COURSE MODULE OUTLINE

General information

SCHOOL	School of Applied Arts and Sustainable Design		
PROGRAM COURSE	Interaction Generative Design		
LEVEL OF STUDY	Postgraduate		
COURSE UNIT CODE	**IGD55**	**YEAR OF STUDY**	1st
COURSE TITLE	Interactions: Algorithmic Sound, Image, Space		

INDEPENDENT TEACHING ACTIVITIES *in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHNG HOURS**	**CREDITS**
Weekly teaching hours: 21-22 hours per week X 13 weeks	280	10
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4		

COURSE TYPE Compulsory, Optional, Optional mandatory	Mandatory
PREREQUISITE COURSES:	Introduction to algorithmic design (IGD52)
LANGUAGE OF INSTRUCTION AND EXAMS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	https://www.eap.gr/education/postgraduate/biannual/diadrastikos-algorithmikos-sxediasmos/diadrastikos-algorithmikos-sxediasmos-thematikes-enotites/#igd55 Each course has a dedicated space within the digital educational space of H.O.U. (http://courses.eap.gr), with controlled access (password) for students and educational staff.

(2) LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:

APPENDIX A

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and*

APPENDIX B

- *Guidelines for writing Learning Outcomes*

Students will be able to:

- Use the methods and parameters of designing interactive events, installations, spaces, or objects in an applied project
- Understand and apply the appropriate sensors and actuators in their interactive projects
- Understand and program interactive systems using specific microprocessors and computational code

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,
Adapting to new situations
Decision-making
Individual/Independent work
Group/Team work
Working in an international environment
Working in an interdisciplinary environment
Introduction of innovative research
Project planning and management
Respect for diversity and multiculturalism
Environmental awareness
Social, professional and ethical responsibility and sensitivity to gender issues
Critical thinking
Development of free, creative and inductive thinking
……
(Other…….citizenship, spiritual freedom, social awareness, altruism etc.) …….

Search for, analysis and synthesis of data and information by the use of appropriate technologies
Decision-making
Individual/Independent work
Working in an interdisciplinary environment
Development of free, creative and inductive thinking

(3) COURSE CONTENT

The aim of this thematic unit is to familiarize students with the methods of designing interactive systems, which might be either performances, audiovisual installations, spaces, or objects. Introduction to the practical use of sensors and actuation devices, programming interactive systems using microprocessors and computer code.

- Parameters for the design of interactive systems

- Basic programming concepts and structures
- Programming of interactive systems with Arduino and Processing
- Sensors and actuators for the recording of stimuli and production of actions in physical space
- Prototyping electronic circuits
- Computational image management
- Computational vision
- Projection mapping of still or motion images on surfaces
- User-machine interface design
- Network communication for data exchange
- Basic principles of computational sound management

(4) TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	Distance teaching and distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in teaching, Laboratory Education, Communication with students*	• Multimedia material (Videos, Slides, Exercises). • PowerPoint presentations • Presentations through the Integrated Development Environment of Processing, for the direct understanding of code and its visual output. • Presentations through Integrated Development Environment of Arduino, combined with visual material (diagrams, pictures, video) explaining the physical layouts and results of code.
COURSE DESIGN *Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.* *The study hours for each learning activity as well as the hours of selfdirected study are given following the principles of the ECTS.*	

Activity/Method	*Semester workload*
3 OSS (* 4 hours)	12
Self-assessment exercises	40
Module activities	20
Preparation of Assignments (3 assignments * 10 hours)	30
Examination	3
Individual study	184
Total module workload (hours)	280

STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS *Detailed description of the evaluation procedures:* *Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other……etc.* *Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.*	Elaboration of three (3) written assignments during the semester. To participate in the final exam, it is mandatory to submit at least two of the three assignments and the total grade in the assignments must be at least 20 out of 100. Final written exam.

(5) SUGGESTED BIBLIOGRAPHY:

- Suggested bibliography

1. Blum, Jeremy. *Exploring Arduino: Tools and Techniques for Engineering Wizardry*. New York: John Wiley & Sons, Incorporated, 2013.

2. Marques, Oge. *Practical Image and Video Processing Using MATLAB*. Somerset: John Wiley & Sons, Incorporated, 2011

3. Murray, Janet. *Principles of interaction design as a cultural practice.* Cambridge, London: The MIT press, 2012.

4. Shiffman, Daniel. *Learning Processing: A Beginner's Guide to Programming Images, Animation, and Interaction.* San Francisco: Elsevier Science & Technology, 2015.