

**COURSE DATA****Data Subject**

Code	34664
Name	Engineering, society and university
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1400 - Degree in Computer Engineering	School of Engineering	1	First term

Subject-matter

Degree	Subject-matter	Character
1400 - Degree in Computer Engineering	8 - Engineering, society and university	Basic Training

Coordination

Name	Department
CERVERON LLEO, VICENTE	240 - Computer Science
SUAY MATALLANA, IGNACIO	225 - History of Science and Documentation

SUMMARY

The subject "Engineering, Society and University" is a compulsory first course in Computer Engineering. Set to a commitment of 6 ECTS taught in the first semester of the first course.

In this area, aims to place the new students in the context in which they develop both their studies and their profession once they graduate. To do this, the subject is divided into two main blocks. The first of these aspects work aimed at facilitating the integration of college students, providing them with knowledge and tools to facilitate the transition from high school to college.

The second section provides an overview of engineering in their various specialties and in particular of one of the Computer Science viewed from the perspective of their relations with science, technology, economics, society and the environment. These show the profession to reflect on the implications of this in the development of societies, stressing at all times, in the ethical and environmental engineer / a as well as the principles of equal opportunity, democratic values and a culture of peace.



The main objectives of the course are:

- Facilitate the incorporation and integration of students into university life, especially in studies of Computer Engineering publicizing:
 - the structure and organization of the University of Valencia
 - services and human resources, administrative and information offered by the University of Valencia
 - objectives, content and planning studies.
- Develop an action plan to guide and tutorial follow the process of joining the university.
- Encourage student participation in representative bodies and academic extracurricular activities.
- Develop transferable skills, time planning and study skills, teamwork, management of information technologies and communication tools for calculation and presentation of documents, reports, and legislative literature search, basic laboratory techniques and experimentation.
- Provide a historical perspective of engineering, its major periods and problems, all within the context of its relations with science, technology, economy, society and the environment, according to the conclusions offered by numerous investigations academic research on these issues.
- Provide a vision of sex / gender system given equal opportunities, incentives and obstacles of women in the areas of engineering.
- Provide an overview of the features of the scientific and technical terminology.
- Encourage and foster in students those values and attitudes that should be inherent to an engineer.
- To disseminate the profiles and the areas of performance engineering graduates.

The course contents are:

- Introduction to college. Mentoring program for new students. Structure of the university. Curriculum. Study techniques and troubleshooting. Tools Access to Information: Library, corporate website, corporate email, e-learning platform.
- Engineering and society:
 - The Engineer in the company and management. Professional ethics.
 - Sustainable development and environmental responsibility.
 - Equal opportunities and gender: incentives and barriers.

To cover the course content is organized into two parts distributed according to:

Part I. Joining the University and the Graduate studies in Computer-topics 1 to 9.

Part II. Engineering, Computing Engineering and Society: Thematic units 10 to 14.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements



OUTCOMES

1400 - Degree in Computer Engineering

- G1 - Ability to design, write, organise, plan, develop and sign projects in the field of computer engineering aimed at the design, development or exploitation of computer systems, services and applications.
- G2 - Ability to lead project activities in the field of information technology, in accordance with both the knowledge and the specific skills acquired in the degree.
- G7 - Ability to recognise, understand and apply the legislation required in the professional practice of computer engineering and to deal with mandatory specifications, regulations and standards.
- G8 - Knowledge of basic subject areas and technologies that serve as a basis for learning and developing new methods and technologies, and of those which provide versatility to adapt to new situations.
- G9 - Ability to solve problems with initiative, decision making, autonomy and creativity. Ability to communicate and transmit the knowledge, skills and abilities of a computer engineer.
- G11 - Ability to analyse and assess the social and environmental impact of technical solutions, and understanding of the ethical and professional responsibility of a computer engineer.
- G12 - Knowledge and application of the basic principles of economics and human resource management, project organisation and planning, and legislation, regulation and standardisation in the field of computer projects, in accordance with both the knowledge and the specific skills acquired in the degree.

