COURSE SYLLABUS

Course Title:	Fundamentals of Electricity	**Date submitted:**	Spring 2014 (AAC: 14-27)
Department:	Business and Technology		
Curriculum:	Technology Studies/Engineering Science		

Course Descriptors:
Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.

Course Code: (eg. ACC 101)	EET*103
Course Type:	X

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

Elective Type:	G

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

Credit Hours:	4
Developmental: (yes/no)	No
Contact Hours: Lecture:	3
Clinical:	0
Lab:	3
Studio:	0
Other:	0
TOTAL:	6
Class Maximum:	19
Semesters Offered:	F/S

Prerequisites:
C- or better in Intermediate Algebra (MAT*137)

Corequisites:
None

Other Requirements:
None

Ability Based Education (ABE) Statement:
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.

Catalog Course Description:
Basic electricity is surveyed including DC and AC circuits, Ohm's Law, analysis of series, parallel circuits and series-parallel circuits, theory and operations of transformers, capacitors, and inductors and their analysis and inclusion in electrical circuits. Three hour lecture, three hour lab.

Topical Outline:
List course content in outline format.

1. Current, Voltage and Resistance
2. Ohms Law and Power
3. Series and Parallel Circuits
4. Circuit Theorems
5. Capacitors
6. Alternating Current

	7. Magnetism and Electromagnetic Induction 8. Inductors 9. Transformers 10. RC, RL, and RLC Circuit 11. Phasors 12. Resonance
Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.	Upon successful completion of this course, the student will be able to do the following: **COURSE:** 1. analyze a circuit containing resistors in series, parallel and combinations thereof using Ohms Law and network theorems 2. calculate average, peak and RMS power dissipated in an electric circuit 3. discuss the transient responses of capacitors and inductors to a step change in voltage 4. discuss the generation of alternating current and voltage signals 5. analyze step up and step down Power Transformers 6. calculate the impedance of a capacitive or inductive AC circuit 7. determine the phase angle and power factor of RLC circuits
	PROGRAM: *(Numbering reflects Program Outcomes as they appear in the college catalog)* **Technology Studies Associate Degree:** 1. identify and apply the design principles of engineering and technology when solving basic engineering problems 2. utilize the tools, materials, techniques, and technical processes of engineering and technology when solving technical problems 3. apply the basic concepts of science and mathematics to the study of electricity and electronics, materials, computer-aided design (CAD), manufacturing, and construction

	GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)*
	
	7. **Quantitative Reasoning -**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.
	
	    Demonstrates: Interprets numerical information and applies sufficient laws of logic and mathematics to solve problems using numbers, symbols, graphs and/or descriptions.
	
	    Does Not Demonstrate: Misinterprets numerical information or insufficiently applies laws of logic and mathematics to solve problems using numbers, symbols, graphs and/or descriptions.

Evaluation: List how the above outcomes will be assessed.	**Assessment will be based on the following criteria:** Quizzes Examinations Lab Assignments using MultiSim or other equivalent software

Instructional Resources: 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.	**Required:** CAD Lab, Multisim or other equivalent software **Desired:**
Textbook(s)	Check with program coordinator for list of approved texts.