

Syllabus for MEEN 2250

Last Revised 1/19/2009

By Dr. Matthew J. Traum

This document is handed out on the first day of class and is available for download from the course Web site. Students are responsible to know and understand the content of this syllabus. Please refer questions to the course instructor.

MEEN 2250: Computer Aided Engineering

Department of Mechanical & Energy Engineering

University of North Texas (UNT)

3 semester credit-hours

Required for the UNT B.S. Degree in Mechanical and Energy Engineering

ABET Criteria:

MEEN 2250 includes elements that address the following ABET program outcomes:

- (a) An ability to apply knowledge of mathematics, science, and engineering [weight = 1]
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data [weight = 1]
- (c) An ability to design a process to meet desired needs within realistic economic constraints and resource scarcity [weight = 1]
- (d) An ability to function on multidisciplinary teams [weight = 2]
- (g) An ability to communicate effectively [weight = 1]
- (k) An ability to use techniques, skills, and modern engineering tools for engineering practice [weight = 2]

The complete MEEN 2250 ABET Assessment, Evaluation, and Outcome Plan is archived on the course Web site and may be accessed via the following URL:

http://www.mee.unt.edu/public/traum/courses/2009spring/meen2250/meen2250_abet.pdf

Prerequisites:

Completion of MATH 2700 (linear algebra) is required; completion of CSCE 1020 (Introduction to Computer Programming) is recommended.

Course Date, Time, Location, and Web Site:

Spring 2009

Mondays and Wednesdays 2:00 pm – 3:20 pm

UNT Discovery Park

Research Park, ETECH Computer Laboratory, Room F187

<http://www.mee.unt.edu/public/traum/courses/2009spring/meen2250/>

Final Exam:

There will be no final exam in MEEN 2250. However, students must attend the final group project competition, which will occur during the MEEN 2250 final exam period: Monday, May 11, 1:30 p.m. - 3:30 p.m.

Description:

MEEN 2250 applies computational techniques to engineering analysis and design with an emphasis on visual communication for engineering practice. The course is presented in two modules: Computer Aided Design (CAD) and Numerical Methods (NM). The CAD module provides a comprehensive survey of engineering drawing techniques with emphasis on modern computer-driven parametric modeling of solid objects. The NM module covers numerical analysis methods including constrained and unconstrained optimization, simulation and solution of simple differential equations, symbolic manipulation, and application of finite element analysis.

Instructor:

Dr. Matthew J. Traum [Ph.D., MIT, 2007]
Assistant Professor of Mechanical & Energy Engineering

Contact Coordinates:

E-mail: mtraum@unt.edu
Office Phone: (940) 565-3446
UNT URL: <http://www.mee.unt.edu/tfs>

Dr. Traum's MEEN 2250 Office Hours:

Wednesdays, 4:00 pm – 5:00 pm
University Discovery Park
Research Park, Room F101E

Teaching Assistant:

Bora Yuce [B.S., MEE, UNT, In Progress]

TA's Contact Coordinates:

E-mail: by0026@unt.edu

TA's Office Hours

Fridays, 12:00 – 1:00pm
University Discovery Park
Research Park, Room F101T.1

Text Book:

Required: Pro/ENGINEER Wildfire 4.0 Instructor, McGraw Hill, 2009
David Kelley
ISBN-10: 007352266X ISBN-13: 978-0073522661

Required: MATLAB: An Introduction with Applications, 3rd Edition, Wiley 2008
Amos Gilat
ISBN-10: 0470108770 ISBN-13: 978-0470108772

Required: Introduction to Graphics Communications for Engineers, 3rd Edition, McGraw-Hill, 2006
Gary Robert Bertoline,
ISBN-10: 0073312738 ISBN-13: 978-0073312736

Recommended: The Fundamentals of Engineering Drawing: With an Introduction to Interactive Computer Graphics for Design and Production, 11th Edition, Prentice Hall, 1992
Warren J. Luzadder and Jon M. Duff
ISBN-10: 0133350509 ISBN-13: 978-0133350500

Attendance Policy:

Much of the information and knowledge presented in MEEN 2250 lectures is not available in the required course textbooks. In addition, access to many software tools highlighted in the course is not generally available outside the ETECH Computer Laboratory. Therefore, attendance is critical for success in this class. Some class time will be devoted to practicing skills taught during lectures. During these skill practice sessions, students are free to come and go as is necessary to execute and complete course deliverables (i.e., trips to the library for literature searches or visits to other computer labs where additional resources are available). However, students

must be present at the beginning of each class session or they will be counted as absent. Attendance will be taken at the beginning of each session using a sign-in sheet. Any student accumulating more than four unexcused absences in MEEN 2250 after January 28, 2009 will be given a course grade of "F".

Excused absences may rarely be granted by Dr. Traum and will be considered on a case-by-case basis. Excused absences will only be considered if a request is made to Dr. Traum via e-mail at least two weeks before the day of anticipated absence. Excused absences may be granted for *documented* religious holidays or major medical procedures or events when a *legitimate* doctor's note is provided.

