28618 - Materials III

Información del Plan Docente

Academic Year	2016/17
Academic center	175 - Escuela Universitaria Politécnica de La Almunia
Degree	422 - Bachelor's Degree in Building Engineering
ECTS	6.0
Course	2
Period	Second semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning process designed for this subject is based on the following

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

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The current subject MATERIALS III is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each teaching unit, the solving of problems or resolution of questions and laboratory work, at the same time supported by other activities.

1. Classroom activities:
    1. **Theory Classes** : the theoretical concepts of the subject will be explained.
    2. **Practical Classes** : Students will develop examples and conduct problems or case studies concerning the theoretical concepts studied.
    3. **Laboratory Workshop** : Students will develop tests to reinforce the theoretical concepts studied.
2. Reinforcement activities: Through a virtual education portal (Moodle) various activities which strengthen and expand the basic contents of the subject be addressed. These activities will be personalized and controlled its realization.

Teaching organization:
* **Theory Classes** : theoretical activities and / or practices taught so fundamentally exhibition by the teacher.
* **Practical Classes** / seminars / workshops: Activities theoretical discussion or preferably practices carried out in the classroom and requiring high student participation.
* Lab / field / computer room: Practical activities in laboratories, in the field, in the computer rooms.
* Group tutorials: Scheduled tracking learning activities in which the teacher meets with a group of students to guide their work autonomous learning and targeted protection of jobs or requiring a very high degree of advice from the teacher.
* **Individual Tutorials** : Said tutorials may be in person or online.

5.2.Learning activities

The programme offered to the student to help them achieve their target results is made up of the following activities:

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

— **Face-to-face generic activities** :

● **Theory Classes** : The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.

● **Practical Classes** : Problems and practical cases are carried out, complementary to the theoretical concepts studied.

● **Laboratory Workshop** : This work is tutored by a teacher, in groups of no more than 20 students.

— **Generic non-class activities** :

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● Study and understanding of the theory taught in the lectures.

● Understanding and assimilation of the problems and practical cases solved in the practical classes.

● Preparation of seminars, solutions to proposed problems, etc.

● Preparation of laboratory workshops, preparation of summaries and reports.

● Preparation of the written tests for continuous assessment and final exams.

The subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the subject file in the Accreditation Report of the degree, taking into account the level of experimentation considered for the said subject is moderate.

Activity	Weekly school hours
Lectures	3
Laboratory Workshop	1
Other Activities	6

Nevertheless the previous table can be shown into greater detail, taking into account the following overall distribution:

— 32 hours of lectures, with 70% theoretical demonstration and 30% solving type problems.

— 2 hours of laboratory workshop, in 2 hours per sessions.

— 8 hours of written assessment tests, 2 hours per test.

— 8 hours of PPT presentations.

— 90 hours of personal study, divided up over the 15 weeks of the 2 nd semester.

There is a tutorial calendar timetable set by the teacher that can be requested by the students who want a tutorial.

5.3.Program

Contents of the subjects essential for obtaining learning outcomes

The guidelines followed to develop the contents were as follows:

- Proposed in the verification report contents were respected.

- An agenda whose chapters are generally consistent with the titles of the specified program was developed. When this was not done it was because of its size and / or correlation was included in another.

- A large bibliography of recognized technical, classical and current issues was selected.

- The best literature treated subjects were selected and turned into a single text, design and own format, with innovative teaching resources. The teacher has not claimed to be unprecedented in its preparation, is based on texts by renowned, are only original objectives, organization and presentation of the material and drafting of some sections of the issues. The full text is available in the reprographic service of the school, as well as on digital media published in Moodle.

- The main features of text form can be summarized as have nine themes, which coincide with the content, completely developed, avoiding summaries.

