

# Mechanical and Electrical Engineering

## Objectives

To prepare professionals that take part in the current technological development, via the application of mechanical as well as electrical engineering, by successfully performing various activities in order to make maximum use of energy, and to design and install machinery and electrical equipment.

## Student Profile

The student in this program should:

- Enjoy physics and mathematics;
- Be able to analyze and synthesize;
- Be interested in the research and application of new technologies;
- Be creative and dynamic.

## Areas for Potential Employment

Graduates of this program will be able to work in the following companies: construction, generation and transfer of electricity, metal-mechanics, and finance. They will also be able to work in companies involved in the research and development of new technologies for air-conditioning and refrigeration, boilers, tool design and specialized machinery for production systems, purchase engineering, product development, and teaching in universities, among others.

### First Semester

- Algebra and Analytical Geometry
- Differential and Integral Calculus
- Logic
- Introduction to Engineering
- Introduction to Computing
- Techniques for Oral and Written Communication
- Chemistry

### Second Semester

- Linear Algebra
- Vectorial Calculus
- Statics
- Modern Physics
- Computer Programming
- Materials Engineering
- Drawing

### Third Semester

- Dynamics
- Differential Equations
- Materials Resistance
- Philosophical Anthropology
- Electricity and Magnetism
- Thermodynamics

### Fourth Semester

- Probability and Statistics
- Numerical Methods
- Economic Engineering
- Physical Systems Dynamics
- Electro-Magnetic Theory
- Analysis of Mechanisms
- Fluid Mechanics I

### Fifth Semester

- Fluid Mechanics II
- Circuit Analysis
- Design of Machine Elements
- Control Theory
- Digital Systems
- Manufacturing Processes

### Sixth Semester

- Heat Transfer
- Managerial Administration
- Design of Machine Elements II
- Direct Current (CD) and Synchronous Machines
- Transformers and Induction Engines
- Electrical Power Systems I
- Electronic Devices

### Seventh Semester

- Thermal and Hydraulic Machines
- Business Development
- Air-Conditioning and Refrigeration
- Electrical Power Systems II
- Digital and Applied Electronics
- Sensors and Instrumentation
- Special Topics in Industrial Engineering

### Eighth Semester

- Special Topics in Mechanical Engineering
- Professional Ethics
- Internship
- Projects and Industrial Installations
- Special Topics in Electrical Engineering
- Power Electronics
- Industrial and Environmental Processes