Course guide
330228 - PBN - Low-Level Programming

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: 2022  ECTS Credits: 6.0  Languages: Catalan

LECTURER

Coordinating lecturer: SEBASTIAN VILA MARTA

Others: Aguila Lopez, Francisco Del Bonet Dalmau, Jordi

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. (ENG) El coneixement i la capacitat d’aplicar els procediments algorítmics fonamentals a la resolució de problemes fent ús de llenguatges d’alt i baix nivell.
2. The ability to analyze, design and maintain computer applications as well as knowledge of the principles and tools of software engineering and its application.
3. Knowledge and ability to use existing tools and instrumentation for the analysis, design, development and verification of electronic, computer and communications systems.
4. The ability to perform the typical activities of the degree, taking into account the corresponding standards, rules and regulations.
5. The ability to analyze, design and implement, select and use real-time data processing, control and automation systems, especially in embedded systems.

Transversal:
6. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
7. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.
8. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
9. 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
</tbody>
</table>
Total learning time: 150 h

CONTENTS

(ENG) TEMA 1: Llenguatge de programació C

(ENG) TEMA 2: El llenguatge C en el context de l’AVR

(ENG) TEMA 3: Python en el context de baix nivell

ACTIVITIES

(ENG) ACTIVITAT 1: EXAMEN

Full-or-part-time: 2h
Theory classes: 2h

(ENG) ACTIVITAT 2: ESTUDI DE CONTINGUTS

Full-or-part-time: 25h
Self study: 25h

(ENG) ACTIVITAT 3: CLASSE EXPOSITIVA

Full-or-part-time: 12h
Theory classes: 12h

(ENG) ACTIVITAT 4: CLASSE DE PROBLEMES

Full-or-part-time: 12h
Theory classes: 12h

(ENG) ACTIVITAT 5: CLASSE DE LABORATORI

Full-or-part-time: 41h
Laboratory classes: 26h
Self study: 15h

(ENG) ACTIVITAT 6: RESOLUCIÓ DE PROBLEMES

Full-or-part-time: 30h
Self study: 30h
(ENG) ACTIVITAT 7: PROJECTE

**Full-or-part-time:** 28h
Theory classes: 4h
Laboratory classes: 4h
Self study: 20h

GRADING SYSTEM

BIBLIOGRAPHY

**Basic:**