PROJECTO II

Code: 322084

Main Scientific Area: Control, Automation and Robotics

Lecturer: António Herculano de Jesus Moreira

Language of Instruction: Portuguese

Regime: S2

Contact Hours: 30h Total Workload: 54h

ECTS: 3,0

Objectives

This curricular unit aims to expose students to the project-based teaching method (PBL) by linking the different contents and objectives of the present UCs in the semester in a single project.

Students are expected to obtain capabilities that enable the specification, development, and implementation of an automated assembly automated assembly cell with unit counter and respective graphical application for monitoring, control and production reporting.

Whenever possible, the study will be based on practical cases of real application.

Learning Outcomes

Students who successfully complete this course unit should be able to:

1.Identify the fundamental concepts associated with electronic circuits, certification processes and standards and the development of software solutions.

2.Know the typical components in pneumatic and hydraulic circuits.

3.Know the standards and certification processes usually associated with the implementation of schemes and electric boards.

4.Know the process of developing automation solutions and configuration of the development environment for graphical applications.

5.Be able to define the specification, development and testing of an application considering the requirements imposed.

Course Contents

Depending on the objectives of each team, including:

1. Integration in the work team;

2. Definition of the tasks to be performed;

3. Applied skills and acquired competences:

4. Evaluation of the PBL methodology (project-based learning);

5. Self-assessment of individual and team performance.

Recommended Bibliography

•Giraldes, E., Fernandes, V., Smith, P.; 'Curso de Álgebra Linear e Geometria Analítica'. McGraw-Hill

•Meireles, V. (2003). Circuitos Eléctricos, Lidel.

•"Automação Pneumática (3.ª Edição)", Adriano Manuel de Almeida Santos, António José de Sousa Ferreira da Silva, Publindústria, 2014

•João R. Caldas Pinto, Técnicas de automação, 3ª Ed, ETEP, 2010

Learning and Teaching Methods

The PBL development process allows students to gain the ability to set up a software development environment for a variety of future applications, learn about components and equipment typically used in the course areas, and the standards associated with the projects. Learning about this teaching methodology creates unique teaching opportunities for students, allowing them to explore creativity, critical thinking and teamwork to achieve the different objectives proposed by the teams at the beginning of each project.

Assessment Methods

Approval in this course unit is obtained with a grade of 10 or more, on a scale of 0 to 20, resulting from the evaluations of the different components:

10% delivery and evaluation of Phase 2.

20% evaluation of the user manual.

30% evaluation of the final report.

40% presentation and defense of the solution, Phase 4.

In case the student does not obtain the minimum grade, they cannot be subjected to a Resource Exam.