### COURSE SYLLABUS

- **Course Title:** Energy Accounting
- **Date submitted:** 4/26/18
- **Department:** Business & Technology
- **Curriculum:** Energy Management Program

#### 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:
NRG*242

#### Course Type:
X/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

#### Contact Hours:

<table>
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<tr>
<th></th>
<th>Lecture</th>
<th>Clinical</th>
<th>Lab</th>
<th>Studio</th>
<th>Other</th>
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<td>0</td>
<td>0</td>
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#### Other Requirements:

- **Class Maximum:** 24
- **Semesters Offered:** Sp

#### Prerequisites:
C- or better in Spreadsheet Applications (CSA*135) or permission of Program Coordinator

#### Corequisites:
None

#### Credit Hours: 3

#### Corequisites:
None

#### Contact Hours:

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#### Other Requirements:

- **Class Maximum:** 24
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#### Syllabus Description:

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:
A comprehensive approach to energy cost reduction for commercial buildings. We will study advanced utility consumption analysis (trends, adjusted baselines, weather normalization, load factors, load shapes, baseload), the value of operation and maintenance improvements, energy saving capital improvement measures (energy conservation measures), measurement and verification of the operating conditions of energy-using equipment, and monitoring systems to maintain cost reduction, and methods of implementing energy conservation measure projects and explore different utility incentive programs.

#### Topical Outline:

- Intro to Energy Accounting
- Energy Accounting-EUI
RE Lab: Energy Use Index Calculation
Energy Accounting-EUI (part 2)
Energy Trend Analysis.
   Trends: Annual and Monthly
Weather Adjusting
Lab: Scoping Walkthrough
Bldg. Benchmarking
End Use Split
Lab: End Use Split
Portfolio Manager
RCM – Resource Conservation Manager
   Lab - Portfolio Manager
Operations.& Maintenance
   Datalogging
   Lab: Datalogger Install
   O&M Opportunities
   Lab: Datalogger Retrieve
   O&M Opportunities 2
   Lab: O&M Field Work
Measurement & Verification
   Measure & Verify
   Lab: ECM Field Work
Project Implementation
   Implementation
   DBB and DB
Funding and Incentive Programs
   Incentive Programs
Final

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:
• utilize the conversion and calculation of energy units for analysis
• gather data for energy accounting
• demonstrate an understand utility rates and schedules
• organize energy data
• analyze and present energy data using adjusted baselines
• make recommendations based on cost avoidance, load factors
• demonstrate use of EPA's Portfolio Manager software.

PROGRAM: (Numbering reflects Program Outcomes as they appear in the college catalog)
1. evaluate energy use patterns of residential and commercial buildings
2. recommend energy efficiency and renewable energy solutions for high energy consuming buildings
3. demonstrate an understanding of the interaction between energy consuming building systems and based on that understanding make energy consumption recommendations
4. produce energy evaluation technical reports and make presentations leading to project implementation
5. develop and evaluate inferences and predictions that are based on collected data
6. read and analyze building blue prints including floor, mechanical, and electrical
7. use problem-solving techniques & mathematics to transform concepts into energy
### GENERAL EDUCATION:
(Numbering reflects General Education Outcomes as they appear in the college catalog)

5. Information Literacy/Continuing Learning - Students will be able to use traditional and digital technology to access, evaluate, and apply information to the needs or questions confronting them throughout their academic, professional, and personal lives.

**Demonstrates:** Collects and synthesizes relevant and authoritative information resources appropriate to need and audience and utilizes current technologies to solve problems, complete projects, and make informed decisions.

**Does Not Demonstrate:** Does not collect and synthesize relevant and authoritative information resources appropriate to need and audience nor satisfactorily utilize current technologies to solve problems, complete projects, and make informed decisions.

### Evaluation:
List how the above outcomes will be assessed.

- Assignments/Spreadsheets
- Quizzes (2)
- Final Exam / Project
- Class Participation
- Instructor Evaluation

### 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:** Computer Classroom with Internet Access

**Desired:** None

### Textbook(s)