

DESCRIPTION OF THE DEGREE PROGRAMME

Mechatronics

is an interdisciplinary field which constitutes a combination of five areas: mechanical engineering, electronics, computer science, automatics and robotics. Mechatronics' aim is the design and manufacturing of modern devices. Scholars and engineers regard mechatronics as one of the most rapidly developing branches of science and technology.



Degree programme in mechatronics has an interdisciplinary character and includes basic courses (mathematics, physics), major courses and specialization courses. Major and specialization courses enable students to gain knowledge in the areas of mechanics, construction and operation of machines, electronics, computer science and robotics, control and materials science.

Students will gain the ability to integrate knowledge when designing, manufacturing and operating products. Students will be prepared to work in interdisciplinary teams involved in solving problems related to: construction, manufacturing, operation, maintenance and diagnostics of mechatronic systems as well as machines and devices such systems are part of. Graduates of mechatronics are prepared to design and operate intelligent machines and devices such as: industrial robots, mobile machines, rehabilitation devices, monitoring and control devices for industry and economy, home appliances.

FORMS OF STUDY

- 1st degree – B.Sc. studies (Engineer's degree) – full-time studies, duration of studies: 8 semesters
- 1st degree – B.Sc. studies (Engineer's degree) – extramural studies, duration of studies: 8 semesters
- 2nd degree – M.Sc. studies (Master's degree) – full-time studies, duration of studies: 4 semesters
- 2nd degree – M.Sc. studies (Master's degree) – extramural studies, duration of studies: 4 semesters

SPECIALIZATIONS

- Mechatronics and diagnostics of motor vehicles (1st degree)
- Monitoring and control systems (1st degree)
- Medical apparatus and rehabilitation equipment (1st degree)

- Radiology and radiation therapy systems (2nd degree)
- Design and operation of mechatronic systems (2nd degree)

MECHATRONICS – SAMPLE COURSES

- Introduction to mechatronics
- Mechatronics
- Strength of materials
- Engineering graphics and engineering drawing
- Methods of design and operation of mechatronic systems
- Control engineering
- Robotics and drives
- Electronic components and electronic systems
- Digital electronics
- Programmable controller
- Computer and programming
- Object-oriented programming of devices
- Artificial Intelligence, Digital signal and image processing
- Fundamentals of metrology

EMPLOYMENT PROSPECTS

Graduates of mechatronics are well-trained to work as:

- engineer of control and monitoring systems
- programmer of diagnostic systems
- specialist for tests and implementations of new solutions in automotive industry
- maintenance engineer
- constructor engineer of mechatronic equipment
- vehicle diagnostics specialist
- manager of service station

Graduates can find employment in:

- branches of industry which manufacture mechatronic systems (electromechanical, automotive, aviation, machine and home appliance industries)
- centers which operate and provide maintenance services for mechatronic systems and machines and devices in which such systems are applied
- design departments in companies which manufacture mechatronic systems
- research and development units
- companies which manufacture renewable energy systems
- radiology and radiation therapy centers, diagnostic centers