

Faculty of
**Electrical and Computer
Engineering**



Electrical Engineering

RPC-SO-20-No.422-2020

espol[®]

Bachelor of Science in Electrical Engineering



Applicant Profile

Prospective students should be visionary and innovative, with strong problem-solving and communication skills, an interest in working within multidisciplinary teams, and a commitment to sustainability and social responsibility. As the field continues to evolve, increasing emphasis is placed on energy efficiency, renewable energy, and the social and environmental impact of decisions related to electrical energy systems.



Employability

Students in ESPOL's Electrical Engineering program receive training with solid knowledge in the areas of generation, transmission, distribution, and use of electric power. Throughout the program, they develop competencies that, after graduation, enable them to hold positions such as:

- ▶ Manager of public and private technical companies
- ▶ Entrepreneur
- ▶ Manager and supervisor in plants, projects, operations, and maintenance
- ▶ Advisor and consultant in the electrical field
- ▶ Student in graduate programs, whether technical, scientific, or administrative

The program has the first real-time power systems simulation laboratory, where advanced simulations are conducted, including the Hardware-in-the-Loop (HIL) technique.



Professional Skills

Upon completing the program, students will acquire the following skills:

- ▶ Skills to design and analyze electrical systems
- ▶ Management, design, and implementation of projects related to the generation, transmission, and distribution of electric power
- ▶ Experience in energy efficiency optimization and comprehensive smart grid management
- ▶ Efficient development of renewable energy projects
- ▶ Leadership and effective communication skills in multidisciplinary teams, developing innovative solutions to complex problems in electric power and maintaining productive interactions with clients and professionals



In fact...

- ▶ The program offers Safe Electrical Installations, an initiative through which students apply their technical knowledge in electricity to support vulnerable communities with the greatest needs
- ▶ The program also offers specialized tracks: Power Systems Optimization, focused on refining every detail to achieve maximum efficiency; and SCADA Applied to Power Systems, which integrates cutting-edge technology for effective management



LEARN MORE



Curriculum

N 100 - I	SINGLE VARIABLE CALCULUS	PHYSICS: MECHANICS	GENERAL CHEMISTRY	PROBLEM SOLVING	ARTS, SPORTS AND LANGUAGES ELECTIVE COURSES	ENGLISH I
N 100 - II	LINEAR ALGEBRA	VECTOR CALCULUS	PHYSICS: ELECTRICITY AND MAGNETISM	PROGRAMMING FUNDAMENTALS	HUMANITIES ELECTIVE COURSES	ENGLISH II
N 200 - I	DIFFERENTIAL EQUATIONS	COMMUNICATION	STATISTICS	ELECTRICAL CIRCUITS	DIGITAL SYSTEMS I	ENGLISH III
N 200 - II	NUMERICAL METHODS	ELECTRONIC PRINCIPLES	ELECTRICAL NETWORK ANALYSIS	CONTROL SYSTEMS	ELECTROMAGNETIC THEORY	ENGLISH IV
N 300 - I	ENTREPRENEURSHIP AND INNOVATION	POWER SYSTEMS I	ELECTRICAL INSTALLATIONS	ELECTRICAL MACHINERY I		ENGLISH V
N 300 - II	POWER ELECTRONICS I	POWER SYSTEMS II		ELECTRICAL MACHINERY II	SUSTAINABILITY SCIENCE	COMMUNITY SERVICE INTERNSHIPS
N 400 - I	HIGHER MATHEMATICS	POWER SYSTEMS OPERATION	ELECTRICAL DISTRIBUTION I	RENEWABLE ENERGY	POWER STATIONS	INDUSTRIAL ELECTRICAL CONTROLS
N 400 - II	ELECTRICAL PROTECTIONS	POWER SYSTEMS PLANNING	ELECTRICAL DISTRIBUTION II	POWER SYSTEM STABILITY AND CONTROL	TRANSMISSION LINES AND SUBSTATIONS	SELECTED ELECTIVE COURSE
N 500 - I			MANAGEMENT AND REGULATORY FRAMEWORK OF THE ELECTRICAL SECTOR		ELECTRICAL ENGINEERING CAPSTONE COURSE	SELECTED ELECTIVE COURSE
						PRE-PROFESSIONAL BUSINESS INTERNSHIPS

✓ Accredited Program



Engineering
Accreditation
Commission



? Did you know?

This program focuses on the management, generation, and use of electric power. Electrical Engineers are prepared to innovate, design, manage, build, and operate conventional and renewable generation systems, transmission and distribution systems, and industrial facilities, contributing to the socioeconomic development of their communities.

www.fiec.espol.edu.ec

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International Relations

Through its External Relations Office, ESPOL promotes and develops partnerships with international cooperation organizations, academic institutions, and research centers. These partnerships create mobility opportunities for the entire ESPOL community and contribute to the excellence that distinguishes the institution.

More than 226 international agreements allow students to participate in experiences abroad, including semester or year-long exchange programs, pre-professional internships, research placements, and participation in conferences, competitions, and other academic activities.

