

Academic Year: ( 2019 / 2020 )

Review date: 24-04-2020

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: PATON ALVAREZ, SUSANA

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

## OBJECTIVES

By the end of this subject, students will be able to have:

1. a systematic understanding of the key aspects and concepts of their branch of engineering in microprocessors and embedded systems;
2. coherent knowledge of their branch of engineering including some at the forefront of the branch in microprocessors and embedded systems;
3. the ability to apply their knowledge and understanding of microprocessors and digital electronics to identify, formulate and solve engineering problems using established methods;
4. the ability to apply their knowledge and understanding to develop and realise designs based on small embedded systems to meet defined and specified requirements;
5. an understanding of design methodologies to set and program microcontroller peripherals, and an ability to use them.
6. workshop and laboratory skills.
7. the ability to select and use appropriate equipment, tools and methods for the development of embedded systems;
8. the ability to combine theory and practice to solve problems of microprocessor based digital systems;

## DESCRIPTION OF CONTENTS: PROGRAMME

Introduction to digital systems. Basic concepts  
 Fundamentals of computer architecture. Processing unit. Control unit  
 Microprocessors. Memory organization. Addressing modes. Instruction set.  
 Input/output subsystems. Structure, control and addressing.  
 Microcontrollers.  
 Serial (as USART, SPI e I2C) and parallel input/output.  
 Timers. Generation and capture of timed signals.  
 A/D and D/A conversion.  
 Development environment and applications.

## LEARNING ACTIVITIES AND METHODOLOGY

The teaching methodology will include:

- Magisterial Classes, where the students will be presented with the basic knowledge they must acquire. Students will be supplied with lecture notes and key reference texts which will enable them to complete and acquire a more in depth knowledge of the subject.
- Problems Classes, these are aimed at the solving of exercises and examples within the context of real case studies. These classes will be complimented with the resolution of practical exercises on behalf of the student.
- Laboratory Practical Sessions
- Group tutorials

## ASSESSMENT SYSTEM

FINAL EXAM. Global assessment of knowledge, skills and capacities acquired throughout the course.

CONTINUOUS EVALUATION. Assesses papers, projects, class presentations, debates, exercises, internships and workshops throughout the course.

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

