

# COURSE SYLLABUS

<b>Course Title:</b>	Circuit Theory I	<b>Date submitted:</b>	4/30/2018 (18-36)
<b>Department:</b>	Advanced Manufacturing Technology		
<b>Curriculum:</b>	Technology Studies		
<b>Course Descriptors:</b> <small style="color: red;">Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.</small>	<b>Course Code:</b> (eg. ACC*101) <span style="float: right;">MFG*137</span> <b>Course Type:</b> <span style="float: right;">B</span> A: Clinical B: Lab D: Distance Learning I: Individual/Independent L: Lecture N: Internship M: Seminar P: Practicum U: Studio X: Combined Lecture/Lab Y: Combined Lecture/ Clinical/Lab Z: Combined Lecture/Studio <b>Elective Type:</b> <span style="float: right;">G</span> AH: Art History E: English FA: Fine Arts FL: Foreign Language G: General HI: History HU: Humanities LAS: Liberal Arts & Sciences M: Math S: Science SS: Social Science <b>Credit Hours:</b> <span style="float: right;">3</span> <b>Developmental:</b> (yes/no) <span style="float: right;">No</span> Lecture: <span style="float: right;">0</span> Clinical: <span style="float: right;">0</span> <b>Contact Hours:</b> Lab: <span style="float: right;">3</span> Studio <span style="float: right;">0</span> Other: <span style="float: right;">0</span> TOTAL: <span style="float: right;">3</span> <b>Class Maximum:</b> <span style="float: right;">24</span> <b>Semesters Offered:</b> <span style="float: right;">Fall</span>	<b>Prerequisites:</b> <div style="border: 1px solid black; padding: 5px; min-height: 100px;">None</div>	
	<b>Corequisites:</b> <div style="border: 1px solid black; padding: 5px; min-height: 100px;">None</div>		
	<b>Other Requirements:</b> <div style="border: 1px solid black; padding: 5px; min-height: 100px;">None</div>		
	<b>Catalog Course Description:</b> Circuit Theory I is an introduction to direct current (DC) circuits. Circuit Theory I will introduce the student to electrical/electronic components; the nature of electricity (voltage, current, and resistance); Ohm's Law of measurement; the concept of energy and power; types of circuits (series, parallel, and series-parallel); Thevenin's and Norton's Theorems of circuit simplification, and magnetism and electro magnetism.		
	<b>Topical Outline:</b> <small style="color: red;">List course content in outline format.</small> <ol style="list-style-type: none"> <li>1. Components, Quantities, and Units</li> <li>2. Voltage, Current, and Resistance</li> <li>3. Ohm's Law</li> <li>4. Energy and Power</li> <li>5. Series Circuits</li> <li>6. Parallel Circuits</li> </ol>		

	<p>7. Series-Parallel Circuits  8. Circuit Theorems and Conversions  9. Branch, Mesh, and Node Analysis  10. Magnetism and Electromagnetism</p>
<p><b>Outcomes:</b>  Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</p>	<p><b>Upon successful completion of this course, the student will be able to do the following:</b></p> <p><b>COURSE:</b></p> <ol style="list-style-type: none"> <li>demonstrate an understanding of electrical components, electrical and magnetic quantities and their units, scientific and engineering notations, and metric conversion</li> <li>demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement</li> <li>demonstrate an understanding of Ohm's Law and apply Ohm's Law to the measurement of current, voltage, and resistance in a circuit</li> <li>demonstrate an understanding of the concepts of energy and power, power in circuits, resistance, and power supply</li> <li>demonstrate an understanding of the concept of a series circuit and of its physical construction, and demonstrate an understanding of the application of Ohm's law and Kirchhoff's voltage law to a series circuit</li> <li>demonstrate an understanding of a concept of a parallel circuit and of its physical construction, and demonstrate an understanding of the application Ohm's and Kirchhoff law to a parallel circuit</li> <li>demonstrate an understanding of the concept of a series-parallel circuit and of its physical construction, and demonstrate an understanding of the application of Ohm's and Kirchhoff's laws to a series-parallel circuit</li> <li>demonstrate an understanding of superposition theorem to circuit analysis and an understanding of Thevenin's and Norton's theorems of circuit simplification</li> <li>demonstrate an understanding of simultaneous equations in branch current measurements, an understanding of the application Kirchhoff voltage in current laws as they apply to branch, mesh, and node analysis</li> <li>demonstrate an understanding of the principles of magnetism and of electromagnetism</li> </ol> <p><b>PROGRAM:</b> <i>(Numbering reflects Program Outcomes as they appear in the college catalog)</i></p> <p><b><u>Electronics Technology Certificate and A.S. Degree</u></b></p> <ol style="list-style-type: none"> <li>demonstrate an understanding of Shop Safety</li> <li>demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement</li> <li>demonstrate an understanding of the basic laws of arithmetic</li> <li>demonstrate an understanding of several number systems and codes that are the foundation of digital theory and digital applications</li> <li>make comparisons with personal computers; as well as, develop an understanding</li> </ol>

	<p>of its origin and growth since conception</p> <p>6. demonstrate an understanding of the fundamentals of Automated Manufacturing systems</p>
<p><b>Evaluation:</b> List how the above outcomes will be assessed.</p>	<p><b>GENERAL EDUCATION:</b> <i>(Numbering reflects General Education Outcomes as they appear in the college catalog)</i></p> <p>No General Education outcomes.</p> <p><b>Assessment will be based on the following criteria:</b> tests and quizzes</p>
<p><b>Instructional Resources:</b> List library (e.g. books, journals, on-line resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.</p>	<p><b>Required:</b> None</p> <p><b>Desired:</b> None</p>
<p><b>Textbook(s)</b></p>	<p><u>Principles of Electric Circuits, Conventional Current Version</u> Thomas L. Floyd, latest edition.</p>