

Academic Year: (2022 / 2023)

Review date: 14-02-2022

Department assigned to the subject: Department of Systems Engineering and Automation

Coordinating teacher:

Type: Compulsory ECTS Credits : 3.0

Year : 3 Semester : 1

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction: autonomy in robotics, common terms, examples of applications, high-level vs. low-level decisions
2. Robotics paradigms: hierarchical, reactive, deliberative, hybrid
3. Dynamic Programming
4. Utility and Decision Theory
5. Game Theory
6. Probabilistic methods (Kalman filters, Particle filters, HMM, Dynamic Bayesian networks, POMDPs)
7. Reinforcement Learning
8. Bio-inspired Decision Making Systems

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**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%.

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.

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