

Academic Year: (2019 / 2020)

Review date: 27-04-2020

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: SAN ROMAN GARCIA, JOSE LUIS

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

In this course, the following skills of the engineering studies will be promoted:

- Improve the knowledge of mathematical methods, analytical, numerical and experimental aspects of engineering machines.
- Design, calculate and product design with the knowledge and control of the uncertainty.
- Apply the acquired knowledge and solve problems in new or unfamiliar environments within broader contexts and multidisciplinary environments.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Stress analysis and fatigue design methods by MEF.
2. Methodology for quantifying uncertainties in MEF methods. Application to the design of virtual laboratories
3. Concepts of metrology. Relationship between uncertainty and tolerance design.
4. Experimental techniques in mechanical engineering: extensometry. Monitoring application to fatigue tests.
5. Experimental techniques in mechanical engineering: photoelasticity. Monitoring application to fatigue tests.
6. Design of static and dynamic test machines controlled metrological quality.

LEARNING ACTIVITIES AND METHODOLOGY

The training activities include:

- Lectures, where knowledge that students should acquire are presented. To facilitate their development students receive class notes and have basic reference texts that facilitates follow lessons and develop further work.
- Performing related to the topic of the subject requiring the application of the concepts acquired works.
- Lab, where students experimentally verify the theoretical concepts and results seen in class.
- Lab in computer classroom, where you work with high-level programs that address the issues raised in the subject.

ASSESSMENT SYSTEM

The evaluation of the student is performed on attendance, practices, work and final exam. It is compulsory to present a work related to the topics covered in lectures or other issues related to fatigue or test calculation of interest for the student. The student must propose the subject teacher before its completion.

The rating of the subject is distributed among the final exam, the quarterly work and practices. The shares allocated will vary, depending on the extent and / or difficulty of the work used for the continuous assessment in the ranges: 40% -70% (continuous assessment) and 60% -30% (written exam).

It is required that the grade of the exam is superior to 3.5/10 in order to pass.

In the extraordinary exam, the work can also be presented with the percentages of the ordinary call plus the exam. The exam can also will count the 100% of the grade. The final grade will be the maximum of the two possibilities.

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

