

Academic Year: (2024 / 2025)

Review date: 14-02-2022

Department assigned to the subject: Systems Engineering and Automation Department

Coordinating teacher:

Type: Compulsory ECTS Credits : 3.0

Year : 4 Semester : 1

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to soft robotics
 - a. Introduction
 - b. Examples of soft robots
 - c. Soft robotics vs hard robotics
2. Mathematical model of soft robotics links
 - a. Control requirements
 - b. Nonlinear models
 - c. Lineal models
3. Control of soft robots
 - a. Control requirements
 - b. Model-based control
 - c. Robust and adaptive control of soft robots
4. Software tools for soft robots analysis
 - a. Modeling tools
 - b. Control tools
 - c. Programming tools
5. Use cases of control of soft robots
 - a. Control of a soft robotic neck
 - b. Control of a soft robotic arm

LEARNING ACTIVITIES AND METHODOLOGY**THEORETICAL PRACTICAL CLASSES.**

Knowledge and concepts students must acquire. Receive course notes and will have basic reference texts. Students partake in exercises to resolve practical problems.

TUTORING SESSIONS.

Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher. Subjects with 6 credits have 4 hours of tutoring/ 100% on- site attendance.

STUDENT INDIVIDUAL WORK OR GROUP WORK.

Subjects with 6 credits have 98 hours/0% on-site.

WORKSHOPS AND LABORATORY SESSIONS.

Subjects with 3 credits have 4 hours with 100% on-site instruction. Subjects with 6 credits have 8 hours/100% on-site instruction.

ASSESSMENT SYSTEM

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

FINAL EXAM.

Global assessment of knowledge, skills and capacities acquired throughout the course. The percentage of the evaluation varies for each subject between 60% and 0%.

% end-of-term-examination:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

CONTINUOUS EVALUATION.

Assesses papers, projects, class presentations, debates, exercises, internships and workshops throughout the course. The percentage of the evaluation varies for each subject between 40% and 100% of the final grade.