Course guide
820089 - PDM - Mobile Devices Programming

Last modified: 27/05/2024

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 ENERGY 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: 2024   **ECTS Credits:** 6.0   **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Antoni Perez-Poch

Others: Antoni Perez-Poch

PRIOR SKILLS

Basic programming. (Subject: Informatics, first course)
The subject is taught in English in the Spring Term.

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:
2. ENTREPRENEURSHIP AND INNOVATION - Level 3. Using knowledge and strategic skills to set up and manage projects. Applying systemic solutions to complex problems. Devising and managing innovation in organizations.

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

Type	Hours	Percentage
Self study	90,0	60.00
Hours small group	60,0	40.00

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

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

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

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

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 data base with the device

Related activities:
Lab 5

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

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 1- That of laboratory work (30%) and 2- That of a final project (another 70%) in a number of submissions.
There is no final exam nor a reassessment exam. It is mandatory to have a minimum mark of 4 in each of the 2 parts of the course to pass.

EXAMINATION RULES.

Laboratory activities are guided work. The final project will be conducted in group with the previous advice and approval of her or his proposal by the professor.

BIBLIOGRAPHY

Basic:
- Gargenta, Marko. Learning Android. Sebastopol: O'Reilly, 2011. ISBN 9781449390501.
- Sherman, M, Walter D. Learning MIT App Inventor. 2014. Addison-Wesley, 2014. ISBN 9780133798630.
- Hebuterne, Sylvian. Android. Guía de desarrollo de aplicaciones Java para smartphones y tabletas. 3a ed. ENI, 2016. ISBN 9782409006104.

Complementary:
- Yener Murat, Dundar Onur. Expert android studio. Indianapolis, Indiana: John Wiley & Sons, 2016. ISBN 9781119089254.

RESOURCES

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