



Faculty of
Electrotechnics
and Computing

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Electrical ENGINEERING

PROFILE OF GRADUATION
AND CURRICULA

www.uni.edu.ni

B-35
3P



Electrical ENGINEERING

Electrical engineering is the branch of engineering in which fundamental physics principles are applied: electricity, planning, design, optimization and electrical control systems and its components.

Knowledge OF A ELECTRICAL ENGINEER

- Comprise and manage foundations, methods, techniques, and procedures in order to plan, manage and develop electro-energetic systems. It includes the demand of electrical energy and the studies of its behavior and requirements in the country as well as legal aspects and technical policies in the subject.
- Master knowledge, methods, techniques and procedures for the development of automatic systems and electrical drives, considering the analysis of the requirements of industrial procedures.
- Understand the foundations, methods, techniques and procedures for the development of electrical generation systems, considering the study of energy sources and the characteristics of electrical charges.
- Interpret fundamental, economic and financial aspects, as well as the projects' cost control and the activities related to Electric Engineering.
- Underlie the scientific methods for the development of research projects.
- Comprise and manage the foundations and applications of humanistic and basic sciences considering its contribution to electrical engineering's solving problems.

Skills OF AN ELECTRICAL ENGINEER

- Design, explore and evaluate electrical systems, considering the quality of the service as well as the efficient and rational usage of the energy sources.
- Identify and solve electric drive problems, instrumentation, automatic control relying on stability criteria, optimization, supervision, and operational quality.
- Analyze, interpret and writes technical documents and budgets linked to development projects related to Electrical Engineering.
- Create, implement and develop generation systems that are economically, sociably, culturally and environmentally viable.
- Solve electric engineering problems by applying scientific research methods and techniques and applying innovative solutions according to the context and the Nicaraguans' society's needs.
- Communicate through oral expression as well as in a written way by applying language rules and Information and Communication Technologies (TICs) including specialized Electrical Engineering's software.





Attitudes OF AN ELECTRICAL ENGINEER

- Responsible and committed to behave in a correct way in the different tasks related to the Electrical Engineer's field, considering its implications in Nicaragua's society.
- It's aware of Electrical Engineering's impact in the society the environment. It values the importance of fulfilling legal, technical and environmental dispositions.
- Show interest for each individual's work as well as team work by acting themselves in correspondence with values and principles accepted in the institutional educational model and base on each Electrical Engineer's profile.
- Show respect for regulations and policies that rule academic life at the university and it respects Electrical Engineer's profession as well.
- Grab occupational safety and Hygiene regulations concerning to the performance of Electrical Engineering including the study of the country's legal frame and international binding regulations.
- Demonstrate entrepreneurial, innovative and adaptable spirit face to the profession's problems, change in the personal, cultural and social environment accepting commitments in his/her professional development, permanent learning and the achievement of the proposed goals.

I Semester

- Mathematic I
- Technical Drawing
- English I
- General Chemistry
- History of Nicaragua and Central America
- Technical Writing

II Semester

- Mathematic II
- Electrical Workshop
- English II
- Physics I
- Programming I
- Sociology

III Semester

- Mathematic III
- Electrical Circuits I
- Electrical Material
- Physics II
- Programming II
- Technology and Environment

IV Semester

- Mathematic IV
- Electrical Circuits II
- Measurement System
- Statistics I
- General Mechanic for Electrical Engineering
- Economy

V Semester

- Electronical Analog (ELKA)
- Electrical Circuits III
- Electrical Machinery I
- Thermodynamic for Electrical Engineering
- Peace Culture and Human Rights
- Maintenance and Industrial Safety



Curricula



Curricula

VI Semester

- Electrical Power
- Electrical Digital
- Electrical Machinery II
- Electrical Power Systems (SEP) I
- Designs of Electrical Systems

VII Semester

- Microprocessors
- System Control
- Electrical Machinery III
- Electrical Power Systems (SEP) II
- High Power Techniques

VIII Semester

- Electrical Substations Design
- Electrical Drive
- Distribution Networks
- Principles of Administration
- Formulation and Assessment Projects

IX Semester

- Power Stations (Power Plants)
- Philosophy
- Research Methodology
- Electrical Power Systems Safeguards

X Semester

- Monography



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