

COURSE OUTLINE

(1) GENERAL

| | | | |
|---|---|------------------------------|---------------------|
| SCHOOL | Engineering | | |
| DEPARTMENT | Electrical and Computer Engineering | | |
| LEVEL OF STUDY | Undergraduate | | |
| COURSE UNIT CODE | 1.007 | SEMESTER | 1 st |
| COURSE TITLE | Introduction to Electrical and Computer Engineering | | |
| COURSEWORK BREAKDOWN | | TEACHING WEEKLY HOURS | ECTS Credits |
| Theory (Lectures) | | 2 | 2 |
| TOTAL | | 2 | 2 |
| COURSE UNIT TYPE | General Background, General knowledge and skill development | | |
| PREREQUISITES | None | | |
| LANGUAGE OF INSTRUCTION/EXAMS | Greek | | |
| COURSE DELIVERED TO ERASMUS STUDENTS | No | | |
| WEB PAGE (URL) | https://eclass.hmu.gr/courses/ECE113/ | | |

(2) LEARNING OUTCOMES

| |
|---|
| Learning Outcomes |
| <p>Upon completion of this course the student will be able to have global knowledge about the subject of his future studies and to have developed basic skills necessary for the future development of the student and his professional career.</p> <p>Specifically, the student will be able to:</p> <ul style="list-style-type: none"> – understand basic concepts, methods and theoretical approaches that will be taught in subsequent years of study covering in a balanced way topics and subjects that treated by the different sectors of the Department – acquire an understanding of Pedagogical/Cultural/Economic issues – develop skills of creativity, critical thinking, organization-planning and teamwork – activate his perception in interdisciplinarity, historical development, future perspectives, cultural potential, social contribution and moral and economic implications of the work of the electrical and computer engineer. <p>The student is expected to acquire skills in researching bibliographic sources and in drafting a technical report based on such primary sources.</p> |
| General Skills |
| <ul style="list-style-type: none"> • Autonomous work • Teamwork • Search, analysis and synthesis of data and information, using the necessary technologies • Decision making • Promoting liberal, creative and inductive/deductive thinking • Work in an interdisciplinary environment |

(3) SYLLABUS

The science of Electrical and Computer Engineering (ECE) covers a widerange of knowledge and scientific fields, which are at the heart of the modern technology. Such fields include automation and control systems, production,energy management and transmission, as well as renewable energy sources, telecommunications and information transmission, wireless systems, optical systems, signal processing,computer technology, digital and analog electronic systems, algorithmic techniques & numerical calculations, programming languages, databases, signal processing & images, information systems design and implementation, pattern discovery and engineering learning, automation and robotic systems, machine vision and biomedical engineering and informatics.

The course aims to present students with the main challenges that the Electrical and Computer Engineer is called to face in today's era.

The course is based on lectures and tutorials (2 hours per teaching week) by different lecturers, members of the teaching staff of the Department or visiting lecturers, who present basic areas of the scientific domain of Electrical and computer Engineering using slides. When necessary bibliographic sources are also included.

In addition, it also includes projects where relative complex Group Assignments are given to be solved by groups of typically 4-7 students. The groups of students that constitute the teams for each group assignment are announced through eClass.

The teaching material of the course results from lectures of the teachers. The electronic version of these lectures is posted on eClass immediately after each lecture and is supplemented by relevant bibliographic sources that the students should refer to and study. This material will form the basis for the individual work that each student will write.

The first week is covered with an introductory presentation of the science of electrical engineering by the Chair of the Department as well as an explanation of the structure of the course.

Weeks 2-8 are covered by lectures by teachers from the different Sections of the Department (2 hours/week). For these weeks, at least 1 additional hour of contact and engagement with the material to be taught and the bibliographic references that are given is required. During these weeks, individual assignments requiring up to 4 contact hours / week for each student have also been posted in eClass. At the end of the lectures, during week 9-12, students can choose an topic of work for the execution of a group project.

(4) TEACHING METHODS - ASSESSMENT

| | | |
|--|---|--------------------------|
| MODE OF DELIVERY | In-Class Face-to-Face | |
| USE OF INFORMATION AND COMMUNICATION TECHNOLOGY | <ul style="list-style-type: none"> ▪ Use of ICTs in lecturing ▪ Use of ICTs for the communication with students via the e-class platform | |
| TEACHING ORGANIZATION | Method description/Activity | Semester Workload |
| | Lectures | (2*8) = 16 |
| | Study of Lecture material | (1*8) = 8 |
| | Tutorials (Study for preparation of homework and assignments) | 10 |
| | Project (journal/paper reading and theoretical study or practical implementation) | (4*5) = 20 |
| | Non-guided personal study | 6 |
| | Total Contact Hours | 60 |
| ASSESSMENT METHODS | All announcements for the course regulations and complementary reading material are permanently posted in the course web page. The course grade incorporates the following evaluation procedures: | |

| | |
|--|--|
| | <p>Evaluation of Individual Work</p> <p>The individual work consists of a report that is submitted electronically to eClass and concerns the specific topic pre-selected by the student. The structure of this report will follow a specific electronic template that will be posted on eClass, and will be a 4-6 page text with a structure similar to that followed in the scientific publications of the electrical and computer engineering area.</p> <p>The grade of the work is determined based on the following criteria:</p> <ul style="list-style-type: none"> • Utilization of the bibliographic sources provided or investigated at the initiative of the student (20% factor) • Documenting and structuring the content of the work (factor 20%) • Quality of text and presentation forms (factor 20%) • Completeness, correctness and originality of analysis (factor 40%) <p>Evaluation of Teamwork</p> <p>Teamwork is performed by all team members, who should plan and organize the individual tasks and ensure that the workload is shared equally. Teamwork is focused around specific projects (either theoretical or practical). Each group should contact the recommending teacher to present the progress of the group work and ask for the help of the teacher in case of problems.</p> <p>The results of group work/project are presented in an open presentation by all group members, which should be able during the presentation to answer questions, proving their participation in the project.</p> <p>The deliverable of the group work consists of:</p> <ul style="list-style-type: none"> • Report – report describing the way the team is organized, the role of the members – note that it is not acceptable for a team member to deal only with writing the deliverable and not with creating code -, the method of solving the problem, installation instructions and examples of using the program and in an appendix, the developed code • Separate code file or device – hardware system (if necessary) • File with installation - operating instructions (if necessary) • Presentation with up to 10 slides to be used during the oral presentation of the work |
|--|--|

(5) RECOMMENDED BIBLIOGRAPHY

Additionally to the slides given and uploaded into the eClass by each lecturer presenting, relevant Bibliography will be given by the lecturers during their own lectures and will be posted on eClass. The bibliographic sources will be freely accessible on the internet.