2019

Strategic Partnership for Industry 4.0 innovation advanced Training

SPRINT4.0

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COURSE STRUCTURE - OVERVIEW

This document includes the overview of the course structure

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Course Structure - Overview

The course concerns **production automation systems** and is structured as follow:

- **5 days** of lessons (**30 h**) from Monday 23/9/2019 - Friday 27/9/2019 (09:00 - 16:00)
- 1 **month** to design an automatic system for Celsa Group. The system has to be aware of monitor the desired quantity of wire rod / rebar bars containing in their specific bundles in a fast a robust way. At the same time needs to assure the quality of the bars added in the package having the ability to change the number of bars at any moment

Participants:

- **35/40 students** (Mechanical Engineering, Industrial Engineering, Automation Engineering, Computer Engineering).

The "prizes":

- recognize of **3 ECTS** (all participants);
- **1 month of mobility** in the company that have launched the challenge (2 students team's member of the winning project)

The list of **contents** of the course is the following:

- Industry 4.0 and flexible manufacturing solutions
    - Why automation is part of Industry 4.0
- Automation in Production/assembly
    - The Automation Pyramid (CIM)
    - OT/IT convergence: Case study 4ZeroBox (practical lesson: using TOI technology)
    - Cobot (practical lesson: programming a cobot)
    - IoT in production (frontal lesson + case study)
- Automation in Maintenance
    - Predictive Maintenance (frontal lesson + case study)
    - HMI and chatbot (frontal lesson + practical lesson: programming a chatbot)
    - Case study: solving a problem in technical documentation (practical lesson: work project)
- Automation in Warehouse
    - AGVs, Drones
- Pretotype Competition: counting the number of bars to create a bundle (practical lesson: work project)