

## Operating Systems

Academic Year: ( 2022 / 2023 )

Review date: 01-02-2023

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: CARRETERO PEREZ, JESUS

Type: Basic Core ECTS Credits : 6.0

Year : 2 Semester : 2

Branch of knowledge: Engineering and Architecture

## REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programming (first year, semester 2)

Computer Structure (second year, semester 1)

## OBJECTIVES

In this subject we aim the student to understand the concept of operating system, knowing its structure and operation, to be able to use the operating systems services from a program, as well as to know and apply the fundamental principles and basic techniques of parallel and concurrent programming.

## DESCRIPTION OF CONTENTS: PROGRAMME

- 1.- Introduction to operating systems.
- 2.- Operating systems services.
- 3.- Processes and threads.
- 4.- Processes and threads scheduling.
- 5.- Inter-process communication.
- 6.- Concurrent processes and synchronization.
- 7.- Files and directories.

## LEARNING ACTIVITIES AND METHODOLOGY

THEORETICAL-PRACTICAL CLASSES. [44 hours with 100% classroom instruction, 1.67 ECTS]

Knowledge and concepts students must acquire. Student receive course notes and will have basic reference texts to facilitate following the classes and carrying out follow up work. Students partake in exercises to resolve practical problems and participate in workshops and evaluation tests, all geared towards acquiring the necessary capabilities.

TUTORING SESSIONS. [4 hours of tutoring with 100% on-site attendance, 0.15 ECTS]

Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher.

STUDENT INDIVIDUAL WORK OR GROUP WORK [98 hours with 0 % on-site, 3.72 ECTS]

WORKSHOPS AND LABORATORY SESSIONS [8 hours with 100% on site, 0.3 ECTS]

FINAL EXAM. [4 hours with 100% on site, 0.15 ECTS]

Global assessment of knowledge, skills and capacities acquired throughout the course.

## METHODOLOGIES

THEORY CLASS. Classroom presentations by the teacher with IT and audiovisual support in which the subject's main concepts are developed, while providing material and bibliography to complement student learning.

PRACTICAL CLASS. Resolution of practical cases and problem, posed by the teacher, and carried out individually or in a group.

TUTORING SESSIONS. Individualized attendance (individual tutoring sessions) or in-group (group tutoring sessions) for students with a teacher as tutor.

LABORATORY PRACTICAL SESSIONS. Applied/experimental learning/teaching in workshops and laboratories under the tutor's supervision.

## ASSESSMENT SYSTEM

The evaluation allows to know the degree of satisfaction of the knowledge goal, thus all work of the students will be valued by using continuous evaluation of their activities by using exercises, exams, projects, and other activities.

The following scoring will be used for continuous evaluation:

### SE1 - FINAL EXAM. [40 %]

Global assessment of knowledge, skills and capacities acquired throughout the course.

### SE2 - CONTINUOUS EVALUATION. [60 %]

Assesses papers, projects, class presentations, debates, exercises, internships and workshops throughout the course.

With the following rules:

#### a) Ordinary Exam: 40%.

- \* Activities to assess theory concepts and OS problem solving abilities.

- \* It covers all the program.

#### b) Partial activities: 20%.

- \* Partial assessments of theory concepts and OS problem solving abilities. It covers 50% of the program.

- \* Extra projects or exercises requested in class.

- \* Other activities requested along the course. Must be delivered on time.

#### c) Projects and exercises: 40%.

- \* Activities must be delivered on time. They are mandatory.

- \* Each project is evaluated separately, including solution adopted, functionality completeness, and design.

- \* Evaluation of the project written memory. Project memory organization and correctness, written exam correctness.

- \* Evaluation of tools usage.

- \* Evaluation of the collaborative work of the members distinguishing roles. Responsibility of the result is shared by all members.

- \* Total score for project is computed by given weight to each activity.

To pass the projects, it is mandatory to deliver of all them, to get a minim score of 2 per project, and a minimum average score of 4 fort all the projects . If those criteria are not covered, the student will loose continuous evaluation.

In the case of copy detection in any project or partial exam, those students implicated will loose continuous evaluation. Copy could be among students or by taking the projects from Internet.

You will also loose continuous evaluation, if you not deliver all the projects, or do not get minimum a score of 2 in every project.

For those students not following the continuous evaluation, the ordinary exam will cover all the program (including projects). It will have a maximum value of 60% over 10.

A minimum score of 35% is required to follow the continuous evaluation.

If the student does not get the minimum, but the average of continuous evaluation and the exam is higher than 50%, the final student sore will be 45%.

To pass the ordinary evaluation, the student must pass 50% considering the scores of the trajectory

chosen.

To compute the final score for the extraordinary exam, the following situations are possible:

A.- Students following continuous evaluation that did not pass:

- a- Extraordinary exam will weight 35%
- b- Other 65% will come from the score of continuous evaluation.
- c- A minimum score of 40% is mandatory to pass the exam and compute the average.

B- Students not following continuous evaluation partially or totally:

- a.- Extraordinary exam will weight 100%
- b.- It may include all the topics related to the course contents, including theory and projects.
- c.- A minimum of 5 is required to pass the exam.

**% end-of-term-examination:** 40

**% of continuous assessment (assignments, laboratory, practicals...):** 60

#### BASIC BIBLIOGRAPHY

- Abraham Silberschatz, Greg Gagne, Peter B. Galvin Operating System Concepts, 10th Edition, Wiley, 2018