

Course/Subject/Unit Description

1. General Information			
School		School of Design Studies	
Department		INTERIOR ARCHITECTURE	
STUDY LEVEL		Undergraduate	
CODE OF SUBJECT	EA513	SEMESTER	
SUBJECT TITLE		Digital Design with Programming	
Teaching Content	Weekly (Hrs)	Credits	
Lectures, Essays, Design Workshops/Excercises, Design Project – Portfolio of work.	1	3	
	2		
Type of Subject		Mandatory Selection: Specialty Course	
PREREQUIRED COURSES		No	
Teaching and Exams Language		Greek	
THE COURSE IS OFFERED TO ERASMUS STUDENTS		Yes	
Course website (URL)		ia.ihu.gr/ea513	

2. Aims and Objectives – Methods – Skills
a. Learning Outcomes
<p>General context</p> <p>The course of digital design with programming is a special knowledge that can be widely used in research for independent or group contribution in an interdisciplinary environment, in order to automate or produce new design information through awareness and contact of learners with programming in Visual LISP language in CAD digital design environment.</p> <p>Aims and objectives</p> <p>The main objectives of the course are the awareness and contact of learners with programming in a digital design environment, the development of standard programs that become important tools that contribute to research, decision making and suggest solutions as interdisciplinary issues, design needs analysis and their automated solution through programming and the solution and automatic management of complex design objects.</p> <p>Method - learning outcomes</p> <p>The course consists of both theoretical and laboratory content. In the theoretical part, there is a series of injectable theoretical and practical presentations that are constantly alternating, which are analyzed and discussed with the active participation of the students, either in the design application of the computer, or on blackboard or with the use of visual material. In the laboratory part, a series of laboratory exercises for the application of theoretical presentations are performed. Students first complete small laboratory exercises individually and then optionally an individual program to solve a specific design or architectural issue.</p> <p>Upon successful completion of the course the student will:</p> <ul style="list-style-type: none"> • prepares custom programs in Auto LISP language in CAD digital design environment, • analyzes design or computational needs, codifies them and composes solutions to solve them • participates and will actively contribute to the solution of interdisciplinary research issues • automatically manages various design objects and calculations • will customize and adapt to its needs digital design processes and their results (eg sections, faces, etc.), • will create automations for the creation of symbols and libraries, • automates calculations of geometric places and structures

- creates interfaces and automatic connections to other design environments

β. Skills

- Knowledge of analog and digital 2D and 3D design methodology
- Analysis of design, computing and architectural needs
- Analysis and synthesis of data with programming logic
- Autonomous work
- Basic knowledge of analytical geometry and geometric places

3. Subject Context

It aims to acquire knowledge and skills for independent or group contribution in an interdisciplinary environment, in order to automate or produce new design information. The course allows the trainees to become aware and contact with Visual LISP programming. This know-how with the use of digital design software, followed by needs analysis, allows the writing of programs that solve multiple design architectural problems and automatic management of design objects.

Programmable digital design allows, among other, the automation and customization of digital design processes, the creation of standard designs, symbols and libraries, the creation, processing and automatic calculation of geometric places and structures, the automatic management of design and descriptive data (combination of spatial information, dimensions, areas, joints, angles, comparison and evaluation of data, etc.), automatic custom creation of architectural views such as sections, views, etc., creation of interfaces and automatic connection to other design environments, etc.

The aim of the course is, among other, to create tools that automate digital design and solve geometric and architectural problems that have been solved, as well as to develop standard programs that become important tools that contribute to research, decision making and suggest solutions as helpers in interdisciplinary matters.

4. Teaching and learning methods – Evaluation and assessment

<ul style="list-style-type: none"> - Theory and Design Workshops – Main Project Brief/ Site visits - Group Appraisal /Site Analysis - Theory Essay and Design Exercises - Interim Reviews - Project Final Pin Up - Portfolio Hand In. 	<p>Theory and Design Workshops Theory Essay and Design Exercises Final Project</p>	
Use of Information and Communication Technologies	Use of AutoCAD environment Multimedia and conventional presentations via PC Video projection	
Teaching organization	Activity	Semester Credits
	Lectures	20
	Theory Essay	30
	Design Workshop and Exercises	30
	Main Design Project	10
	Research and Analysis of Bibliography	10
	Total	100

<i>Student assesment</i>	Project design and presentation Laboratory examination via PC Digital portfolio organization
--------------------------	----------------------------------------------------------------------------------------------------

5. Recommended/ Bibliography

Indicative suggested bibliography

- Omura, G., (1990) Introduction to AutoLISP. Giourdas Publications, Athens 1990
- Head G., (1990), Learn AutoLISP. Key Number Publications, Athens 1990
- Immler Chr., (1993), The Great Book of AutoCAD PROGRAMMING 12. Editions Micro Application, France, 1993
- Kramer B., (1997), AutoLISP Treasure Chest. Cadence, Miller Freeman Books Editions, San Francisco USA, 1997
- Kappos, G., (2002), Adapt AutoCAD to your requirements. AutoCAD customization, Key Number, Athens, 2002
- Kouzeleas, S., (2002), Development of a tool tool in an acoustic architectural simulation adapted to a CAO modeling system. Ph.D. Thesis, Bordeaux France 2002
- Cottingham, M., (2001), Complete AUTOCAD VBA Manual. Giourdas Publications, ISBN 960-512-290-1, USA, translated into Greek, Athens 2001
- Thallbeim, A., (2001), VBA Pour AutoCAD 2002. Thallbeim Consultants Inc. Publications. ISBN 2-9806659-1-6, Quebec, Canada, 2001
- Kouzeleas, S., (2021) Electronic notes on Visual LISP

Related Scientific Journals