SCIENCE AND TECHNOLOGY

Mechatronic Engineering

Objectives
To prepare professionals by providing them with a solid, ethical education via scientific, technological, and moral training, in order for them to render useful services to society by applying this knowledge in the design, innovation, operation, and maintenance of electrical-mechanical systems, suitably incorporating all material and human resources.

Student Profile
The student in this program should:
- Be proactive;
- Be creative;
- Be able to analyze and synthesize;
- Be willing to work in groups;
- Be able to make timely decisions;
- Enjoy physics and mathematics;
- Be interested in doing research;
- Be enterprising;

Areas for Potential Employment
Graduates of this program will be able to design automated systems for the following industries: automotive, chemicals, electronics, transportation, aeronautics, food, and textile; to effectively operate manufacturing processes that include electronic and mechanical elements; and to develop systems that include the abovementioned elements, in order to satisfy the needs of any industry.

First Semester
-Algebra and Analytical Geometry
-Differential and Integral Calculus
-Logic
-Computing Applied to Engineering
-Introduction to Engineering
-Techniques for Oral and Written Expression

Second Semester
-Chemistry
-Linear Algebra
-Vectorial Calculus
-Statics
-Modern Physics
-Computer Programming
-Integral Internship I
-Drawing

Third Semester
-Dynamics
-Differential Equations
-Materials Engineering
-Philosophical Anthropology
-Electricity and Magnetism
-Thermodynamics
-Probability and Statistics
-Integral Internship II

Fourth Semester
-Numerical Methods
-Materials Resistance
-Physical Systems Dynamics
-Logical Design
-Analysis of Mechanisms
-Fluid Mechanics
-Metrology
-Integral Internship III

Fifth Semester
-Analysis of Electric Circuits
-Analogue Electronics
-Control Theory
-Digital Systems
-Design of Machine Elements
-Computer-Aided Design (CAD)
-Economic Engineering
-Integral Internship IV

Sixth Semester
-Hydropneumatic Systems I
-Direct Current (DC) and Synchronous Machines
-Numerical-Control Tools and Machines
-Microcontrollers Systems Design
-Electronic Devices
-Managerial Administration
-Integral Internship V

Seventh Semester
-Industrial Machinery
-Hydropneumatic Systems II
-Power Electronics
-Mechatronic Projects I
-Electrical Installations
-Measuring and Instrumentation
-Integral Internship VI

Eighth Semester
-Industrial Automation
-Professional Ethics
-Business Development
-Robotics
-Mechatronic Projects II
-Special Topics in Electronics
-Integral Internship VII