Teaching activities and project contribution

MISCE project

Mechatronics for Improving and Standardizing Competences in Engineering

Competence: Mechatronics

Workgroup: Universidade do Minho

This document describes the teaching activities developed during MISCE project related to the competence ‘Mechatronics’.

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Visit https://misceproject.eu/ for more information.

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1 Teaching activities

The teaching activities undertaken are described below:

- Activity A: To interconnect, from physical point of view, all components from the Mechatronics motion workbench;
- Activity B: To define all units, limits, and operational parameters for each axis and perform movement tests (MC Test Run) for validation of the system operation.
- Activity C: To program basic motion commands (MC_Power, MC_Home, MC_Move) and develop sequential automation logic for coordination of multiple axes.

2 Summary of teaching interventions

Table I summarizes the teaching interventions undertaken using the Mechatronics motion platform for contributing to Mechatronics competences.

Table I. Summary of teaching activities

University	Degree	Subject	Course	Semester	Activity/Interventions	Number of students	Number of professors
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Cyber-Physical Systems	23/24	1	A/1	23	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Cyber-Physical Systems	23/24	1	B/2	23	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Cyber-Physical Systems	23/24	1	C/2	23	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Process Control	24/25	1	A/1	55	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Process Control	24/25	1	B/2	55	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Master)	Process Control	24/25	1	C/2	55	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Bachelor)	Behavior Specification and Control of Discrete Event Systems	24/25	1	A/1	65	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Bachelor)	Behavior Specification and Control of Discrete Event Systems	24/25	1	B/2	65	1
University of Minho (Guimarães, Portugal)	Mechanical Engineering (Bachelor)	Behavior Specification and Control of Discrete Event Systems	24/25	1	C/2	65	1

3 Contribution to the project KPIs

Table II summarises the contribution of 'Mechatronics' case of study to the project KPI.

Table II. Summary of the contribution to the project KPI

KPI	No.
Number of devices	1
Number of competencies covered for these devices	1
Functionality of the digital repository	1
Number of degrees	2
Number of subjects	3
Number of teaching interventions over the students	15
Number of competences covered in these experiences	1
Number of students involved	143
Number of HEIs teacher involved	3
Number of Professionals involved	3