Universidad de Navarra

Introduction to Engineering

Guía docente 2026-27

PRESENTATION

Brief description:

In this subject, students will become familiar with the different branches of Engineering, and they will learn to use some of the essential tools to make good use of the technical courses throughout the degree and thus help them to acquire good habits and strategies for their future professional life.

Qualification (Module/Subject):

- Industrial Technologies Engineering (Personal and Social Training/General Training)
- Mechanical Engineering (Personal and Social Training/General Training)
- Electrical Engineering (Personal and Social Training/General Training)
- Industrial Electronics Engineering (Personal and Social Training/General Training)
- Telecommunication Systems Engineering (Section common to Telecommunication Branch /Projects)
- Industrial Organisation Engineering (Personal and Social Training/General Training)
- Industrial Design and Product Development Engineering (Personal and Social Training/General Training)
- Biomedical Engineering (Personal and Social Training/General Training)
- Artificial Intelligence Engineering (Projects/Projects and challenges)

Details:

- **ECTS**: 2 ECTS
- **Year, semester**: 1st year, 1st semester
- **Character**: Compulsory
- **Language**: English

Lecturers in the subject:

- Ganuza Canals, Javier (jganuza@unav.es)
- Gaisoa, Michelle / Profesora Titular
- Carballo Ramos, Jorge / Guest Lecturer
- Sanz Martínez, Miguel Ángel / Guest Lecturer
- Rodríguez Flórez, Naiara / Profesora Titular
- Ruiz de Galarreta Moriones, Sergio / Profesor Titular
- Aldazabal Mensa, Javier / Catedrático
- Aramburu Montenegro, Jorge / Profesor Titular

COMPETENCES/LEARNING OUTCOMES

INDUSTRIAL TECHNOLOGIES ENGINEERING

BC4 - Students will be able to convey information, ideas, problems and solutions to both specialist and non-specialist audiences.

GC14 - Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that this may be reflected in greater development of critical capacity and awareness of problems, leading to an exercise of freedom which, while respecting legitimate pluralism, is sensitive to manifestations of solidarity and fraternity and helps to build spaces for equality, coexistence and friendship.

TC1 - Understand that it is part of the university spirit to critically and reflectively confront the study of one's own discipline in relation to other aspects of knowledge.

TC2 - Identify the most relevant questions of human existence present in the great religious, humanistic and scientific creations and adopt a reasoned personal stance on them.

TC3 - Discover and judge the anthropological assumptions and ethical implications of one's own discipline.

MECHANICAL ENGINEERING

BC4 - Students will be able to convey information, ideas, problems and solutions to both specialist and non-specialist audiences.

GC12 - Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that this may be reflected in greater development of critical capacity and awareness of problems, leading to an exercise of freedom which, while respecting legitimate pluralism, is sensitive to manifestations of solidarity and fraternity and helps to build spaces for equality, coexistence and friendship.

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ELECTRICAL ENGINEERING

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INDUSTRIAL ELECTRONICS ENGINEERING

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GC4 - Ability to solve problems using initiative, decision-making, creativity and critical reasoning, and convey knowledge, skills and abilities in the field of Industrial Engineering.

GC3 - Knowledge in basic and technological subjects, which enables them to learn new methods and theories, and provides them with the versatility to adapt to new situations.

TELECOMMUNICATION SYSTEMS ENGINEERING

R21 - Students will be able to convey information, ideas, problems and solutions to both specialised and non-specialised audiences; (Type: Competences)

R26- Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that it may be reflected in greater development of critical capacity and knowledge of problems, leading to an exercise of freedom which, while respecting legitimate pluralism, is sensitive to manifestations of solidarity and fraternity and helps to build spaces for equality, coexistence and friendship. (Type: Competences)

INDUSTRIAL ORGANISATION ENGINEERING

BC4 - Students will be able to convey information, ideas, problems and solutions to both specialist and non-specialist audiences.

GC13 - Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that this may be reflected in greater development of critical capacity and awareness of problems, leading to an exercise of freedom which, while respecting legitimate pluralism, is sensitive to manifestations of solidarity and fraternity and helps to build spaces for equality, coexistence and friendship.

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INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING

BC4 - Students will be able to convey information, ideas, problems and solutions to both specialist and non-specialist audiences.

GC6 - Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that this may be reflected in greater development of critical capacity and awareness of problems, leading to an exercise of freedom which, while respecting legitimate pluralism, is sensitive to manifestations of solidarity and fraternity and helps to build spaces for equality, coexistence and friendship.

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BIOMEDICAL ENGINEERING

BC4 - Students will be able to convey information, ideas, problems and solutions to both specialist and non-specialist audiences.

GC10 - Promote development of the personality in all its dimensions - scientific, cultural, human, etc. - in such a way that this may be reflected in greater development of critical capacity and awareness of problems, leading to an exercise of freedom which, while respecting legitimate

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ARTIFICIAL INTELLIGENCE ENGINEERING

R20 - Apply techniques, principles and tools for working in a multi-disciplinary team in a multilingual environment. (Type: Competences)

R21 - Convey knowledge, procedures, results and ideas either orally or in writing. (Type: Competences)

COURSE CONTENT

Introduction

Introduction to the subject. Educational objectives. Work methodology. Activities and course work. Evaluation

Communication

- E-mail: professional use, good practice, privacy, confidentiality, legal validity, situations to avoid. Professional mail/private mail.
- Agenda: personal and collective scheduling of complex tasks over time. Tools available. Follow-up.
- Meetings: calls, agenda, notification to participants, prior preparation, punctuality, attitude and proactivity of participants, conclusions and minutes, approval of minutes by participants.
- Written technical reports, Word: format, indexes, references, writing style, organisation of content, basic structure, legal and contractual validity, etc., specific IT tools.
- Oral presentations: preparation, time management, interaction with the audience, basic public speaking techniques, correct use of technical support resources (ppt presentations, videos, etc.).
- PowerPoint presentations: essential concepts for effective presentations.
- Excel: essential tool for agile data management in engineering, in written documents and in presentations.

Methodologies for effective work in engineering

- Search for quality information
- Teamwork
- Decision-making
- Effective time management

Specific examples of engineering practice

- There will be several sessions with presentations of engineering projects/work. The student will be required to take notes and there will be an evaluation at the end of each session.

TRAINING ACTIVITIES

In addition to lectures, other types of assignment will be carried out during the course:

- Resolving practical exercises.
- Carrying out a project in teams
- Oral presentation of the work.

EVALUATION

ORDINARY EXAMINATION SESSION

Completion of **group work** to be handed in at the end of the term and an oral presentation of the work. This will account for **6 points** of the final grade.

Throughout the different **sessions** there will be **questionnaires** that the student will have to answer in the same class. This will account for **3 points** of the final grade.

Active participation in class will be assessed positively, accounting for **1 point**.

EXTRAORDINARY EXAMINATION SESSION (RESIT)

An individual project must be carried out on a similar but different project to that of the ordinary examination exam session, including an oral presentation. This work will be assessed out of 6 points.

The grade obtained over **4 points** with the questionnaires made along the term will be kept and mantained

ACADEMIC HONESTY & INTEGRITY POLICY

ATTENTION: Please note that any attempt at fraud, copying, plagiarism, or other irregular behavior constitutes a serious violation, as defined in Title IV "Rules of Academic Discipline for Students" within the System of Rules on Coexistence at the University of Navarra.

OFFICE HOURS

Contact with Javier Ganuza via email for tutoring schedules. (jganuza (at) unav.es)

BIBLIOGRAPHY

Recommended bibliography will be provided durin the sessions