



MENG 4342 – Energy Management
Course Syllabus

Semester / Year	Spring 2025										
Catalog Description	<i>An introduction to concepts and tools related to energy management program, energy audit, energy accounting, economic analysis, and energy conservation measures for systems that use energy. The course focuses on energy use in buildings.</i>										
Prerequisites	MENG 3401 and MENG 3310										
Section Number	MENG 4342.050, MENG 4342.051										
Instructor Name	Dr. Nelson Fumo										
Contact Information	nfumo@uttyler.edu										
Class Type / Instruction Mode / Location	Tyler: Lecture/Face-to-Face/RBN 2012 HEC: Hybrid – Zoom Lectures and In-Classroom-Exams/HEC A216. Zoom ID: 936-9422-4961 Passcode: HEC										
Class Time	Tu and Th 6:30PM - 7:50PM										
Office Hours	Tu/Th/Fr 2:00PM - 3:00PM or by appointment										
No. of Credits	3										
Required Textbook	None										
Optional References	The instructor will provide documents and references, but students are encouraged to look for useful material on the topics covered.										
Additional Rules and Requirements	<p>Access to lectures:</p> <ol style="list-style-type: none"> Students must log in from their own computers to attend Zoom lectures. Computers MUST have a working camera. Attendance will be taken at the end of each lecture by capturing a screenshot of the Zoom session attendees. <p>Exams:</p> <ol style="list-style-type: none"> All exams will be conducted online during scheduled lecture times. Students MUST keep their cameras on and ensure they are visible to the instructor for proctoring throughout the exam. Students MUST remain in the exam session, with their cameras on and showing themselves, until the exam is officially closed on CANVAS. The instructor is not responsible for connection or computer issues. Students MUST take the necessary precautions to ensure they can complete the exam without interruptions. <p>Artificial Intelligence: AI tools are allowed to support students' learning and productivity, provided that their use aligns with academic integrity standards. When required, students must disclose their use of AI.</p>										
Evaluation Method	<table> <tr> <td>Homework</td> <td>25%</td> </tr> <tr> <td>Exam 1</td> <td>10%</td> </tr> <tr> <td>Exam 2</td> <td>15%</td> </tr> <tr> <td>Exam 3</td> <td>25%</td> </tr> <tr> <td>Final exam</td> <td>25%</td> </tr> </table>	Homework	25%	Exam 1	10%	Exam 2	15%	Exam 3	25%	Final exam	25%
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Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	Census date: January 27 First drop for non-payment: January 21 Last date to withdraw from one or more 15-week courses: March 31 Exam date: Refer to the last page for the exams dates.
Attendance / Makeup policy / other rules	<ol style="list-style-type: none"> 1. Attendance: Attendance is not mandatory but is strongly recommended. Questions about missed classes will not be answered. 2. Makeup exam: An opportunity to make up a missed exam may be available to students with an excused absence. Excused absences include absences for university-sponsored events and for religious observances (see University policies). Other makeups are granted only in extreme cases and at the discretion of the instructor. Excused absence due to illness will require evidence of treatment by medical personnel at a medical facility. Makeup exams may be scheduled for the end of the semester. 3. Late Work: Late work will not be accepted without a serious and compelling reason and prior approval from the instructor. Students must contact the instructor before the submission deadline to request approval. If a late assignment is accepted, a late submission penalty will be applied at the instructor's discretion (as a reference, a 20% deduction per day may be applied). 4. Grade Appeal: Grades can be appealed by meeting the instructor during office hours, but no later than a week after the grade has been given. 5. Questions: Questions will only be addressed if the student can demonstrate that they have made a genuine effort to find the solution or answer independently. 6. Syllabus Changes: The instructor reserves the right to make changes to the syllabus. Any changes will take effect one week after they are announced. 7. Class Schedule: Refer to the last page for the class schedule.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: <ol style="list-style-type: none"> 1. Recognize the importance of the energy management. 2. Plan and conduct energy audits. 3. Analyze energy accounting data. 4. Develop economic analysis of energy management projects. 5. Identify and assess energy conservation measures for lighting systems, HVAC systems, and other systems that use energy.
Tentative Topics / Course Plans	<ul style="list-style-type: none"> · Module 1 – Energy Management Program This module is about what needs to be done to develop an Energy Management Program (energy team, energy policy, assess performance, set goals, create an action plan, evaluate progress, report and recognize achievements).



	<ul style="list-style-type: none">· Module 2 – Energy Auditing This module covers the fundamentals of planning, conducting, and reporting results from energy audits as mean to assess performance and identification of energy conservation opportunities. · Module 3 – Energy Accounting This module will illustrate how energy usage data can be organized and plotted in order to be used as a key source of information for analysis of how the energy is being used in the facility as well as the results of implementation of projects to reduce energy use. · Module 4 – Economic Analysis This module is a review of economic analysis of energy projects. The economic analysis is done to prioritize different projects for energy use reduction and cash flow structure. · Module 5 – Technology [Systems and equipment] The Technology (Systems and equipment) module covers approaches on how to evaluate energy consumption. The module focuses mainly in HAVC systems and illuminating systems since they are present in any facility. Cogeneration and renewable energy are also discussed as alternative energy for energy use and emission reduction. · Module 6 – Resources This is a module proposed to find out about additional tools, software, and other resources to support an energy management program and perform energy management activities.
University Policies	https://www.uttyler.edu/academic-affairs/files/syllabus_information.pdf



MENG 4342 - Class Schedule

Day	Date		Specific Class Activity
Tu	Jan 14	Module 1	Lecture 1 - Fundamental Concepts
Th	16		Lecture 2 - Energy Management
Tu	21		Lecture 3 - Energy management process
Th	23	Module 2	Lecture 4 - Energy Audits
Tu	28		Lecture 5 - Energy Audits - What to do
Th	30		Lecture 6 - Energy Audits - EEM
Tu	Feb 4	Module 3	Lecture 7 - Energy Accounting - Fundamentals
Th	6		Lecture 8 - Energy Accounting - Data Analysis
Tu	11		Lecture 9 - Energy Accounting - Weather Normalization
Th	13		Review for Exam 1
Tu	18		Exam 1
Th	20		Lecture 10 - Pay Back Period
Tu	25	Module 4	Lecture 11 - Mathematics of Interest
Th	27		Lecture 12 - Projects Assessment
Tu	Mar 4		Lecture 13 - Life-Cycle Cost Analysis
Th	6		Lecture 14 - Problems on Economic Analysis
Tu	11		Review for Exam 2
Th	13		Exam 2
Tu	18		Spring Break - No classes
Th	20		
Tu	25		Lecture 15 - Lighting Systems
Th	27		Lecture 16 - CHP-CCHP
Tu	Apr 1	Module 5	Lecture 17 - Air Distribution
Th	3		Lecture 18 - Hydronic Systems
Tu	8		Lecture 19 - Refrigeration Cycle
Th	10		Lecture 20 - HVAC - Problems 1
Tu	15		Lecture 21 - HVAC - Problems 2
Th	17		Exam 3
Tu	22	Module 6	Lecture 22 - Resources
Th	24		Review for Final Exam
Finals Calendar			Final Exam