

# Program Engineering

<b>Specialization</b>	Electrical Wiring
<b>Course Number</b>	020303251
<b>Course Title</b>	National electrical codes and standards
<b>Credit Hours</b>	2
<b>Theoretical Hours</b>	2
<b>Practical Hours</b>	0

**Brief Course Description:**

An introductory study of the National Electric Code (NEC) for those employed in fields requiring knowledge of the Code, with emphasis on wiring design, protection, methods and materials, equipment for general use, and basic calculations .

**Course Objectives:**

Upon the completion of the course, the student will be able to:  
calculate the size of conductors, boxes, raceways, and overcurrent protective devices for branch circuits supplying electrical equipment, calculate conductor size, overcurrent protection for service equipment as applied to building services and compute the size of branch circuits, feeders and equipment for motors.

**Detailed Course Description:**

Unit Number	Unit Name	Unit Content	Time Needed
1	<b>Safety and NEC Basics</b>	<ul style="list-style-type: none"> <li>- Introduction to the National Electrical Code</li> <li>- Definitions and Terminology</li> </ul>	
2	<b>Wiring basics</b>	<ul style="list-style-type: none"> <li>- Construction.</li> <li>- Operation.</li> <li>- Receptacles, Switches, Fuses and Breakers</li> <li>- Troubleshooting.</li> </ul>	
3	<b>Boxes and Enclosures</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Box fill calculations</li> <li>- Markings</li> <li>- General installation</li> <li>- Junction and pull box sizing</li> <li>-</li> </ul>	
4	<b>Cables</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- General installation</li> <li>- Conductor identification</li> <li>- Grounded conductors</li> <li>- Underground installations</li> </ul>	
5	<b>Raceways and Conductors</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Flexible conduit and nonflexible conduit</li> <li>- Raceway fill</li> <li>- Conductors</li> </ul>	
6	<b>Commercial Locations General Provisions</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Branch circuits</li> <li>- Receptacles</li> <li>- Lighting</li> </ul>	
7	<b>Services, Feeders, and Equipment</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Clearances and working space</li> <li>- Switchboards and panelboards</li> <li>- Busways</li> </ul>	
8	<b>Industrial Locations</b>	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Branch circuits</li> </ul>	

		<ul style="list-style-type: none"><li>- Motors</li><li>- Specific Equipment</li></ul>	
9	NEC Tables	<ul style="list-style-type: none"><li>- Applications of NEC tables</li></ul>	
10	Calculations	<ul style="list-style-type: none"><li>- Introduction</li><li>- Calculations for residential, commercial, and industrial loads</li></ul>	

**Evaluation Strategies:**

Exams		Percentage	Date
Exams	Midterm Exam	40%	--/--/----
	Assignments	10%	--/--/----
	Final Exam	50%	--/--/----
Homework and Projects			
Discussions and lecture Presentations			

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**Teaching Methodology:**

❖ .Laboratory

**References:**

1. Illustrated Guide to the National Electrical Code , 6 th Edition by Charles R. Miller
2. NFPA 70, National Electrical Code, 2014 Edition