## Course Syllabus

### Course Title:
Fundamentals of Electricity

### Department:
Business and Technology

### Curriculum:
Technology Studies/Engineering Science

### Course Code:
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/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

### 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

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

### 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:
1. Current, Voltage and Resistance
2. Ohms Law and Power
3. Series and Parallel Circuits
4. Circuit Theorems
5. Capacitors
6. Alternating Current
<table>
<thead>
<tr>
<th>Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</th>
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<tbody>
<tr>
<td>Upon successful completion of this course, the student will be able to do the following:</td>
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<tr>
<td><strong>COURSE:</strong></td>
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<tr>
<td>1. analyze a circuit containing resistors in series, parallel and combinations thereof using Ohms Law and network theorems</td>
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<td>2. calculate average, peak and RMS power dissipated in an electric circuit</td>
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<td>3. discuss the transient responses of capacitors and inductors to a step change in voltage</td>
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<td>4. discuss the generation of alternating current and voltage signals</td>
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<td>5. analyze step up and step down Power Transformers</td>
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<td>6. calculate the impedance of a capacitive or inductive AC circuit</td>
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<td>7. determine the phase angle and power factor of RLC circuits</td>
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<td><strong>PROGRAM:</strong></td>
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<tr>
<td>Technology Studies Associate Degree:</td>
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<tr>
<td>1. identify and apply the design principles of engineering and technology when solving basic engineering problems</td>
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<tr>
<td>2. utilize the tools, materials, techniques, and technical processes of engineering and technology when solving technical problems</td>
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<tr>
<td>3. apply the basic concepts of science and mathematics to the study of electricity and electronics, materials, computer-aided design (CAD), manufacturing, and construction</td>
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<td><strong>GENERAL EDUCATION:</strong></td>
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<td>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.</td>
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<td>Demonstrates:</td>
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<td>Does Not Demonstrate:</td>
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<td><strong>Evaluation:</strong> List how the above outcomes will be assessed:</td>
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<td>Assessment will be based on the following criteria:</td>
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<td>Quizzes</td>
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<td>Examinations</td>
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<td>Lab Assignments using MultiSim or other equivalent software</td>
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**Instructional Resources:**

List library (e.g. books, journals, online 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.