

MECHATRONIC SYSTEMS AND TECHNOLOGIES

Partner University: Lappeenranta University of Technology (LUT), Finland.

Language: English.

Outcome: 2 diplomas (1 from LUT, 1 from ITMO University)

Basic information:

This study track focuses on the design of industrial mechatronic systems, robots and manipulators. During the study, students will learn basic principles of the mechatronic approach for the design of complex systems with synergetic integration of their parts. This approach allows us to obtain more compact systems with high performance and reliability. Also, the specialization provides students with the required knowledge in modelling, simulation and calculation of various features of designed systems.

Upon successful completion of the study, students are expected to be able to select optimal structure, materials and components for the designed systems and robots, including suitable actuators, microcontrollers, sensors and control algorithms. Also, students will learn various methods and approaches for solving computer vision tasks, including methods based on the use of neural networks.

- The students study at home university during the 1st and 2nd semesters. The 3rd semester must be taken at ITMO University for LUT students and at LUT for ITMO University students.
- Final Thesis is co-supervised by LUT and ITMO University professors or researchers in the 4th semester.
- Defense of the Final Thesis occurs in front of two universities joint defense board in English.
- In addition to the courses of the general university module, the following courses of specialization are reading

Course	ECTS credits
Design of Mechatronic Modules	6
Smart Materials in Mechatronics	3
Pneumatic and Hydraulic Drive	3
Modeling and Control in Mechatronic Systems	6
Design of Mechatronics and Robotics Systems	3
Technical Vision	3
Reliability of Mechatronic Systems	3
Programming of Industrial Controllers	3