



ELECTRICAL ENGINEERING PROGRAM

General Objective

Train electrical engineers with technological and scientific knowledge and social ethical responsibility capable of providing solutions to the energy needs of industry, the residential sector and the areas of distribution, transmission and generation of electrical energy from conventional and unconventional sources, seeking the energy efficiency and environmental sustainability in accordance with the policies and guidelines of the country's electricity sector.

Specific objectives linked to knowledge:

- Provide knowledge of science and electrical technologies which allow the modeling, simulation and interpretation of the elements and their operating conditions in the electrical system.
- Provide the knowledge of science and energy technologies necessary to understand, propose and implement environmentally friendly systems, which allow diversifying energy resources and improving their efficiency.
- Develop capacity for planning, design, implementation, operation, maintenance, and auditing of electrical systems.
- Develop the capacity for the design, simulation and installation of lighting systems.

Specific objectives linked to relevance:

- Train professional actors in the development and execution of the planning of the country's electricity sector, with knowledge of the regulations and government policies that promote this sector.
- Train professionals with the ability to propose and generate alternatives for the diversification of the energy matrix, based on available renewable and non-renewable resources, which guarantees the supply of energy to the different sectors of the country.
- Train professionals with the ability to plan, manage, implement and administer projects for the generation, transmission and distribution of electricity to meet the continuous growth of demand in the Ecuadorian electricity sector.
- Develop the ability to design and implement indoor and outdoor electrical systems seeking efficient use of energy in the residential and industrial sector.

Specific objectives linked to learning.

- Provide from the constructivist approach learning based on problems and projects,

the study and analysis of physical phenomena related to energy, generation, transport and electricity consumption, through methods and techniques applied in engineering, considering the student as the subject of the training process in accordance with the Educational Model of the Universidad Politécnica Salesiana.

- Develop the skills and abilities to identify the phenomena that intervene in electrical systems through experimentation in specialized laboratories to develop capacities, skills, for the diagnosis, control, operation and maintenance of said systems.
- Promote the ability to apply computer tools to model, simulate and analyze the behavior of electrical systems prior to their optimization or implementation.
- Strengthen the knowledge acquired through pre-professional and field practices, in public or private companies, in the fields where electrical engineering intervenes.
- Promote learning through the development of exploratory and descriptive research projects linked to the electricity major and aligned with the research groups of the Universidad Politécnica Salesiana, structured according to the Instructions for the Formation, Operation and Evaluation of Research Groups from the Universidad Politécnica Salesiana.
- Develop skills in database management related to the area of electricity and scientific writing of articles and posters for the presentation of research works.

Specific objectives linked to comprehensive citizenship

- To train upright professionals capable of solving society's problems, respecting its interculturality, motivated by ethical and moral values that make their professional activity transparent.
- To train professionals with the ability to work in multidisciplinary and interdisciplinary teams, respecting the diversity of criteria that contributes to achieving common objectives in the design and / or execution of technical projects in favor of society.