

Course guide

205064 - 205064 - Programming Interfaces and Applications

Last modified: 02/04/2024

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 723 - CS - Department of Computer Science.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Optional subject).
MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Optional subject).

Academic year: 2024 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Lopez Herrera, Josefina

Others: López Herrera, Josefina

PRIOR SKILLS

Basic concepts of C++/C programming

TEACHING METHODOLOGY

Theory sessions
Self-study exercises

LEARNING OBJECTIVES OF THE SUBJECT

The subject of Programming Interfaces and Applications is divided into two modules. Module I covers data structures and Module II concurrent and event-based programming. The fundamental objective of this course is to teach advanced programming concepts.

The student will learn to develop programs that use:

1. The concepts of advanced data structures
2. The main sequential and associative data structures
3. Data structures in Java and C++
4. The concepts of efficiency of data structures.
5. Concurrent programming, event-driven programming, and user interface

STUDY LOAD

Type	Hours	Percentage
Self study	48,0	64.00
Hours large group	27,0	36.00

Total learning time: 75 h



CONTENTS

Module I

Description:

1. Sequential and data structures: vector, list, stack, queue
2. Associative data structures: MAP
3. Java and C ++ Libraries
4. Applications.

Full-or-part-time: 37h 30m

Theory classes: 13h 30m

Self study : 24h

Module II

Description:

1. Concurrent and Event-based programming: Concepts and examples
2. Case study in concurrent programming: develop a C/Java concurrent function and graphic interface.
3. Java and C ++ Libraries

Full-or-part-time: 37h 30m

Theory classes: 13h 30m

Self study : 24h

GRADING SYSTEM

Practical activities 20%

Project and Case study 40%

Exam 40%

Unsatisfying results of the final exam could be repeated in an exam to be carried out during the period of the final exams. Students with grades lower than 5 points (unsatisfactory) can retake the exam. The new grade, if it is equal or higher than 5 points, will substitute the original one with a grade of 5.

RESOURCES

Computer material:

- C++, C, Java. Class notes

Hyperlink:

- <http://www.cplusplus.com/reference/>. STL REFERENCE
- <https://docs.oracle.com/javase/8/docs/api/java/util/Collection.html>. JAVA TUTORIAL, JAVA COLLECTION