LEARNING OUTCOMES

Learning outcomes:

- Know the structure of university services and student participation structures
- Understand the structure of the curriculum and the role of each subject in engineering education
- Acquiring skills in information management and use of the university web tools
- Acquire organizational skills and planning and teamwork
- Acquire skills in the application of methodologies for study and solve engineering problems
- Develop critical thinking skills, creativity and decision making
- Gain a general understanding of the engineering profession, including gender
- Understand the ethical and professional responsibilities and be aware of the impact of engineering solutions in the social and environmental
- Understand the areas of performance in business and administration
- Be able to gather information and make judgments on issues of social, scientific, technological or ethical
- Be able to reflect on issues of equal opportunity, democratic values and a culture of peace

Skills to be acquired:

The student should be able to:

- Recognize the structure and organization of the University of Valencia.



- Identify services and human resources, administrative and information offered by the University of Valencia.
- Recognize the structure, organization and services ETSE-UV.
- Relate the objectives, content and planning studies.
- List the representative bodies of students.
- Complete planning models of the time.
- Apply study skills.
- Manage information technology and communication.
- Managing and editing tools of documents.
- Prepare reports.
- Conduct literature searches and legislation.
- Gain a historical perspective of technology development, its main stages, characters and problems
- Analyze relationships with rigor of engineering with science, technology, economics, society and the environment.
- Assessing equal opportunities, incentives and obstacles that women in the areas of engineering.
- Define engineering and differentiate the various branches of the same.
- Recognize the engineering-related occupations in their respective spheres of action.
- Identify own working methods of engineering.
- Learn to properly manage scientific and technical terminology.
- Define computer engineering and explain its relation to the development of information technologies.
- Recognize the professional profiles and areas of performance of graduates in Computer Engineering.
- Analyze the values and attitudes relating to the practice of engineering.

In addition to the specific objectives mentioned above, the course will encourage the development of several generic skills, among which include:

- Capacity for analysis and synthesis.
- Ability to argue from rational and logical criteria.
- Ability to properly and organized communication.
- Ability to personal work.
- Ability to work in groups.

DESCRIPTION OF CONTENTS

1. Host Activity

Welcome session. Objectives of the studies. Organization of the first course: school calendar, timetable, exam schedule. Agenda.

Conference: The transition to the University of Valencia.

2. The University of Valencia. Presentation and structure

History of the University. Mission. Bodies: Senate, Governing Council, President, Government Team. The Board of Directors. Campus and Centers.

Activities:

Questionnaire structure of the University of Valencia

Locating and Research Centers



3. ETSE-UV

Organization of School: Central Board, Departments, Commissions. Academic Title Committee. ADR and student representation. Secretariat. Facilities. Quality programs, mobility and placement. Web ETSE-UV.

Activities:

- Questionnaire about ETSE-UV structure
- Location of student representatives in different structures
- Collection of times and places of care for students in the subject teachers of 1

4. Resources and Services at University of Valencia

SEDI, CAL, OPAL, University Library, Physical Education and Sports, Students, SFP, Safety, Health and Environmental Quality. Virtual Secretary. Email. Virtual Classroom. Web of the University of Valencia.

Activities:

- Special presentations by staff of the services of most interest to students

5. Degree in Computer Engineering

Legal Framework. Curriculum of the University of Valencia. Curriculum at other universities. Postgraduate training.

Activities:

- Analysis of the sequencing of materials for the acquisition of competencies of the grade
- Consultation and comparison of curricula from other Spanish universities and / or European.

6. Tutorial Action Plan for new students

Tutoring and guidance on topics of subjects, study methods, planning of activities and difficulties detection and monitoring of incorporation.

Activities:

- Individual or group meetings with the tutor and/or the mentor student.

7. Work planning and study techniques

Agenda and organization of the planning study in higher education: planning for the short, medium and long term. Factors influencing the study. Reading. Based teaching techniques and active study, underline and outline, abstract, memorization and recitation. Structuring reports.

