



## Course guide

# 820089 - PDM - Programming of Mobile Devices

Last modified: 02/03/2026

**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:** 2025    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish, English

### LECTURER

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**Coordinating lecturer:** ANTONI PEREZ POCH

**Others:** Primer quadrimestre:  
ANTONI PEREZ POCH - Grup: T1

Segon quadrimestre:  
ANTONI PEREZ POCH - Grup: T1

### PRIOR SKILLS

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

### REQUIREMENTS

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None.

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**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

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The course uses a methodology based on PBL - Project Based Learning: guided work (laboratory) - 40 % - and a final project - 60%.



## 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

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Final grade will result from adding 1- That of laboratory work (40%) and 2- That of a final project (another 60%) in a number of submissions.

There is neither a final exam nor a reassessment exam. It is mandatory to submit the laboratory reports and the final project to pass.

## EXAMINATION RULES.

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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

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**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

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**Other resources:**

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