

30024 - Materials: Technology

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology 330 - Complementos de formación Máster/Doctorado
ECTS	6.0
Year	XX
Semester	Half-yearly
Subject Type	ENG/Complementos de Formación, Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The aim of the methodology is that students acquire a habit of continuous work, since it has been considered that this is basic in a subject of these characteristics. For this, theoretical classes, exercises classes, problems and cases, laboratory practice sessions, academic group work and questionnaires have been programmed.

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5.2.Learning tasks

The program offered to the student to help achieve the expected results includes the following activities ...

Onsite theory sessions (30 hours) are based on the explanation by the teacher of the fundamentals of the different subjects. Prior to these, the student must have prepared a serie of previous readings. The program can be found in the following section, section 5.3.

The classes of exercises, problems and cases (15 hours) have been designed so that the student is the fundamental element of the same ones. The student will be told in sufficient time what problems are going to work with and the student should have tried to do it. The exercises and problems indicated will be corrected in onsite problem solving sessions.

On the dates indicated at the beginning of the course, a written test consisting of a test and theoretical-practical questions will be carried out on the subject from the beginning of the course to date. This test contributes to the final grade of the subject.

The laboratory practice sessions (12 hours in 4 sessions of 3 hours) have been designed to be self-consistent units, keeping in mind that it is not always possible to adjust their temporal sequencing with that of the rest of the course. Before each session, the student should have read the instructions of the practice session and at the end of the practice should complete a questionnaire and then make a practice report. Both documents will be evaluated conveniently and their results will be communicated before the overall test.

In the *practices* (four sessions of three hours) will be studied aspects related to:

- Selection of materials.
- Powder metallurgy.
- Manufacture of polymer fibers.
- Fragile fracture.
- Corrosion.
- Non destructive essays

Group work (3 hours): During the course the student will have to work in small groups and make a defense before the

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teacher with the help of a computer program, such as power point or similar, during which they must respond to a series of questions.

Global Assessment Tests (5 hours) at the end of the semester, both for the students who have taken the evaluable test during the course and those who have chosen to present themselves exclusively to the final exam.

Autonomous work, studying the subject and applying it to the resolution of exercises. This activity is fundamental in the learning process of the student and to overcome the evaluation activities. The expected duration is 90 hours, distributed as follows: 50 hours of personal study and previous readings, 30 hours of problems, exercises and cases, 10 hours for the completion of the group work.

5.3.Syllabus

Onsite theory sessions (30 hours) are based on the explanation by the teacher of the fundamentals of the different subjects. Prior to these, the student must have made a series of previous readings. In addition, 15 hours will be dedicated to the resolution of practical exercises and problems.

The subjects that will be treated are the following:

- Forming of metallic materials.
- Forming of polymer materials and composite materials.
- Ceramic molding and powder technology.
- Behavior in service: corrosion and degradation.
- Behavior in service: fatigue and creep.
- In-service inspection techniques.
- Surface treatments and coatings.
- Welding technologies.

5.4.Course planning and calendar

Calendar of onsite sessions and presentation of student tasks

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The subject is articulated with 3 hours of classroom activities in the classroom each week. 2 hours will be devoted to classes and 1 hour to the resolution of exercises, problems and practical cases. . Approximately every two-three weeks will take place a laboratory practice session of 3 hours.

At the beginning of each block of the student will be informed of all activities, documentation and the schedule associated, including the date of completion of the intermediate test and the presentation of the assignment work.

Hours assigned to each activity

45 hours of theory and problems.

15 hours of practice (12 hours of laboratory and 3 hours of presentation of works in group).

50 hours of personal study.

30 hours of problem solving, practice scripts, etc.

10 hours of completion of work group.

5.5. Bibliography and recommended resources

The following teaching resources are available:

- * Recommended book: Engineering Materials Technology (Vol. 1) (2016), Editorial Synthesis.
- * Recommended Book: Engineering Materials Technology (Vol. 2) (2016), Editorial Synthesis.
- * Book: Materials Technology (2009), Editorial Synthesis.
- * Book: Materials Surfaces Technology (2010), Editorial Synthesis.
- * Book: Modern Manufacturing Processes (1997), McGrawHill Publishing.
- * Specific books on Non Destructive Testing, Welding, Plastics Recycling.
- * Power Point presentations of the subject.
- * Selected texts for previous readings.
- * Labs of Laboratory Practices, Questionnaires.

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- * Collection of Exercises and Problems.
- * Technical Magazines in Spanish and English.
- * Digital Teaching Ring (ADD). Moodle platform or similar.
- * Resources on various technological web pages.