

Academic Year: (2022 / 2023)

Review date: 20-05-2022

Department assigned to the subject: Systems Engineering and Automation Department

Coordinating teacher: CASTRO GONZALEZ, ALVARO

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Students are expected to know structured programming and object-oriented programming.

Students will use C++ during the lab sessions. If the student is not familiar with this programming language, we will provide learning resources.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to robotics
2. Perception in robotics
3. Actuation in robotics
4. Navigation
5. Decision making
6. Human-robot interaction

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical session
Lab sessions
Theoretical-practical sessions
Tutorial support sessions
Workgroup
Individual student work
Final exam

ASSESSMENT SYSTEM

Continuous assessment: 40%.
- lab sessions: 30% (min. 5 points)
- Application presentation: 10%

Final exam: 60% (min. 5 points)

Extraordinary exam: 100% with all the content (including content of the lab sessions).

% end-of-term-examination: 60

% of continuous assessment (assignments, laboratory, practicals...): 40

BASIC BIBLIOGRAPHY

- Mataric, M. J. The robotics primer, The MIT Press, 2007
- Matja Mihelj, Tadej Bajd, Ale Ude, Jadran Lenar, Ale Stanovnik, Marko Munih, Jure Rejc, Sebastjan A Lajpah Robotics (2nd edition), Springer, 2019
- Roland Siegwart, Illah Reza Nourbakhsh, Davide Scaramuzza Introduction to autonomous mobile robots, MIT Press, 2011
- Siciliano, B.; Khatib, O. Springer Handbook of Robotics (2nd ed.), Springer, 2016

BASIC ELECTRONIC RESOURCES

- Cyberbotics . Documentation of Webots: <https://cyberbotics.com/doc/guide/index>

