# COURSE OUTLINE

## 1. GENERAL

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| **SCHOOL** | POLYTECHNIC |
| **DEPARTMENT** | ARCHITECTURE |
| **LEVEL OF COURSE** | UNDERGRADUATE |

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| **COURSE CODE** | ARC_173 | **SEMESTER OF STUDIES** | 3 |

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| **COURSE TITLE** | DIGITAL MEDIA 1 |

| **INDEPENDENT TEACHING ACTIVITIES** | **TEACHING HOURS PER WEEK** | **ECTS CREDITS** |
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| Lectures, seminars and laboratory work | 4 (lab. +sem) | 2 |
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| **COURSE TYPE** | General Knowledge and Skills Development (Computer graphics and Architectural representation) |
| **PREREQUISITE COURSES:** | |
| **TEACHING AND ASSESSMENT LANGUAGE:** | Greek. |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | Yes |
| **COURSE WEBPAGE (URL)** | https://eclass.upatras.gr/courses/ARCH565/ |

## 2. LEARNING OUTCOMES

**Leraning outcomes**

The aim of the course is to introduce digital design into architectural practice, study and research. Although it initially focuses on the "construction" of architectural representation as a means of communicating architectural ideas, the course provides the basis for students to explore techniques that enhance the role of the representation and imaging in architecture. The course provides sufficient knowledge of digital tools used in common design practice. The intent is for students to think beyond the limits of specific applications and to critically evaluate knowledge in the field of digital design applications. In practice, combined use of applications requires a fundamental understanding of architecture and the processes involved in architectural design.

The course provides a general overview and acquaintance with digital media, as far as they can implement architectural creation. Focus is placed on the relationship between 3d and 2d and the relations between digital and physical space. Importance is given to the evolutionary process of a design project, which starts from digital models in Rhino environment. The creation of virtual models offers the tools for analyzing, processing, and presenting spatial architectural proposals. The semester is completed with the presentation of an architectural proposal (using the applications: Rhino, Autocad, Photoshop, Illustrator, InDesign), with which the student proves that he / she is in a position:

• To portray, in an accurate structured way a variety of environments in the digital space, having acquired sufficient knowledge of techniques and tools for processing architectural ideas.
• To use new technologies as creative tools in studying form and composition.
• To dynamically use digital applications and to have sufficient knowledge to explore new tool combinations during the production of architectural projects.
• To support and communicate ideas and projects, having developed all necessary design skills that document their architectural thinking.

**General Abilities**

By the end of this course the student will, furthermore, have developed the following skills (general abilities):

- Ability to exhibit knowledge and understanding of the essential facts, concepts, theories and applications which are related to Architecture and its representation.
- Adaptation to new situations
- Group work
- Autonomous work
- Design and project management
- Promote creative inductive thinking.
- Study skills needed for communicating architectural projects
- Ability to interact with others in design process.

## 3. COURSE CONTENT

Digital design is a dynamic field of ideas development, through the use of digital tools in every design phase. We could say that digital design is synonymous with experimental design. The development of the use of tools is a collaborative process where techniques and applications aim at integrating tools in the field of architectural study and expression. In practice, combined use of applications requires a fundamental understanding of architecture and all processes involved in architectural design. The course introduces students to the possibilities, advantages and limitations of computers as part of design work.

During the course, students familiarize themselves with a wide range of digital applications that involves virtual 3d modeling, image processing, 2d architectural design, and generally all possible aspects of conventional architectural work. The basic method is the simulation-representation of design in different phases, starting from abstract forms and gradually extending to more complex projects, up to detailed drawings.

During the semester, students are invited to address issues related to:
- Methods of design, process and creativity.
- Digital environment and representation.
- Analysis - information and modeling.
- Expression and depiction.

With the ultimate goal of completing and presenting a simple project, during the semester, small autonomous exercises are being processed in four directions of increasing complexity:
- Investigation and synthesis of abstract three-dimensional forms. The abstraction of an architectural project, its analysis and elucidation diagrams.
- Two-dimensional design. The architectural program and the two-dimensional design. Representation of geometrical principles of an architectural proposal, organization of design processing and evolutionary techniques.
- Digitization of projects and communication of three-dimensional and two-dimensional forms. Different forms of presenting architectural information.
- Representations of an architectural project. Prints and 2d representations. Relation between physical and digital models.

The exercises, that help to consolidate architectural analysis and develop skills in digital media, are supported by corresponding lectures. The teaching method seeks to combine theoretical knowledge with technical training in new media.

