



Code	INE354L	Prerequisites	CBF212 CBF212L
Name	Electrical Circuit Laboratory	Co-requisites	INE354

Credits	Contact Hours
01	22
Categorization of credits	
Math and basic science	
Engineering topic	X
Other	

Coordinator's name	Prof. Giuseppe Sbriz Zeitun
--------------------	-----------------------------

Text book
Other supplemental materials
<p>Black &amp; Decker (2009). The Complete Guide on Electrical Installations (4th ed.). Creative Publishing International.</p> <p>Heiserman, R. (1992). Training Manual for Industrial Electrician Technicians. Vol.1: Editorial Limusa.</p> <p>Muller, W. (1994). Power electrotechnology: upper course. Editorial Reverté</p> <p>Rizzoni, G. (2002). Principles and applications of electrical engineering. McGrawHill</p> <p>Tocci, R. (2013). Digital systems: principles and applications (8th ed). Pearson</p> <p>Floyd, T. (2007). Principles of electrical circuits (8a. ed.). Pearson</p>

Description	
<p>This laboratory is based on providing the student with spaces for practice and development of skills related to electrical and electronic circuits. Through this, you will acquire the practical knowledge of electrical installations, design and connections of automated circuits (relays, sensors, etc.), the operation of electronic elements (diodes, transistors, etc.) and combinational logic (and, or, not). At the same time you will acquire the knowledge for the correct use of certain electrical measuring equipment and accessories used in industrial electrical installations.</p> <p>The teaching methodology is based on the teacher's presentation and the students' subsequent development of the practices. The teacher will be a guide, for the good performance of the students, during the completion of the practice allowing the student to be the one who elaborates it completely and in this way acquire the necessary practical skills.</p>	
Type of course	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>

Specific goals for the course	
Outcomes of instruction	<p>EG1. Handle tools for electrical and electronic use properly.</p> <p>EG2. Identify and describe the use of materials and accessories in electrical installations.</p> <p>EG3. Make schematic diagrams of different types for the development of a desired function.</p>
Student outcomes	CG1. Develop and conducts appropriate experimentation, analyzes and interprets data, and uses engineering criteria to draw conclusions.

Topics
<p>Unit I. Use of the multimeter - serial and parallel circuits</p> <p>Unit II. Electrical connections</p> <p>Unit III. Electrical materials</p> <p>Unit IV. Relay, Contactors and Timers</p> <p>Unit V. Combinational logic</p> <p>Unit VI. Ladder Diagram</p> <p>Unit VII. Actuators and sensors</p> <p>Unit VIII. Diodes</p> <p>Unit IX. SCR and transistors</p>