COURSE DATA

Data Subject	
Code	34795
Name	Engineering, society and university
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1402 - Degree in Telecommunications Electronic Engineering	School of Engineering	1	First term

Subject-matter

Degree	Subject-matter	Character
1402 - Degree in Telecommunications Electronic Engineering	8 - Engineering, society and university	Obligatory

Coordination

Name	Department
DEL CANTO SERRANO, IRENE	242 - Electronic Engineering
JIMENEZ ANTOLIN, MARIA DEL CARMEN	270 - Research Methodology, Educational Diagnosis and Assessment

SUMMARY

The subject *Engineering, Society and University* is compulsory in the first course of the degree in Electronic Engineering on Telecommunications. Comprises 6 ECTS and is taught in the first semester of the first course.

This subject aims to place the new students in the context in which they will develop both their studies and their profession once they graduate. To do this, the subject is divided into two main blocks. In the first, the objective of the work is to facilitate the integration of university students, providing them with knowledge and tools to facilitate the transition from high school to university.

The second section provides an overview of engineering in its various specialties and, in particular, of one of Telecommunications Electronic Engineering viewed from the perspective of its relations with science, technology, economics, society and the environment. It is to show the profession accounting for the implications of this in the development of societies, stressing at all times, in the ethical and environmental commitments of the engineer as well as in the principles of equal opportunities, democratic values and a culture of peace.

The main objectives of the course are:

• Facilitate the incorporation and integration of students in university life, and especially in graduate studies in the Degree in Telecommunications Electronic Engineering:

- Structure and organization of the University of Valencia

- Services and human resources, administrative and information resources offered by the University of Valencia

- Objectives, content and studies program.

• Develop a tutorial action plan to guide and moniot the process of joining the university.

• Encourage student participation in representative bodies and academic extracurricular university activities.

• Develop transferable skills: time planning and study techniques, management of information and communication tecnologies tools for calculation and presentation of documents, preparation of reports, and bibliographic and legislative search, basic laboratory and experimentation techniques.

• Provide a historical perspective of engineering, its major periods and problems, all within the context of its relations with science, technology, the economy, society and the environament, according to the conclusions offered by the numerous investigations academic on these topics.

• Provide a vision of sex / gender system given equal opportunities, incentives and obstacles for women in engineering areas.

in the areas of engineering.

• Offer an overview of the features of the scientific and technical terminology.

• Encourage and foster in the students those values and attitudes that should be inherent in an professional engineer.

• Disseminate and publicize the professional profiles and areas of action of Engineering Graduates.

The general course contents are:

• Introduction to University. Mentoring program for new students. Structure of the university. Curriculum. Study techniques and troubleshooting solving. Tools for access to information: Library, institutional website, institutional email, e-learning platform.

• Engineering and society:

- Engineer role in the industry and in the public administration. Professional ethics.

- Sustainable development and environmental responsibility.

- Equal opportunities and gender perspective: incentives and barriers.

In order to cover these contents, the subject is organized in two parts distributed according to:

Part I. Joining the University and the studies of the Degree in Telecommunications Electronic Engineering: thematic units 1 to 9.

Part II. Engineering, Telecommunications Electronic 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

1402 - Degree in Telecommunications Electronic Engineering

- G4 - Ability to solve problems with initiative, decision-making and creativity, and to communicate and transmit knowledge, abilities and skills, understanding the ethical and professional responsibility of the activity of a telecommunications technical engineer.
- G9 - Ability to work in a multidisciplinary environment and in a multilingual group and to communicate, in writing and orally, knowledge, procedures, results and ideas related to telecommunications and electronics.
- G7 - Ability to analyze and assess the social and environmental impact of technical solutions.
- R2 - Ability to use communication and computer applications (offimatics, databases, advanced calculation, project management, visualization, etc.) to support the development and exploitation of telecommunications and electronics networks, services and applications.

