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Summary of the Report “MIND Platform for learning new skills in mechatronics within the network for Industry 4.0”

Mechatronics represents a symbiosis of technical disciplines as mechanics, electronics, control systems and computer systems. The aim of mechatronics is to develop new concepts of equipment with built-in artificial intelligence algorithms.

The MIND project main goal is to develop mechatronics skills and innovative learning methods for Industry 4.0, to meet the requirements of the employers, in order to prepare qualified students with interdisciplinary skills in mechatronic, IT and superior soft skills for developing the concepts of Industry 4.0.

In developing of IO4 following all partners were involved.

The specific tasks of the IO4 are:

- Identify the functional requirements according to the target group needs.
- Elaborate the technical documentation: programming code, database.
- Create and validate a prototype by all partners.
- Testing and creation of the final version of MIND platform.

The platform for e-learning will focus on acquiring knowledge through practical problem solving and explaining real industrial applications, but not the classical methodologies of teaching by memorizing of knowledge.

“Learn by doing” is the key to success in new trends in mechatronics and in the technologies that are developed in concordance to the Industry 4.0.

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The main goal of the MIND platform is to make an accessible and user-friendly learning platform, to encourage and support the students who want to learn new skills for mechatronics, which are suitable with Industry 4.0. By accessing the platform, the students will find a good, structured courses based on the requirements of the industrial partners, they can learn anywhere and in their own rhythm. For consolidating the acquired knowledge, the students can take a quiz to see, where improvements can be done or what gaps they have in the explained materials. Everyday training using MIND platform will guide the students to the right path to learn mechatronics and the technologies used in Industry 4.0.

The online learning platform in mechatronics for Industry 4.0 is offering the following requirements:

- A large database of didactic and multimedia course topics in mechatronics that were generated by all the partner universities.
- The option of learning any topic of interest and have online verification tools.
- Possibility of tracking the progress of students by filling the questionnaire after finishing a module.

The platform will be hosted on the project website: <https://www.project-mind.eu/index.php/platform>

The consortium has agreed that the MIND platform will cover following topics:

- Physical Systems Modeling, Smart Manufacturing and Automation with Industry 4.0
- Sensors and Actuators, Digitalization and Industry 4.0
- Signals and Systems, Implementation of new manufacturing technologies and systems for Industry 4.0
- Computers and Software, Virtual reality as a new trend in mechatronics engineering education, VR models in MATLAB/Simulink

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- Data Acquisition, Vision technology (VT)
- Mechatronic hardware examples involving Arduino and Raspberry Pi hardware with MATLAB/Simulink integration
- PLC based Project on Mechatronics System for Industry 4.0
- Internet of Things, Digitalization, Industry 4.0, Cyber Physical Systems and Mechatronics

Project MIND

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Project details

Start: 01-09-2019 - End: 31-08-2021
 Project Reference: 2019-1-RO01-KA203-063153
 EU Grant: 165803 EUR
 Website: <https://www.project-mind.eu/>

Programme: **Erasmus+**
 Key Action: **Cooperation for innovation and the exchange of good practices**
 Action Type: **Strategic Partnerships for higher education**

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Fig. 1 MIND Platform tab

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