DEVELOPING COURSES FOR TRAINERS AND TEACHERS

Description: Developing 3 courses for trainers and lecturers for the acquisition of teaching and learning methods. Training courses for Uzbek teachers on EU teaching methodologies and standards in Mechatronics at EU HEIs.

Target group: Trainers, lecturers, and researchers

Dissemination level: National

Responsible: LiePU

Discussion of training events in the meetings:

In the 8th ZOOM Meeting, 8 July 2021, Work Package 3: Development of the new training courses and organising trainings for UZB teachers, staff and engineers started to discuss in detail. LIEPU was selected as a responsible partner for developing the training courses.

In the 9th ZOOM Meeting, 5 October 2021, LIEPU will provide a time-plan for the content and structure of the upcoming trainings hosted by VGTU and IPVC.

In the 10th ZOOM Meeting, 27 January 2022, Schedule dates for Lithuania (MAY) and Portugal (Beginning of JULY) for trainings.

In the 11th ZOOM Meeting, 30 March 2022, LIEPU had to provide a time-plan for the content and structure of the upcoming meetings hosted by VGTU and IPVC. VGTU and IPVC have to prepare the course content and methodology for teachers and trainers in collaboration so that content is not the same in topic themes. It was decided that:

- VGTU will have received the trainers from 30th May to 4th June in Vilnius, Lithuania (2 trainers, 2 for project discussions).
- IPVC will have receive the teachers from all partners of the project between 17-22 July in Portugal. 4 people from each Uzbek partners (2 teachers, 2 for project discussions) and 3 participants from EU partners (2 project participants, 1 academic).

Courses:

1. Basics of Theory of mechanism and Machine

Course aim: To teach understanding the structure of mechanisms and machines, kinematic and dynamic processes in them, in preparing to studies of modern machinery and equipment.

Description: Concepts of machine and mechanism. Structure of linkage mechanisms, their metric synthesis, graphical and graphs analytical kinematics. Classification of cam mechanisms, dimension

calculation, the profile synthesis. Gear mechanisms, gear, and their design. Machine dynamics. Flywheel design for the machine.

2. Basics of Sensors

Course aim: This course is designed to introduce participants to a range of different sensor technologies and their connection, installation, and configuration. The Sensor Fundamentals course will enable you to select the correct sensor for a given application.

Contents: Overview of sensor families and operating technology, Selecting the correct sensor, connecting sensors, installing a sensor, Troubleshooting a sensor.

3. Basics of Technology of Robotics

Course aim: Deliver general understanding of mechatronic and robotic systems and their place in general engineering. Transfer general knowledge about mentioned systems, reveal their structure, and analyze structural elements and their internal links within system. To bring knowledge about evaluation of general parameters of these systems and ways to recognize them in the integrated environment. Bring knowledge about control using general programing of devices, reveal possibilities and limitations.

Description: In this course participants are introduced to an understanding of and main definitions of mechatronics and robotics. There are revealed structure of mechatronic system, introduced with structural components. There are given description of operation of mechatronic and robotic systems, revealed various configuration. Main principles of programing and their implementation for system control are presented in the course.

4. Methodological guidelines for preparation of final Thesis

Course aim: Formulation of the Final Work tasks and title. To learn to write the Project theoretical part, to make technical calculations, to correctly drawings, present and define them.

5. Operation and basic programming of ABB Robots

Course aim: To teach understanding the movement of arms, inputs and outputs and RAPID language, servicing the ABB robots and operation of robot arms.

Description: General view of the system. Movement of arms. Defining tools and working objects. Introduction to programming. Inputs and outputs. RAPID language. Servicing the robots. Operation of robot arms. Operation of robot arms.