- R3 - Ability to use computer tools to find bibliographic resources and information related to telecommunications and electronics.

LEARNING OUTCOMES

Learning outcomes:

• Know the structure of university services and student participation bodies. (G4)

• Understand the structure of the curriculum and the role of each subject in engineering education. (G4)

• Acquiring skills in information management and use of the university web tools. (G4, G9)

• Acquire organizational skills and planning. (G4, G9)

• Acquire skills in the application of methodologies for study and solve engineering problems. (G4)

• Develop critical thinking skills, creativity and decision making. (G4)

• Gain a general understanding of the engineering profession, including gender perspective. (G4)

• Understand the ethical and professional responsibilities and be aware of the impact of engineering solutions in the social and environmental context. (G7)

• Understand the areas of performance in business and administration. (G4)

• Be able to gather information and make judgments on issues of social, scientific, technological or ethical concern. (G7)

• Be able to reflect on issues of equal opportunity, democratic values and a culture of peace. (G7)

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 informatics, offered by the University of Valencia.

• Recognize the structure, organization and services at the ETSE.

• Relate the objectives, and contents of the study program.

• List the representative bodies of students.

• Complete planning of time models.

• Apply study skills.

• Manage information technology and communication.

• Manage calculation tools and presentation of documents.

• Prepare reports.

• Conduct literature and legislation searches.

• Use basic laboratory and experimentation techniques.

• 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 find 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 Electronic Engineering on Telecommunications and explain its relationship to the process industry.

• Recognize the professional profiles and areas of performance of graduates in Electronic Engineering on Telecommunications.

• 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 communicate properly and organized.

• Ability to personal work.

• Ability to work in groups.

DESCRIPTION OF CONTENTS

1. Host activity.

Host 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. Structure. Campus and Centers.
activities:
Questionnaire baout structure of the University of Valencia
Locating Centers and Study programs

3. ETSE

Organization of School: Central Board, Departments, Commissions. Academic Title Committee. ADR and student representation. Secretariat. Facilities. Quality programs, mobility and placement. Procedure to follow in a emergency scenario. Web ETSE.
activities:
Questionnaire about structure ETSE
Location of student representatives
Collection of times and places for students attention

4. Resources and Services University of Valencia

SeDi, CADE, 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. Graduate Studies in Electronic Engineering on Telecommunications

Legal Framework. Curriculum at the University of Valencia. Curriculum at other universities. Postgraduate studies.
activities:
Analysis of the sequencing of subjects 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 and group meetings with the tutor or mentor

7. Work planning and study techniques

Agenda organization, planning of study in higher education: planning for the short, medium and long term. Factors influencing the study. Reading. Basic teaching techniques and active study, underline and outline, abstract, memorization and recitation. Structuring reports.
activities:
Task of planning of work
Homework on study skills

8. ICT tools in graduate studies in Electronic Engineering on Telecommunications

Handling word processing, spreadsheet, presentation programs, and mathematical software.
activities:
Preparation of a presentation: What is Electronic Engineering on Telecommunications?
Practice of treatment of experimental results: performing calculations, adjustments and graphics
Preparing a report of experimental results

9. Basic laboratory and experimentation techniques

Safety in the laboratory. Common material handling in a laboratory of Electronic Engineering on Telecommunications. Measure voltage, current and frequency.
Activities:
Development of a guide-summary of laboratory.
Practice material handling and customary measures in Electronic Engineering on Telecommunications

10. History of technology.

Main periods in the history of technology. Introduction: primitive techniques, technology in the Ancient world, the Middle Ages and the Scientific Revolution. Industrial Revolution. Technology in 19th century. Technoscience in 20th century.

Activities:
Activity dealing with the history of technology.

11. Science, technology and society

Introduction. Technological systems. Technological innovation and scientific research. Transfer and spread of technological novelties. Technology and gender. Women in technology. Technology and socio-economic development. Technology and environment. Technology and culture.