## 4. TEACHING AND LEARNING METHODS – ASSESSMENT

The lessons are basically laboratory, supported by lectures and criticism. There are a few assignments and a final project. Main subject is the production and presentation of the architectural work, based on experimental works that approach the design process on a

multifaceted basis. The content of the exercises aimed at developing students' perceptual capacity, where digital media becoming tools for study, imaging and synthesis. At the end of each semester a synthetic architectural project is presented.

| TEACHING METHOD | Lectures, seminars and laboratory work face to face. | |
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| USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES | Use of Information and Communication Technologies (ICTs) in teaching. The course utilize graphic software, as the objective of the course is to introduce students to computer –based architectural design. | |
| TEACHING ORGANIZATION | *Activity* | *Work Load per Semester* |
| | Lectures | 5 |
| | Supporting seminars solving of representative problems and presentation of techniques and theory associated to each laboratory experiment | 13 |
| | Field exercise | 22 |
| | Preparation of assignments | 10 |
| | *Total number of hours for the Course (25 hours of work-load per ECTS credit)* | *50 hours (total student work-load)* |
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| STUDENT ASSESSEMNT | The attendance of lectures and laboratory courses is obligatory. Students are assessed by the exercises at 40% and the final presentation by 60%. During the semester four works are delivered (diagrammatic analysis, basic geometric representation, visualization of architectural drawings and alternative three-dimensional representation). The final proposal is delivered in a PDF format and on a printed billboard, summarizing the analysis and the complete representation of the synthetic subject. | |

## 5. RECOMMENDED LITERATURE

- Βιβλίο [112707094]: Προς το σύμπαν των τεχνικών εικόνων, Vilem Flusser Λεπτομέρειες

- Βιβλίο [94691814]: Εισαγωγή στις Ψηφιακές Σπουδές, Ηρακλής Βογιατζής, Νικόλ Σαρλά, Warren Weaver,Alan M. Turing,Βασίλης Αργυρίου,Warren S. McCulloch,Κωνσταντίνος Κανδηλώρος,Norbert Wiener,Φιλιώ Χατζημπεκιάρη,Hilary Putnam,David Chalmers,Κώστας Βουκύδης,Edward Fredkin,Γιάννης Καρπούζης, Lev Manovich. Dani Cavallaro, Rossi Braidotti, Χρήστος Κρυστάλλης, Γεωργία Νικολοπούλου,Tim O'Reilly, Shoshana Zuboff, Antonio Negri, Gilles Deleuze. Λεπτομέρειες

- Βιβλίο [11836]: Χίλια χρόνια μη γραμμικής ιστορίας, De Landa Manuel Λεπτομέρειες

- Βιβλίο [6799]: Γραμμόφωνο, κινηματογράφος, γραφομηχανή, Friedrich Kittler Λεπτομέρειες

- Βιβλίο [12438736]: Συνεκδοχές., Τέλλιος Αναστάσιος Λεπτομέρειες

- Βιβλίο [12777813]: Μεταβαλόμενη Αρχιτεκτονική - Κίνηση, Προσαρμογή, Ευελιξία, Ουγγρίνης Κώστας Λεπτομέρειες

- Βιβλίο [12779032]: Προσαρμόσιμη Αρχιτεκτονική. Δυνατότητες και Παράγοντες Σχεδιασμού Μεταβαλλόμενων και "Ευφυών" Χώρων, Γιαννούδης Σωκράτης Λεπτομέρειες

- Βιβλίο [94700224]: Η πόλη ως κολλάζ, Rowe C., Koetter F. Λεπτομέρειες

- Βιβλίο [94702388]: Το πεπρωμένο των εικόνων, Ζακ Ρανσιέρ Λεπτομέρειες

- Βιβλίο [86199398]: ΧΩΡΙΚΕΣ ΣΤΡΕΒΛΩΣΕΙΣ, Anthony Vidler Λεπτομέρειες

- Βιβλίο [94689604]: Ελαφριές κατασκευές, Αντωνίου Δημήτρης, Δημόπουλος Γιώργος, Κονταξάκης Δημήτρης, Συμεωνίδου Ιωάννα, Τσινίκας Νίκος, Επιμ. Τσινίκας Νίκος Λεπτομέρειες

- Βιβλίο [94645319]: Συστήματα CAD/CAM και τρισδιάστατη μοντελοποίηση, Μπιλάλης Νικόλαος Α., Μαραβελάκης Εμμανουήλ Λεπτομέρειες

- Βιβλίο [77110959]: Τεχνικές Αναπαράστασης με γεωμετρικές μεθόδους και σύγχρονα Ψηφιακά Μέσα, Κουρνιάτης Νικόλαος Λεπτομέρειες