# Course Syllabus

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

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**Course Code:** NRG 242  
**Course Type:** X/D  
**Elective Type:** G  
**Credit Hours:** 3  
**Developmental:** No  
**Lecture:** 1.5  
**Clinical:** 0  
**Lab:** 1.5  
**Studio:** 0  
**Other:** 0  
**TOTAL:** 3

**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  
- Energy Trend Analysis  
- Trends: Annual and Monthly  
- Weather Adjusting

**Prerequisites:**
C- or higher in NRG 123 – Energy Efficiency Methods

**Corequisites:**
None

**Other Requirements:**
None

**Class Maximum:** 24

**Semesters Offered:** Sp/F

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Original-4/10/07
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:**