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Uttyler.edu/engineering

MENG 4215 – Senior Capstone Design I
Course Syllabus

Semester / Year	Fall 2024
Catalog Description	The first of a sequence of two senior courses including a capstone engineering project that entails the theoretical or experimental investigation of design problems. The nature and scope of the project are determined by the student in consultation with the instructor and depend upon the facilities available. A written technical report is required as part of the courses' outcomes. All seniors meet weekly to discuss their projects as teams and with their supervisors. One-hour lecture and 3 hours laboratory.
Prerequisites	Corequisite: MENG 4312. Prerequisites: EENG 3304, MENG 3303, MENG 3309, MENG 3316, MENG 3211, and CMST 1315
Section Number	001, 030, 004L, 005L, 006L, 030L, 031L, 032L
Instructor Name	Dr. N. Barakat, Dr. M. Salim, Dr. Mohammad A Biswas, Dr. Hayder Abdul-Razzak, Dr. Hamed Seyyedhosseinzadeh, Dr. Tahsin Khajah.
Contact Information	Contact the following course coordinator if you cannot find the contact info for your specific team advisor: Dr. N. Barakat (Senior Project Board chair) Dr. M. Salim (TYL coordinator) Dr. Mohammad A Biswas (HEC coordinator)
Class Type / Instruction Mode / Location	face-to-face and/or zoom lecture and lab/studio – Both TYL Campus and HEC Campus – Location TBD on Canvas
Class Time	001,030: We 10:10 AM – 11:05 AM 004L, 005L, 006L, 030L, 031L: We 2:00 PM – 4:45 PM
Office Hours	Mon: 10:00- 11:00, Tue: 11:30-12:30, Wed: 9:00-10:00, or by appointment
No. of Credits	2
Required Textbook	None. A handbook will be provided electronically. The equivalent of the price of a typical engineering textbook will be required as a contribution from each student for material needed to execute the assigned project.
Optional References	TBD
Additional Rules and Requirements	This course involves dealing with multiple non-traditional aspects such as, but not limited to, external entities, financial aspects, and non-disclosure agreements. Therefore, students are required to agree to, sign on, and comply with all related Senior Capstone Design policies.

	UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy. For this course, the Senior Design Board expects all work students submit for this course to be their own. I have carefully designed all assignments and class activities to support your learning. Doing your own work, without human or artificial intelligence assistance, is best for your efforts in mastering course learning objectives. For this course, the Senior Design Board expects expressly forbid using ChatGPT or any other artificial intelligence (AI) tools for any stages of the work process, including brainstorming without prior approval from the Board. Deviations from these guidelines will be considered a violation of UT Tyler's Honor Code and academic honesty values.
Evaluation Method	Lecture, discussion, assignments, Teamwork and interaction, and projects grading in this course will be based on input from the advisors and sponsors, as well as other involved faculty and individuals as appropriate. Consistent progress and professional behavior during the course/project are expected. A minimum score of 70% in each element of the following list is MANDATORY to succeed and pass the course. - Assignments and other course requirements 15% - Documentation: Reports (24%), Poster (6%). 30% - Ethics Quiz 10% - Individual evaluation (Faculty advisor (10%), peer (5%), etc.) 15% - Scope Presentation 10% - Design reviews 20% - In addition, successful registration of senior design II MENG 4216 is also required to pass this course
Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	See UT Tyler Academic Calendar: https://www.uttyler.edu/schedule/files/2024-2025/academic-calendar-2024-2025-main-20240222.pdf
Attendance /	Regular attendance is imperative if you want to do well in this course. Therefore, any

Makeup policy / other rules	student who incurs three unexcused absences or more during the 15-week semester from any lecture or team event will receive an instant F grade for the course. In case you have an excused absence from a class or event, it is your responsibility to keep up with the class work or assigned tasks and be informed of all announcements made in the class on homework, tests etc. No makeup!
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Apply knowledge and skills acquired in the undergraduate engineering curriculum in an integrated culminating design project experience to articulate and solve a complex engineering problem. SO1 2. Generate and implement solutions to an engineering problem with realistic constraints and various considerations. SO2 3. Implement and manage a typical life cycle of an engineering design and build project in a structured interdisciplinary team environment, with various real constraints. SO5 4. Recognize and consider the ethical and professional responsibility as well as societal, environmental, and global impact of engineering solutions. SO4 5. Utilize various oral and written communication skills to reach a wide audience throughout an engineering career.
Tentative Topics / Course Plans	1. Creativity and design methodologies 2. Teambuilding 3. Leadership 4. Economic justification 5. Codes and standards 6. Project management 7. Conflict resolution 8. Enhanced communication techniques
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf