

## **Mechatronics**

The basic mission of the BSc program in Mechatronics aims to form engineers with specific skills through advanced studies in areas related to Mechatronics: mechanics, information technology, electronics.

The main objectives of the BSc program is to develop specific skills in mechatronics engineering. The students attend courses, which present information on:

- Languages, environment and technology of programming: programming and use of computers, programming II, programming III;
- Fundamentals of Mathematics: Mathematical analysis, Algebra, Special mathematics, Computer assisted mathematics;
- Fundamentals of mechanical engineering: Mechanical engineering, Strength of materials, Fluid mechanics, Thermodynamics, Mechanisms;
- Fundamentals of electrical engineering: Electrical, Electronic Fundamentals, Theory of automated systems;
- Mechatronic system components: constructive elements, sensors and sensorial systems, hydro-pneumatic actuators and acquisition systems, interfaces and virtual instrumentation, digital integrated circuits
- Elements of synthesis of mechatronic systems: Basics of mechatronic systems, Control systems, Microcontrollers, PLCs, Manufacturing machines in automated processes;
- Applications of mechatronic systems: Computer networks and peripherals, Automotive mechatronics, Flexible manufacturing systems, Electromechanical systems simulation.

An Engineer specialized in Mechatronics is a person whose job is to design or operate complex systems, which integrate mechanical, electrical and programming elements.