COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Electric & Power System Fundamentals	**Date submitted:**	Spring 2014 (AAC: 14-27)
Department:	Business/CIS/Technology		
Curriculum:	Engineering Science/Technology Studies		

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*142
Course Type:	L/D

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

Prerequisites:

None

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:

Forms of energy and the conversion processes employed by industry to increase its value and usefulness are surveyed. Laboratory experiences include experimentation with various energy converters.

Topical Outline: List course content in outline format.

1. Definition of energy and energy converters.
2. Natural power sources including sunlight, wind, water, gravity, animal and heat from inner earth.
3. Fuels including fossil fuels such as nuclear fission and nuclear fusion.
4. Energy and matter including chemical, mechanical, thermal and wave energy.
5. Energy interchange and natural laws including Conservation of Matter and Energy, Laws of Thermodynamics, Basic Laws of Work and Power, Boyle's Law, Charles

Law, Ohm's Law, Pascal's Law, Newton's Law of Action and Reaction and Efficiency of energy interchange, Vectors (forces acting in a direction), Kinetic and Bernoulli's Principle.

6. Energy converters and prime movers including direct actors and simple machines.
7. Converters of natural power such as water wheels and turbines (impulse and reaction devices) and wind wheels.
8. External combustion converters such as steam generators or converters (fossil and nuclear fuels), impulse and reaction steam turbines, reciprocating steam engines and steam power plants.
9. Internal combustion converters including reciprocating engines such as design, electrical systemsm spark ignition engines and compression ignition engines, gas turbines, air steam reaction engines and rocket engines.
10. Electrical converters including AC and DC motors, AC and DC generators and transformers.
11. Fluid converters including hydraulic, pneumatic and fluidics.

    Direct converters.

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:

The student will develop concepts of:

1. the origin, procurement, modification and use of the basic raw materials and natural power as energy sources;
2. the basic laws concerned with the conversation and use of energy and matter;
3. energy conversions methods used by man; and,

safety practices and sociological implications related to energy processing.

PROGRAM: *(Numbering reflects Program Outcomes as they appear in the college catalog)*

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:

1.
2.

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:** **Desired:**
Textbook(s)	Refer to current academic year printout.