UTTyler ENGINEERING

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MENG 4342 – Energy Management
Course Syllabus

Semester / Year	Spring 2026
Catalog Description	*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.*
Prerequisites	MENG 3401 and MENG 3310
Section Number	MENG 4342.001, MENG 4342.051
Instructor Name	Dr. Nelson Fumo
Contact Information	nfumo@uttyler.edu
Class Type / Instruction Mode / Location	Tyler: Lecture/Face-to-Face/RBN 3038 HEC: Hybrid – Zoom Lectures and In-Classroom-Exams/HEC A218 Zoom ID: 936-9422-4961 Passcode: HEC
Class Time	Tu and Th 5:00PM - 6:20PM
Office Hours	Tu/We/Th 11:00AM – 11:50AM 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	**HEC Students Access to lectures:** 1. Students must log in from their own computers to attend Zoom lectures. Computers **MUST** have a working camera. 2. Attendance will be taken at the end of each lecture by capturing a screenshot of the Zoom session attendees. Attendance will be accounted **ONLY** if the student shows his/her face through the camera. **Tyler and HEC Students Exams:** 1. All exams will be conducted online through CANVAS, during the regularly scheduled lecture times. 2. HEC students **MUST** keep their cameras on and ensure they are clearly visible to the instructor for proctoring throughout the entire exam. 3. Students **MUST** remain in the session with their cameras on, showing themselves, until the exam is officially closed on Canvas. 4. The instructor is not responsible for internet or computer issues. Students **MUST** take all necessary precautions to ensure they can complete the exam without interruption. **Grading:** All exams will be taken online through Canvas. Students are expected to provide complete and correct solutions for all exam questions. Final answers submitted in Canvas will be graded automatically, and full credit will only be awarded for correct final answers. Although students must upload their written work to show the procedure and reasoning used, this work is not graded, and no partial credit will be awarded under any circumstances. The uploaded solution serves only to verify the legitimacy

	of the answer submitted. Answers that are incorrect, unsupported, or inconsistent with the uploaded work will receive no credit. **Professional standards for all coursework:** Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric. **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.
Evaluation Method	Homework 25% Exam 1 10% Exam 2 15% Exam 3 25% Final exam 25%
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 26 First drop for non-payment: February 4 Last date to withdraw from one or more 15-week courses: March 30 Exams date: Refer to the class schedule. Academic Calendar 2025 - 2026
Attendance / Makeup policy / other rules	1. **Attendance**: Attendance is not mandatory but is strongly recommended. All lecture materials covered in class will be posted on Canvas; however, students are responsible for reviewing these materials and for checking with classmates regarding any additional announcements, explanations, or discussions that occur during class. Questions about missed classes will not be answered. 2. **Makeup exam**: An opportunity to make up for 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 may be appealed by meeting with the instructor during office hours, but no later than one week after the grade has been posted. 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. **Communication Policy**: Students must contact me directly by email at nfumo@uttyler.edu. Please do not use Canvas messaging, as I do not monitor it for course communication and it does not allow proper threads of replies. 7. **Syllabus Changes**: The instructor reserves the right to make changes to the syllabus. Any changes will take effect one week after they are announced. 8. **Class Schedule**: Refer to class schedule below.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 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	· 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). · 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 and Information	Link to University Policies and Information Link to Student Resources

MENG 4342 - Class Schedule

Day	Date			Specific Class Activity
Tu	Jan	13		Lecture 1 - Fundamental Concepts
Th		15	Module 1	Lecture 2 - Energy Management
Tu		20		Lecture 3 - Energy management process
Th		22		Lecture 4 - Energy Audits
Tu		27	Module 2	Lecture 5 - Energy Audits - What to do
Th		29		Lecture 6 - Energy Audits - EEM
Tu	Feb	3		Lecture 7 - Energy Accounting - Fundamentals
Th		5	Module 3	Lecture 8 - Energy Accounting - Data Analysis
Tu		10		Lecture 9 - Energy Accounting - Weather Normalization
Th		12		Review for Exam 1
Tu		17		Exam 1
Th		19		Lecture 10 - Pay Back Period
Tu		24		Lecture 11 - Mathematics of Interest
Th		26	Module 4	Lecture 12 - Projects Assessment
Tu	Mar	3		Lecture 13 - Life-Cycle Cost Analysis
Th		5		Lecture 14 - Problems of Economic Analysis
Tu		10		Spring Break - No classes
Th		12		
Tu		17		Review for Exam 2
Th		19		Exam 2
Tu		24		Lecture 15 - Lighting Systems
Th		26		Lecture 16 - CHP-CCHP
Tu	Mar	31		Lecture 17 - Air Distribution
Th	Apr	2	Module 5	Lecture 18 - Hydronic Systems
Tu		7		Lecture 19 - Refrigeration Cycle
Th		9		Lecture 20 - HVAC - Problems 1
Tu		14		Lecture 21 - HVAC - Problems 2
Th		16		Exam 3
Tu		21	Module 6	Lecture 22 - Resources
Th		23		Review for Final Exam
Finals Calendar				Final Exam