Course guide
330224 - DP - Programmable Devices

Last modified: 05/07/2023

Unit in charge:	Manresa School of Engineering
Teaching unit:	750 - EMIT - Department of Mining, Industrial and ICT Engineering.

Degree:	BACHELOR'S DEGREE IN ICT SYSTEMS ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2023   **ECTS Credits:** 6.0   **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer:	FRANCISCO DEL AGUILA LOPEZ

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Knowledge and understanding of the architecture of programmable devices, including the identification of the elements that make it up and their interaction, with emphasis on the most common architectures of embedded systems.
2. Develop the ability to abstract procedures and generic data in the face of a real small and medium-sized industrial problem.
3. (ENG) La capacitat d'especificar, analitzar, dissenyar, avaluar i documentar circuits digitals, tant seqüencials com combinacionals, així com les seves alternatives d'implementació.
4. The ability to use the tools and languages of specification, synthesis and verification of electronic circuits.
5. The knowledge and ability to use existing tools and instrumentation for the analysis, design, development and verification of electronic, computer and communications systems.
6. Develop their ability to solve real problems through the development of small and medium-sized programs at the industrial level.

Transversal:
7. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
8. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

.

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	20.00
Self study	90,0	60.00
Hours large group	30,0	20.00

Total learning time: 150 h

CONTENTS

(ENG) 1. CIRCUITS DIGITALS PROGRAMABLES

Full-or-part-time: 25h
Theory classes: 6h
Practical classes: 4h
Self study : 15h

(ENG) 2. ESTRUCTURA I PROGRAMACIÓ D'UN MICROCONTROLADOR

Full-or-part-time: 120h
Theory classes: 22h
Practical classes: 26h
Self study : 72h

(ENG) 3. PROCESSADORS DIGITALS DE SENAL (DSP)

Full-or-part-time: 5h
Theory classes: 2h
Self study : 3h

ACTIVITIES

(ENG) TÍTOL DE L'ACTIVITAT 1: CLASSES MAGISTRALS I PARTICIPATIVES

Full-or-part-time: 26h
Theory classes: 26h

(ENG) TÍTOL DE L'ACTIVITAT 2: CLASSES DE LABORATORI

Full-or-part-time: 60h
Laboratory classes: 30h
Self study: 30h

(ENG) TÍTOL DE L'ACTIVITAT 3: TREBALL PERSONAL INDIVIDUAL / EN GRUP

Full-or-part-time: 30h
Self study: 30h

(ENG) TÍTOL DE L'ACTIVITAT 4: PROVES

Full-or-part-time: 34h
Theory classes: 4h
Self study: 30h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Tanenbaum, Andrew S. Structured computer organization [on line]. 5th ed. Upper Saddle River: Prentice Hall, 2010 [Consultation: 01/06/2022]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?docID=5173727. ISBN 0131485210.

- Manual de referència i notes d'aplicació del fabricant.

- Gadre, Dhananjay V. Programming and customizing the AVR microcontroller. New York: McGraw-Hill, 2001. ISBN 007134666X.