods of light handling and the available tools.
- Plan a variety of schemes and lighting options in fields like architecture, interior design, stage setting, photography, the fine arts, etc.
- Have acquired adequate knowledge of the psychological aspects of light, that is, of the ways in which light influences man under certain conditions.
- Have sufficient knowledge of design methods aiming at the achievement of artistic expressive objectives in any of the above mentioned fields.
- Be cognizant of the basic concepts of photometry as well as of the methods of measurement and the manner in which the qualitative and quantitative aspects of light are related.
- Be able to operate computer programs for the simulation and representation of lighting conditions in any design problem.
- Be in a position to deal with various lighting applications in real conditions with competence in quantitative calculations and cost estimation of each project.

**Subjects covered:**
- Visual Communication
- Principles of visual education and development of artistic meaning
- Historical aspects of light and lighting in art and architecture
- Psychology of visual perception

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

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**SFP51 General principles of lighting and physiology of visual perception**

**Module code:** SFP51

**ECTS Credit Points:** 20

**Module Type:** Compulsory

**Year:** 1st

**Language:** Greek

**Learning Outcomes:** At the end of this course the student should be able to:

- Know about the nature of light, the basic principles of radiometry and photometry, the notion of the black body and its applications, the radiometric and photometric quantities and units, about the reflectance, the ways of flow transport from a source to a surface and the most important measuring set-ups in radiometry and photometry.
- Familiarise himself/herself with the ecological approach of the optical perception (irritation and optical perception, direct perception, movement in space, static/moving images and optical cognition).
- Describe the notions of colours, the role of luminous sources in the colour generation process, the classification of colours as well as the methods of mixing them.
- Apprehend ancient and modern shadows, give description of the applications of shadows in astronomy, architecture and arts and speak about the relation between perspective and shadow projection.
Talk about topics related to light and space (medium, substances, surfaces, ambient optical deployment, events and information, perceptions about light in religion, philosophy and arts, the knowledge of Byzantines about light).

Subjects covered:
- Light and physiology of visual perception
- Principles of photometry and chromatometry
- Photometric values, measurements and lighting evaluation
- Colour mixing and colour rendering of light sources
- Daylighting design and geometrical characteristics of natural lighting

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**SFP60 Lighting technology and link to production**

Module code: SFP60
ECTS Credit Points: 20
Module Type: Compulsory
Year: 2nd
Language: Greek

Learning Outcomes: After the successful completion of the course ‘Lighting technology and connection with the production’ the candidate of the postgraduate programme ‘Lighting design-Multimedia’ of the Hellenic Open University will be able to,
- analyze the requirements of a lighting project
- formulate the suitable technical solutions for the lighting project
- determine the required conditions for visual comfort qualitatively and quantitatively
- organize and design the lighting system
- synthesize technically integrated solutions and combine them with the rational use of energy
- specify the appropriate equipment and arrange its position in the space
- calculate the initial cost as well as the operation and maintenance cost
- choose the optimal solutions, technically and economically

Subjects covered:
- Lighting techniques, applications and integrated lighting design
- Rules for functional lighting and the use of lighting standards
- Energy optimization of lighting works, cost and benefits
- Improving visual comfort
- Technology of artificial lighting sources and lighting controls

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**SFP61 Architectural lighting design and visualization applications**

*Module code:* SFP61  
*ECTS Credit Points:* 20  
*Module Type:* Compulsory  
*Year:* 2nd  
*Language:* Greek  

**Learning Outcomes:** After the successful completion of the course, the graduates will be able to:

- Design the lighting in a room, so that it corresponds to the anticipated artistic expression,
- Analyze the illumination of an area in layers,
- Communicate their idea of lighting design,
- Analyze the effects of light on human physiology and human psychology,
- Describe the effects of light on human health,
- Construct a three-dimensional model and place digital light sources,
- Categorize the light sources according to their quality characteristics,
- Calculate color output by mixing colored light,
- Understand the differences among digital light sources,
- Use shadow in the composition of light for a space,
- Apply digital materials and textures in three-dimensional models.

**Subjects covered:**

- Architectural lighting design  
- Lighting design and colour  
- Human factors in lighting  
- Lighting simulation and visualization methods

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of four written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
Acoustic Design and Digital Sound (MA)

Description
The Postgraduate Course “Acoustic Design and Digital Sound” provides an in-depth study of topics relevant to the science of acoustics which are widely employed in theoretical and practical applications in the field of acoustic design, focusing both in the art as well as in the technology of sound.

This Postgraduate Course aims at providing specialist knowledge for scientists a) to enable them to engage in research and professional activities in the wider area of audio technologies, in sound and in acoustic design for buildings, installations and in noise control, b) to support related applications often in professional or artistic activities that they already exercise.

