Course guides
820089 - PDM - Mobile Devices Programming

Unit in charge: Barcelona East School of Engineering
Teaching unit: 723 - CS - Department of Computer Science.

Degree:
- BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2021 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER
Coordinating lecturer: Antoni Perez-Poch
Others: Antoni Perez-Poch

PRIOR SKILLS
Basic programming. (Subject: Informatics, first course)

REQUIREMENTS
None.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.
3. Apply their knowledge to industrial informatics and communications.

Transversal:

TEACHING METHODOLOGY
The course uses a methodology based on PBL - Project Based Learning: guided work (laboratory) - 30 % - and a final project - 70%.

LEARNING OBJECTIVES OF THE SUBJECT
- Let the student know about the concepts and basic usages of mobile device programming (phones and tablets) with Android.
- Provide programming techniques for mobile devices.
STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>60.0</td>
<td>40.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90.0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

**(ENG) Instalación e introducción al entorno de desarrollo (SDK) de Android. Android Studio**

**Description:**
Introduction to the programming framework

**Specific objectives:**
Knowing how to develop standard programs

**Related activities:**
Lab 1

**Related competencies:**
CEEIA-28. Apply their knowledge to industrial informatics and communications.
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.

**Full-or-part-time:** 10h
Laboratory classes: 4h
Self study: 6h

**ENG) Estructuras básicas de programación en el entorno Android.**

**Description:**
Basic Programming

**Specific objectives:**
Be able to develop elementary programs within a given programming framework

**Related activities:**
Lab 3

**Related competencies:**
CEEIA-28. Apply their knowledge to industrial informatics and communications.
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.

**Full-or-part-time:** 10h
Laboratory classes: 4h
Self study: 6h
(ENG) Tratamiento de gráficos.

Description:
Graphics programming

Specific objectives:
Be able to program with graphics

Related activities:
Lab 3

Related competencies:
CEEIA-28. Apply their knowledge to industrial informatics and communications.
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.

Full-or-part-time: 10h
Laboratory classes: 4h
Self study: 6h

(ENG) Acceso a los accesorios del dispositivo móvil.

Description:
I/O device interface programming

Specific objectives:
Be able to program the I/O device communications

Related activities:
Lab 4

Related competencies:
CEEIA-28. Apply their knowledge to industrial informatics and communications.
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.

Full-or-part-time: 10h
Laboratory classes: 4h
Self study: 6h

(ENG) Programación con bases de datos.

Description:
Database programming.

Specific objectives:
Be able to program a database with the device

Related activities:
Lab 5

Related competencies:
CEEIA-28. Apply their knowledge to industrial informatics and communications.
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.

Full-or-part-time: 10h
Laboratory classes: 4h
Self study: 6h
Applications development with MIT App Inventor

Description:
Applications development with MIT App Inventor

Specific objectives:
Mobile app development.

Related activities:
Programming project

Full-or-part-time: 100h
Laboratory classes: 40h
Self study: 60h

GRADING SYSTEM

Final grade will result from adding that of laboratory work (30%) and that of a final project (another 70%) in a number of submissions.
There is no final exam nor reevaluation.

EXAMINATION RULES.

Laboratory works are guided work. The final project will be elected by the student with the previous approval of the professor.

BIBLIOGRAPHY

Basic:

Complementary:

RESOURCES

Other resources:
Mit App Inventor 2: https://appinventor.mit.edu/
Android Studio: https://developer.android.com/studio