

Course guide

340622 - PRDM-R1P07 - Mobile Devices Programming

Last modified: 17/05/2023

Unit in charge: Vilanova i la Geltrú School of Engineering
Teaching unit: 707 - ESAII - Department of Automatic Control.

Degree: MASTER'S DEGREE IN AUTOMATIC SYSTEMS AND INDUSTRIAL ELECTRONICS (Syllabus 2012). (Optional subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: FRANCESC XAVIER LLANAS PARRA
CRISTOBAL RAYA GINER

Others:

PRIOR SKILLS

Java and/or C programming

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. CEV02 - Analyze and evaluate programming techniques of mobile devices.

Transversal:

2. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

TEACHING METHODOLOGY

In the learning sessions of this subject, the professor will introduce theoretical explanations and illustrative examples, concepts, methods and basic results of the matter. These sessions are made of theoretical classes and sessions of laboratory. Along the course the method of project/problems based learning (PBL) will be applied.

In the theoretical classes the theoretic explanations and the basic concepts of the subject of study will be introduced, and in the practical sessions of laboratory the professor will increase the knowledge with the concepts and necessary methods to be able to carry out the problems or projects to solve in the practical work. The practices of laboratory will come true individually, or in reduced groups.

The tasks outside of the classroom that one must carry out or individually or in group, they are the base of the activities, and obligatory to be able to progress appropriately in the subject. These activities include the problems and proposed works, and the previous works to be able to carry out the practices.

LEARNING OBJECTIVES OF THE SUBJECT

Identification of characteristics and restrictions of mobile devices.

Management of new technologies of mobile devices from the point of view of programming.

Programming applications for mobile devices.

Implementation and application startup.

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	22.22
Hours large group	15,0	11.11
Self study	90,0	66.67

Total learning time: 135 h

CONTENTS

Mobile devices

Programming languages for mobile devices

Programming techniques for mobile devices

Specification, design and implementation of applications for mobile devices

Interaction with mobile applications in the area of robotics and automatic systems

Application Programming in Android-based mobile devices

GRADING SYSTEM

This evaluation is formed by one or two exams of evaluation PA, practical works PR, and works or problems in a group or individual TGI.

The weighted average of the final note NF corresponds to:

$\text{Nota final} = 0,3 \times \text{PA} + 0,4 \times \text{PR} + 0,3 \times \text{TGI}$.

EXAMINATION RULES.

The evaluation tests will be carried out individually.

It is indispensable condition to have carried out the practices with sufficiency and in a present way.

For the realization of the practices one must have carried out the previous necessary studies correctly

A follow-up of the progress of the works will be carried on and its presentation.



BIBLIOGRAPHY

Basic:

- Tomás Gironés, Jesús; Tirado Gil, Beatriz. El Gran libro de Android [on line]. 8a ed. Barcelona: Marcombo, 2020 [Consultation: 15/02/2024]. Available on: <https://search-ebscohost-com.recursos.biblioteca.upc.edu/login.aspx?direct=true&AuthType=ip,uid&db=nlebk&AN=2749588&site=ehost-live&ebv=EK&ppid=Page-1>. ISBN 9788426732187.
- Guimerá Orozco, Arístides. Iniciación a Android en Kotlin : casos prácticos [on line]. Madrid: Paraninfo, 2018 [Consultation: 28/05/2021]. Available on: <https://cursokotlin.com/curso-programacion-kotlin-android/>. ISBN 9788428340922.
- Phillips, Bill; Salcedo Sotoca, Francisco José. Programación con Android : edición 2016. Madrid: Anaya Multimedia, 2016. ISBN 9788441537484.

Complementary:

- Eckel, Bruc. Piensa en Java [on line]. 4a ed. Madrid [etc.]: Prentice Hall, 2007 [Consultation: 14/03/2024]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=1317. ISBN 9788489660342.
- Späth, Peter; Friesen, Jeff. Learn Java for Android Development [electronic resource] : Migrating Java SE Programming Skills to Mobile Development [on line]. 4th ed. Berkeley, CA: Apress, 2020 [Consultation: 14/02/2024]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6270593>. ISBN 1484259432.

RESOURCES

Hyperlink:

- <https://developer.android.com/>. Reference website for Android programming

Other resources:

Course documentation