- The specific objectives achieved with the development of the text itself can be summarized as follows:

- Highlight the relationship between conceptual analysis and problem solving, using the number of examples needed to show approaches to solving them, stressing that solving is a process in which the conceptual knowledge is applied, and not It is merely a mechanized model for the solution. Therefore, in the text and the mental processes worked examples of problem solving based on the concepts, instead of highlighting the mechanical procedures are highlighted.
- Provide students / as practice in the use of analytical techniques presented in the text.
- Show students / as analytical techniques are tools, not goals, allowing in different situations to practice in choosing the analytical method they will use to obtain the solution.
- Encourage student interest / as in engineering activities, including real application problems.
- Develop problems and exercises using realistic values representing feasible situations.
- Encourage students / as to evaluate the solution, either with another method of resolution or by testing to see if it makes sense in terms of the known behavior of the circuit, machine or system.
- Show students / as how the results of a solution are used to find additional information about the behavior of a circuit, machine or system.
- The resolution of most problems will require the type of analysis to be performed by an engineer to solve real-world problems. Developed examples, where the mindset own engineering emphasizes, also serve as a basis for solving real problems

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The course syllabus is structured around two complementary components contents:

- Theorists.
- Practical.

Theoretical Contents

The choice of the content of the various teaching units was made seeking the express clarification of the terminal objective so that the union of incidents knowledge, the student / to obtain a structured and assimilable for Engineers / as Civil Engineering knowledge.

The theoretical contents are articulated on the basis of five teaching units attached table, indivisible blocks of treatment, given the configuration of the subject that program. These topics collect the contents needed for the acquisition of predetermined learning outcomes.

TOPIC 1
AGENDA: CONCRETES
* MANUFACTURING
* TRANSPORT
* START WORK
* FRESH CONCRETE
* HARDENED CONCRETE
* MECHANICAL TESTS
* NORMATIVE
* PATOLOGIAS

TOPIC 2
AGENDA: BITUMINOUS MIXTURES
* MANUFACTURING
* TRANSPORT
* START WORK
* MIXING TIPOLOGIAS
* CLASSIFICATION OF MIXTURES
* RHEOLOGY MIXTURES
* NORMATIVE
* PATOLOGIAS
ITEM 3
AGENDA: COMPOSITE MATERIALS
* FIBER
* FEATURES MECANIAS
* CONFORMADOS
ITEM 4
AGENDA: AGGREGATES
* ORIGIN OF AGGREGATES
* PHYSICAL AND MECHANICAL PROPERTIES
* CLASSIFICATION OF AGGREGATES
* APPOINTMENT OF AGGREGATES
* ESPLANADES AND FIRMES
* APPLICATION

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P ractical Contents
The theoretical knowledge of the previous section, has associated practices in this regard. Laboratory practices Science and Technology of Materials constitute an important complement to the integral formation of the student / a coursing Technical Architecture degree.
It is impossible to try to give even a minimal description of the various types of appliances and commercial devices used for measuring different magnitudes. This is not the purpose, but which are covered learning outcomes of the course through a comprehensive program of laboratory practices, encompassing aspects related to the following issues: * Generically, a clear idea of the importance of the field of materials testing and runtime as the application thereof have it. * What knowledge have, at least , techniques and more used for measuring magnitudes as methods: mechanical resistance, chemical resistance, environmental resistance, etc. materials used in construction.

5.4.Planning and scheduling

Class hall sessions & work presentations timetable

In the following table, the indicative schedule which includes the development of activities presented before shown, may vary depending on the development of teaching:

Activity / week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Master class	x	x	x	x	x	x	x	x							
Practical classes			x			x	x		x		x		x		
Workshop						x			x	x	x	x	x	x	
Exams							x		x	x	x	x	x	x	x
Personal study	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Assessment schedule

It is determined according to the evolution of the lectures.
The evaluatorias written tests will relate to the following topics:
- Test 1: Topic: Aggregates and Bituminous Mixtures
- Test 2: Topic: Composite Materials (Concrete)

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The issues on which the work will be developed will be proposed in the third week, carrying out delivery and exposure before the last two weeks teaching in the course of the signature dates will be specified.

The dates of the final exams will be those that are officially published at http://www.eupla.es/secretaria/academica/examenes.html .

Those practices to be developed in the laboratory that will be performed by students / as in sessions of two hours below.

Practice 1	Dosage Concrete
Practice 2	axial Joby concrete specimens

5.5.Bibliography and recomended resources

Resources
Materials

Materials	**Soporte**
Topic theory notes Topic problems	Paper/repository
Topic theory notes Topic presentations Topic problems Related links	Digital/Moodle E-Mail
Material de ensayos	Pc's laboratorio
Guión de prácticas	Paper/repository
Maquinas multiensayos Tamices	

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Moldes de probetas Bandejas Etc.	

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