Activities:

Questions on science, technology and society

12. Work methods in science and technology.

Introducción al problema del método científico. Terminología científica y técnica. La información tecnológica: Comunicación oral, escrita y gráfica. El informe técnico. Los sistemas de patentes y protección de la invención. Circulación de información en ciencia y tecnología. Recuperación de información: bases de datos, enciclopedias, obras de consulta

Actividades:

Actividad relacionada con la localización de una patente y el análisis de su estructura y contenidos.

13. Engineering as a profession.

Professions and occupations in science and technology. Scientific and technological disciplines. The formation and development of specialities. The teaching of science and technology. The control of professional practice. The role of experts in contemporary societies. Technology and risk society. Engineering and its application fields: industry, utility companies, public administration. Professional associations. Ethics and professional deontology. Technology and its current and future challenges.

Activities:

Activities dealing with ethical problems and/or the professional practice of engineering.

14. Electronic Engineering on Telecommunications and telecomunications engineer

Industrial activity and the process industry. The emergence and evolution of Electronic Engineering on Telecommunications. Definition of Electronic Engineering on Telecommunications. The industrial engineer and chemical engineer. Functions of the chemical engineer in the industrial enterprise in the service business and in administration. Current challenges for Electronic Engineering on Telecommunications.

activities:

Conferences of professionals from various fields of Electronic Engineering on Telecommunications

Visit to a Electronics industry

WORKLOAD

ACTIVITY	Hours	% To be attended
Classroom practices	25,00	100
Theory classes	25,00	100
Laboratory practices	10,00	100
Development of individual work	40,00	0
Preparation of evaluation activities	15,00	0
Preparing lectures	15,00	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 the teacher will present and explain the contents of each issue to highlight those key aspects of comprehension. (G4, G9)

In practical classes and seminars students, under the direction and supervision of staff, will carry out work and presentation and discussion of issues. Include activities in the computer classroom (see web pages, databases, using tools, etc.) and in the laboratory (basic techniques) or workshops (study skills workshops, presentations, etc.). (G4, G7, G9)

To complement this training course visits to the facilities and services of the university and companies in the field of Electronic Engineering on Telecommunications, as well as a series of lectures by professionals who provide students with the vision of the profession and field performance of graduates are scheduled. (G4, G7, G9)

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

The proposed work will include both the student reporting and work as the development of questionnaires, **in many cases as self-correcting tests,** aimed at preparing 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. **After correction, the students will be informed of their results. (G4, G7, G9)**

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 Job: 20%

A minimum score of 5 in the final work is required to approve the subject.

Method B.

In mode B, there will be a test of basic knowledge and skills in the official date and a mandatory individual final job. Finally, for students who carried out the questionnaires, activities and work for continuous assessment, will be considered and evaluated up to 1.5 points out of 10.

In summary, the weighting of each part of the mode B will be:

Theoretical and practical examination in the official call: 75%

In this case the examination will be performed through an exam about theoretical contents of the subject at the offical call, value 60% of the final qualification, and the realization of a mandatory individual final job to be sended by the official call date with a value of 25% of the final qualification.

Questionnaires and assessments carried out activities in the continuous evaluation: 15%

A minimum score of 5 in the final individual work is required to pass the subject.

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 will be the form B.

In any case, the evaluation system will be governed by what is established in the Evaluation and Qualification Regulations of the University of Valencia for Degrees and Masters.

(https://webges.uv.es/uvTaeWeb/MuestraInformacionEdictoPublicoFrontAction.do?accion=inicio&idEdict oSeleccionado=5639).

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: http://www.uv.es/=sgeneral/Reglamentacio/Doc/estatutosUV(2006).pdf
- 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 Galán, 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. Notoria 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
- Miguel Vergara y José Manuel Huidobro, Las tecnologías que cambiaron la historia (Colección Fundación Telefónica), 2016, ISBN 978-8408168584