Learning Outcomes
On successful completion of the ASP program students will be able to,
- understand the nature of sound, the principles of acoustics and the quantitative units of sound level measurements
- determine the difference between the acoustics and psychoacoustics
- recognize the sequence of steps for music production and the possibilities offered with the use of modern processing and synthesis audio technologies.
- identify the key design principles of an electroacoustic installation
- recognize the difference between the art of sound and music
- evaluate the sound level of a single source in open or enclosed space as well as the level of the combination of many sources emitting simultaneously.
- recognize the instruments with which we measure and analyze the sound
- distinguish the different modes of sound propagation
- be aware of the methods for noise reduction
- know the effects of noise on health.
- describe the basic concepts of sound transmission within enclosed spaces
- distinguish the basic theories of sound propagation within enclosed spaces
- distinguish the difference between the traveling and the standing waves and how the latter affect the sound field of an enclosed space.
- understand importance of reverberation time, how it is related to the function of a space, what is the effect on the acoustic behavior of rooms, and how it can be optimized with the use of sound absorbing materials
- analyze the response of a room in time and frequency domain
- set out the general acoustical principles for room design and the requirements of the most popular enclosed spaces
- manage the information obtained from the acoustic measurements in the evaluation of acoustic quality of a room
- define the requirements and standards in relation to the regulations for noise control using the methods for noise prediction and understand the operation of the related software.
- Derive and evaluate the information from the noise maps
- be able to evaluate the application of design principles in real acoustic studies
- describe the concepts of signals and systems for audio and acoustics applications
- determine the frequency spectrum of a signal and describe the main categories of ideal filters
- recognize the importance of digital coding and compression of audio data
- summarize the types and sources of distortions and noise in audio signals
- describe the purpose and principles of digital equalization of audio systems
- appreciate the structure and operation of a typical software for recording and mixing music
- perform multitrack recordings and mixing on the computer and explain the working principle of the basic digital music effects
- identify specific programming languages for creating audio / interactive applications
- describe the most important digital audio protocols and for transmission and the Internet
- describe the structure of software libraries for audio in smart mobile systems

Requirements

Applicants to the Acoustic Design and Digital Sound MA course must possess an undergraduate degree in a related field from a Greek Public University, a Technical Educational Institute or an equivalent degree.

Skills and knowledge in visual arts, an artistic background, computer usage (especially in software relevant to the course) as well as internet and e-mail skills are considered necessary for the completion of the course.

Knowledge of English language at B2 level is required.

Note:

Where previously mentioned:

a. Graduates of Universities or Technological Educational Institutes’ departments are all the degree holders of Greek Universities and Technological Educational Institutes’ departments as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of the above-mentioned departments of accredited foreign institutions*.

b. Graduates of Universities or Technological Educational Institutes are all the degree holders of Greek Universities or Technological Educational Institutes, as well as anyone with equivalent foreign degree recognised by the Hellenic NARIC (Hellenic National Academic Recognition and Information Center – DOATAP/former DIKATSA) or the Technical Training Institute (ITE), respectively, or holders of the first cycle of study of accredited foreign institutions*.

The term “Universities” refers to University Schools, Technical Universities and the School of Fine Arts.
*N.B.: Pursuant to par. 7, art. 34 of Law No. 4485/2017 “No Postgraduate Diploma shall be awarded to a student whose first cycle degree from a foreign institution has not been recognised by the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), under Law No. 3328/2005 (A80)”.

**Minimum study duration**
The minimum duration of the programme is three (3) years.

**ECTS credit points**
120

**Classification according to ISCED-2011 of Unesco**
- Based on the level of Education: 7
- Based on the field of Education: 21 Arts

**Classification according to ISCED-2013 of Unesco**
- Based on the field of Education: 0211 - Audio-visual techniques and media production

**Learning Material**
Learning material used is mainly printed textbooks but also audiovisual and electronic learning material. The printed material is especially adapted to meet the needs and standards of distance education.

Chapters clearly state aims and objectives. Key concepts and expected learning outcomes. Self-assessment questions and exercise.
Alternative teaching material. To assist the students to a better understanding of the main teaching material. It utilizes, clarifies and enriches, if necessary, the already existing material.

**Contact**

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**Course Structure**

1st Year
- ASP50 Sound and the Arts (C¹, 24 ECTS)
- ASP51 Noise Reduction and Protection (C, 24 ECTS)

2nd Year
- ASP60 Room Acoustics (C, 24 ECTS)
- ASP61 Special issues on Acoustic Design and Multimedia (C, 24 ECTS)

3rd Year
- Master's dissertation (C, 24 ECTS)

**Note:**
C¹: Compulsory
The master's degree is awarded upon completion of 4 course modules and a dissertation.

**Course Modules**

**ASP50 Sound and the arts**

**Module code:** ASP50  
**ECTS Credit points:** 24  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Learning Outcomes:** Upon completion of the graduate program the student will,

- Have knowledge of basic concepts related to the nature of sound and the science of acoustics, of the sound propagation and of the measurement units for measuring its level.
- Be able to identify the physical manifestations of acoustic events and their corresponding perceptual and subjective results to the listener.
- Appreciate the methods for representing acoustic signals in the time and frequency, together with their corresponding quantitative and qualitative aspects.
- Familiarize with the application of contemporary techniques for sound synthesis, music production and be aware of the possibilities allowed by such processing.
- Know the basic principles of electroacoustic installation design, with reference to the specific characteristics of its basic components - transducers (microphones and loudspeakers).
- Appreciate the differences between the field of traditional music and of the contemporary arts that are based on sound.
- Obtain basic knowledge related to modern artistic creations that either rely purely on sound or they combine it with other types of artistic expressions, such as painting.
- Have understanding of the 2-way relationship between acoustics and architecture, especially via their perceived properties and their historic evolution.
- Will know the specific issues related to the modern methods of auralisation and virtual acoustic representations.