Activities:

- Task planning staff work
- Homework on study skills



8. Introduction to research laboratories in Computer Engineering.

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Introduction to research laboratories in Computer Engineering

Installing virtual machines, and vision of different operating systems.

This unit consists of one session. Previous work is done outside the classroom by the student. The students will have much previous work to be performed as the script of the practice in advance.

The work to be performed in the session will be completely divided into sections, items or milestones, and will be structured so that it can be completed in hours of each session.

Activities:

Introduction to Linux OS and install a virtual machine

9. Introduction to ICT tools in studies of Computer Engineering

Word processing, presentation programs and control version.

This unit consists of three sessions. In all previous work is done outside the classroom by the student. The students will have much previous work to be performed as the script of the practice in advance.

The work to be performed in the session will be completely divided into sections, items or milestones, and will be structured so that it can be completed in hours of each session.

Activities:

Preparing a text document

Developing a presentation

Managing a control version tool

10. History of technology

Major periods in the history of techniques. Introduction: primitive techniques, technology in the ancient world, the Middle Ages and the Scientific Revolution. Industrial Revolution. Technology in the s. XIX. Century technoscience XX.

Activities:

Activity on the history of technology



11. Science, Technology and Society

Introduction. Technological Systems Technological innovation and scientific research. Dissemination and transfer of technological developments. Technology and gender. The participation of women in technology. Technology and economic development. Technology and the environment. Technology and Culture.

Activities:

Questionnaire on Science, Technology and Society

12. Working methods in science and technology

Introduction to the problem of scientific method. Scientific and technical terminology. Information technology: oral communication, written and graphic. The technical report. The patenting and protection of the invention. Circulation of information on science and technology. Information retrieval, databases, encyclopedias, reference books.

Activities:

Activity related to the location of a patent and the analysis of its structure and content.

13. The engineering profession

Professions and occupations in the field of science and technology. Scientific and technological disciplines. Specialties: training and development. The teaching of science and technology. The control of professional practice. The role of expert in contemporary societies. Technology and risk society. Action areas of engineering industry, utilities, public administration. Professional associations. Ethics and professional ethics. Present and future challenges of technology.

Activities:

Activity on the profession and / or ethical problems in engineering.

14. Computer engineering and the computer engineer

The emergence and evolution of computer engineering. Definition of computer engineering. The computer engineer. Functions of the engineer in the utility and administration. Current challenges for software engineering.

Activities:

Conferences for professionals from various fields of computer engineering

Guided visit to the Computing Service of the University of Valencia

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Classroom practices	25,00	100
Theory classes	25,00	100
Laboratory practices	10,00	100
Attendance at events and external activities	10,00	0
Development of group work	20,00	0
Development of individual work	20,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	20,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

The development of the course is structured around the theory classes, practical classes and seminars, visits, lectures, tutorials and completion of work.

In the lectures using the model of lecture. The teacher will present on presentation and / or explain the contents of each issue to highlight those key aspects of comprehension.

Practical classes and seminars as an educational form in which students address, under the direction and supervision of staff, carrying out work and the presentation and discussion of issues developed by students. Understand the activities in the computer classroom (see web pages, databases, using tools, etc.). In the laboratory (basic techniques) or workshops (study skills workshops, presentations, etc.)..

To complement this training course is scheduled to view the facilities and services of the university and companies in the field of computer engineering, as well as a series of lectures by professionals who provide students with the vision of the profession and field performance of graduates. Some of these conferences and visits can take place outside the scheduled time for classes.

The tutorials in this course will scheduled for guidance in matters of subjects, study methods, business planning and detection of problems and to monitor the incorporation of the student to college.

The proposed work will include both the student reporting and work as the development of questionnaires to prepare and / or strengthen the most important concepts of each topic. Some of these activities will be held in class and the rest will have a timetable for completion and delivery by the students.



