COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Energy Accounting	**Date submitted:**	May 2020 (ACC: 20-22)
Department:	STEAM		
Curriculum:	Tech Studies: Energy Management Option		

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)	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

Credit Hours:	3
Developmental: (yes/no)	No
Contact Hours: Lecture:	1.5
Clinical:	0
Lab:	1.5
Studio	0
Other:	0
TOTAL:	3
Class Maximum:	24
Semesters Offered:	Sp/F

Prerequisites:

C- or higher in NRG 123 – Energy Efficiency Methods

Corequisites:

None

Other Requirements:

None

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:
List course content in outline format.

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 Analyze Energy Savings Projects Using Time Value of Money Methods
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: 1. utilize the conversion and calculation of energy units for analysis 2. gather data for energy accounting 3. demonstrate an understand utility rates and schedules 4. organize energy data 5. analyze and present energy data using adjusted baselines 6. make recommendations based on cost avoidance, load factors 7. demonstrate use of EPA's Portfolio Manager software 8. calculate complex metrics from energy savings projects using time value of money methods to influence higher level decision makers (CFO's) to proceed with proposed projects
	TECH STUDIES PROGRAM, ENERGY OPTION: *(Numbering reflects Program Outcomes as they appear in the college catalog)* 2. utilize the tools, materials, techniques, and technical processes of engineering and technology when solving technical problems 6. demonstrate technical competency in a functional area of technology. The specialization may include, but is not limited to: electricity, computer aided drafting and design, manufacturing, and construction. Energy Management Option: 7. perform energy analysis on potential conservation measures in commercial/industrial settings, and incorporate both conceptual and technical understanding in their project reports 8. demonstrate an increased proficiency with spreadsheets, charts, and graphs in Excel

	GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)* None
Evaluation: List how the above outcomes will be assessed.	• Assignments/Spreadsheets • Tests/Quizzes • Project • Class Participation
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:** Computer Classroom with Internet Access **Desired:** None
Textbook(s)	**Suggested:** Energy-Efficient Operation of Commercial Buildings, Herzog (purchase from Ginny, Office 252) ISBN 978-0070284685, McGraw-Hill