**Subjects covered:**

- Introduction to acoustics and sound perception  
- Acoustics, music and architecture  
- Acoustics of spaces from the antiquity up to the present day  
- Electroacoustic systems  
- Acoustics of musical instruments and electronic sound technology  
- Virtual acoustics  
- Applications of binaural audio technology

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final
or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.

**ASP51 Noise reduction and protection**

**Module Code:** ASP51  
**ECTS Credit points:** 24  
**Module Type:** Compulsory  
**Year:** 1st  
**Language:** Greek

**Learning Outcomes:** Upon completion of the graduate program the student will,
- understand the fundamental principles of the science of acoustics, the basic units for measuring sound and be able to carry out basic calculations associated with such units and with noise levels.
- be able to calculate the level of the sound emitted by a single source, whether it is in an open or closed space and also the level of the combination of several simultaneous sound sources.
- be able to distinguish the sound from the noise and recognize the properties of some noises.
- identify the instruments by which the sound is measured and analyzed and make the appropriate adjustments.
- be able to distinguish the sounds depending on how they are propagated, through air or through solids, or caused by impact.
- know how the noise can be reduced and choose the most suitable way, depending on its properties.
- be able to design a noise barrier.
- know the effects of noise on humans and the main legislation governing noise pollution.

**Subjects covered:**
- Physical properties of sound
- Measurement and analysis of noise
- Noise reduction, protection and regulations
- Basic principles of room acoustics
- Materials for noise absorption and control
- Noise control design
- Community noise control
- Noise maps
- Software and applications for noise control

**Teaching Method:** Distance education with five tutor-student meetings held at weekends during the academic year.

**Evaluation:** Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.
ASP60 Room Acoustics
Module Code: ASP60
ECTS Credit points: 24
Module Type: Compulsory
Year: 2nd
Language: Greek

Learning Outcomes: On successful completion of the ASP program students will be able to,
- describe the basic concepts of sound transmission within enclosed spaces
- distinguish the basic theories of sound propagation within enclosed spaces
- distinguish the difference between the traveling and the standing waves and how the latter affect the sound field of an enclosed space.
- understand importance of reverberation time, how it is related to the function of a space, what is the effect on the acoustic behavior of rooms, and how it can be optimized with the use of sound absorbing materials
- analyze the response of a room in time and frequency domain
- set out the general acoustical principles for room design and the requirements of the most popular enclosed spaces
- manage the information obtained from the acoustic measurements in the evaluation of acoustic quality of a room

Subjects covered:
- Sound propagation and analysis in enclosed spaces
- Acoustic parameters for evaluation and measurements
- Principles for room acoustic design
- Geometrical acoustics
- Wave acoustics
- Acoustic design of spaces for speech, concerts and multipurpose halls
- Software for measurement and prediction of room acoustics

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students’ final course grade.

ASP61 Special issues on Acoustic Design and Multimedia
Module Code: ASP61
ECTS Credit points: 24
Module Type: Compulsory
Year: 2nd
Language: Greek

Learning Outcomes: On successful completion of the ASP program students will be able to,
- define the requirements and standards in relation to the regulations for noise control using the methods for noise prediction and understand the operation of the related software.
- derive and evaluate the information from the noise maps
- be able to evaluate the application of design principles in real acoustic studies
- describe the concepts of signals and systems for audio and acoustics applications
- determine the frequency spectrum of a signal and describe the main categories of ideal filters
- recognize the importance of digital coding and compression of audio data
- summarize the types and sources of distortions and noise in audio signals
- describe the purpose and principles of digital equalization of audio systems
- appreciate the structure and operation of a typical software for recording and mixing music
- perform multitrack recordings and mixing on the computer and explain the working principle of the basic digital music effects
- identify specific programming languages for creating audio/interactive applications
- describe the most important digital audio protocols and for transmission and the Internet
- describe the structure of software libraries for audio in smart mobile systems.

Subjects covered:
- Software applications for acoustic design and noise control
- Digital processing and analysis of audio signals
- Principles of digital audio
- Measurement and analysis of audio and acoustic system response
- Software for music applications, recording and sound reproduction
- Interconnections and streaming of digital sound
- Web based applications for sound

Teaching Method: Distance education with five tutor-student meetings held at weekends during the academic year.

Evaluation: Completion of five written assignments during the academic year, the average grade of which constitute a 30 percent of each student's grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 70 percent of the students' final course grade.