EVALUATION

The assessment of student learning will be realized following two models, Type A (or continuous assessment) and Mode B, which will be directed to verify that they have assimilated the basic concepts and they have worked on skills acquisition.

Method A - Continuous evaluation.

Continuous assessment: degree of participation and involvement in the teaching-learning process, taking into account participation, planned activities and completion of questionnaires and proposed work and grading. The percentage allocation of each part of continuous assessment is as follows:

Participation: 10% (up to a point of the final grade for the realization of all activities).

Evaluable questionnaires and activities: 70% (in the virtual classroom quizzes, activities in the classroom and laboratory sessions, etc.).

Final Work: 20%. A minimum mark of five over ten at the final work is required to pass the subject.

Method B.

In mode B, there will be a test of basic knowledge and skills in the official date, and questionnaires, activities and work during the curs will be considered and evaluated (and considered non-recoverable).

The weighting of each part in mode B will be:

- Theoretical and practical examination in the official call: 75%
- Questionnaires, assessments and activities carried out during the course: 25%

Students who choose the continuous assessment (Category A) and do not pass the subject or do not perform 80% of all activities (questionnaires, work, memories, etc..) will have to attend to the first call exam and evaluation form will then be the mode B. In the second round evaluation form is the form B.

In any case, the evaluation of this subject will be done in compliance with the University Regulations in this regard, approved by the Governing Council on 30th May 2017 (ACGUV 108/2017)

REFERENCES

Basic

- J. A. Castro Posada, Técnicas de estudio para universitarios, Salamanca, Amarú, 2006.
- E. Pallarés Molins, Técnicas de estudio y examen para universitarios, Bilbao, Mensajero, 2007.
- Derry, T.K; Williams, T. (eds.) Historia de la tecnología , Madrid : Siglo XXI, 1977-1987, 5 vols.
- M. Kranzberg; C. Pursell (eds.), Historia de la tecnología. Barcelona, Gustavo Gili, 1981, 2 vols.



- Estatutos de la Universitat de València
- Web institucional de la Universitat de València: www.uv.es

Additional

- Francisco Javier Ayala-Carcedo; José Aláez Zazuerca [et al.], Historia de la Tecnología en España, Madrid, Valatenea, 2001, 3 vols.
- D. Edgerton, Innovación y tradición: historia de la tecnología moderna, Barcelona, Crítica, 2007, 336 p.
- B. Gille, Introducción a la historia de las técnicas, Barcelona, Crítica, 1999.
- M. Kranzberg; C. Pursell (eds.), Historia de la tecnología, Barcelona, Gustavo Gili, 1981, 2 vols.
- J.E. McClellan; H. Dorn, Science and Technology in World History: An Introduction, New York, Johns Hopkins University Press, 2006.
- Mcneil (ed.), An Encyclopedia of the History of Technology, London, Routledge, 1996.
- J.R. Mcneil, Algo nuevo bajo el sol: historia medioambiental del mundo en el siglo XX. Madrid, Alianza, 2003, 504 pp.
- A. Nieto Galan, Cultura industrial. Història i medi ambient, Barcelona, Rubes, 2004.
- L. Mumford, Técnica y civilización Madrid, Alianza Editorial, 1992.
- M. Silva Suárez (ed.) Técnica e Ingeniería en España , Zaragoza : Real Academia de Ingeniería, 2004-2008, 5 vols.
- J. Alonso Tapia, Motivación y aprendizaje en el aula, Madrid, Santillana, 2003.
- J. Beltrán, Procesos, estrategias y técnicas de aprendizaje, Madrid, Síntesis, 2005.
- J.A. Bernad Mainar, Estrategias de estudio en la universidad, Madrid, Síntesis, 2005.
- C. Fernández Rodríguez, Aprender a estudiar, Madrid, Escuela Española, 2007.
- A. Natoria et al., Mapas conceptuales. Una técnica para aprender, Madrid, Nancea, 2002.
- I. Selmes, La mejora de las habilidades para el estudio, Barcelona, Paidós/ME C, 2004.