

# COURSE SYLLABUS

<b>Course Title:</b>	Introduction to Electric Circuit Analysis		<b>Date submitted:</b>	March 2014 (AAC: 14-27)	
<b>Department:</b>	Business and Technology				
<b>Curriculum:</b>	Engineering Science				
<b>Course Descriptors:</b> Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.	<b>Course Code:</b> (eg. ACC 101)	EGR*221	<b>Prerequisites:</b>		
	<b>Course Type:</b>	X	C- or better in Calculus-Based Physics II (PHY* 222) and C- or better in Calculus II (MAT* 256)		
	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>	G/LAS			
	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>	4	<b>Corequisites:</b>		
	<b>Developmental:</b> (yes/no)	No	MAT* 285 Differential Equations		
	Lecture:	3			
	Clinical:	0			
	Lab:	3			
Studio:	0				
<b>Contact Hours:</b>	Other: 0				
	TOTAL:		<b>Other Requirements:</b>		
	<b>Class Maximum:</b>	20	None		
	<b>Semesters Offered:</b>	F/Sp			
<b>Ability Based Education (ABE) Statement</b>	At Tunxis Community College students are assessed on the knowledge and skills they have learned. The faculty identified the General Education Abilities critical to students' success in their professional and personal lives. In every class, students are assessed on course abilities, sometimes program abilities, and, in most classes, at least one General Education Ability. Students will receive an evaluation of the degree to which they have demonstrated or not demonstrated that General Education Ability.				
<b>Catalog Course Description:</b>	An introduction to the techniques of analog circuit analysis. Topics include voltage, amperage, capacitance, inductance, node-voltage analysis, mesh-current analysis. Essential electrical components such as resistors, diodes, capacitors, inductors and operational amplifiers will be introduced and explored as well. The course will be supported by the use of the computer simulation programs and with lab work covering introductory circuit analysis.				
<b>Topical Outline:</b> List course content in outline format.	<ol style="list-style-type: none"> <li>1. Voltage, Current, and Resistance</li> <li>2. Basic Circuit Analysis</li> <li>3. Circuit Analysis Techniques</li> <li>4. Active Circuits</li> <li>5. Signal Waveforms</li> </ol>				

	6. Capacitance and Inductance 7. First- and Second-Order Circuits 8. Sinusoidal Steady-State Response
<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>1. analyze a circuit containing resistors in series, parallel and combinations thereof using Ohms Law and network theorems</li> <li>2. calculate average, peak and RMS power dissipated in an electric circuit</li> <li>3. discuss the transient responses of capacitors and inductors to a step change in voltage</li> <li>4. discuss the generation of alternating current and voltage signals</li> <li>5. analyze step up and step down Power Transformers</li> <li>6. calculate the impedance of a capacitive or inductive AC circuit</li> <li>7. determine the phase angle and power factor of RLC circuits</li> </ol> <p><b>PROGRAM:</b> <i>(Numbering reflects Program Outcomes as they appear in the college catalog)</i></p> <p><b>Engineering Science Associate Degree</b></p> <ol style="list-style-type: none"> <li>3. analyze data and scientific information using critical thinking skills and problem-solving techniques</li> <li>7. use logic and organization when acquiring information, analyzing a situation, and solving problems</li> </ol> <p><b>GENERAL EDUCATION:</b> <i>(Numbering reflects General Education Outcomes as they appear in the college catalog)</i></p> <p>7. <b>Quantitative Reasoning</b> -Students will learn to recognize, understand, and use the quantitative elements they encounter in various aspects of their lives. Students will develop a habit of mind that uses quantitative skills to solve problems and make informed decisions.</p> <p><b>Demonstrates:</b> Interprets numerical information and applies sufficient laws of logic and mathematics to solve problems using numbers, symbols, graphs and/or descriptions.</p> <p><b>Does Not Demonstrate:</b> Misinterprets numerical information or insufficiently applies laws of logic and mathematics to solve problems using numbers, symbols, graphs and/or descriptions.</p>
<p><b>Evaluation:</b> List how the above outcomes will be assessed.</p>	<p><b>Assessment will be based on the following criteria:</b></p> <p>Quizzes Exams Homework Lab Projects</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> Engineering Lab</p> <p><b>Desired:</b></p>
<p><b>Textbook(s)</b></p>	<p>Check with program coordinator for list of approved texts.</p>