Assignments:

Individual graded assignments will be disturbed via the course Web site and will generally be available prior to the class session pertaining to the assignment. Due dates for graded assignments will be listed in the assignment header and posted on the course Web site. Individual assignments are worth 10 points each, and there will be a total of nine individual assignments. At the end of the semester, the lowest individual assignment score will be dropped from a student's grade. Two types of assignments will be distributed: hard-copy assignments and digital assignments. Unless otherwise indicated, MEEN 2250 assignments must be submitted in hard-copy format at the *beginning* of the class period on the due date. Only hard-copy homework solutions submitted in class will be accepted. No course assignments will be accepted via e-mail, FAX, mail, departmental drop-off, or other mechanism.

Due to the digital nature of this class, some assignments will, by necessity, need to be submitted in electronic format. To accommodate submission of these digital assignments, students must invest in a portable flash drive with at least 2 GB storage capacity (which will cost \$10 - \$20) for exclusive use in MEEN 2250. For digital assignments, students will submit their jump drive at the *beginning* of the class period on the due date. The student must assure that the relevant files are in the top directory, easy to find, and named for clear identification. The student is also responsible to assure the file is not corrupted, can be opened without errors on the Instructor's computer, and contains no malicious content (i.e., viruses). If the instructor cannot locate or open the submitted file easily, the assignment will receive a score of "0". Digital assignments will be collected during Monday lectures and jump drives will be returned to students at the next ensuing lecture. Students must affix their name prominently on the outside surface of their jump drive so the owner is easily identifiable.

Narrative portions of assignments must be generated using a word processor and cannot be hand written. Narrative assignments that are not word-processed will be returned without grade. Quantitative portions of assignments that require hand calculation must be hand written by the student submitting the work and must be completed in permanent pen (blue or black). Quantitative calculations that are not in blue or black ink will be returned without grade. Students may submit photocopies of handwritten assignments if the original is written in something other than blue or black ink.

All missed assignments will receive a score of "0". No make-up assignments will be granted, and no late assignments will be accepted. If Dr. Traum has granted an excused absence, you must still submit all assignments on the due date.

Surveys:

There will be two surveys administered on-line during the course to measure students' cognitive thinking level. These surveys are meant to gauge effectiveness of MEEN 2250 and the MEE program as a whole. Neither of the surveys is graded, but students will receive points toward their final MEEN 2250 score for successful on-time completion of the surveys. Two Learning Environment Preference (LEP) surveys are administered during the class, once near the beginning and once near the end. Successful completion of each survey is worth 3 points.

Group Projects:

Four graded group projects will be disturbed via the course Web site and will generally be available prior to the class session pertaining to the assignment. Due dates for group assignments will be listed in the assignment header and posted on the course Web site. Group assignments are worth 25 points each, and each member of the group will share the same grade on these assignments. Group assignments will not be dropped when calculating students' course grades.

Coursework Portfolio:

All hard-copy individual and group assignments completed in MEEN 2250 must be compiled into a course portfolio and submitted to the instructor at the final exam period on Monday, May 11th. The portfolio is worth 5 points, and each student must submit a complete portfolio inclusive of all their hard-copy assignments. Photocopies of assignments are permissible in the portfolio.

Grading Policy:

From individual homework, 80 total points may be accumulated; group projects are worth 100 total points; surveys account for 6 points; and the course portfolio is worth 5 points. In addition, Dr. Traum will assign 9 points at his discretion for in-class participation and competence. Therefore, the maximum number of points that can be accumulated is 200 points. MEEN 2250 will be graded on a straight scale using the following ranges to correspond to final letter grades:

200 – 170: A, 169 – 140: B, 139 – 110: C, 109 – 0: F

No rounding will be employed when assigning final letter grades. In other words, an 169.99 is a “B”.

Grade Correction Policy:

Under no circumstances will a student's grade on an assignment or in the course ever be changed unless the student can demonstrate to Dr. Traum's satisfaction that a legitimate error in grading has occurred. Grade disputes will be handled outside of class only during Office Hours. If seeking a change of grade, the student must forfeit the original, graded hard or digital copy of the assignment to Dr. Traum for a detailed re-examination, and the student must acquiesce to a re-grade of the entire assignment. If during the re-grade, an error that was missed in the initial grading is discovered, the assignment will be docked points for the uncovered error. So, students risk losing additional points on an assignment if a grade correction is requested.

Withdrawals:

This course requires an enormous investment of time and effort by the instructor, and it is not acceptable for students to sap time away from MEEN 2250 only to drop the class part way through. Thus, after February 27, 2009 any student who wishes to drop MEEN 2250 will be given a “WF” which counts permanently in the GPA as an “F”.

Academic Dishonesty:

Academic dishonesty of any kind will not be tolerated in this class. If academic dishonesty is discovered, the student(s) involved will receive an automatic “F” in MEEN 2250.

According to the UNT Faculty Handbook, “academic dishonesty refers to the use of any unauthorized assistance, the acquisition (without permission) of academic material belonging to a faculty member, dual submission or resubmission of a paper or project without permission of the professor, and knowingly or negligently using paraphrase or direct quotation without full and clear acknowledgement. Misconduct for which students and/or groups are subject to discipline also includes knowingly furnishing false or misleading information to any university official (including faculty).”

If you are unsure whether a particular action or behavior constitutes academic dishonesty, ask Dr. Traum for clarification before proceeding.

Collaboration:

MEEN 2250 is a collaborative, group-project-based course, and effective teamwork is essential for success. Students are encouraged to collaborate with each other on course assignments, except where collaboration is strictly prohibited in an assignment prompt. However, all collaborators must be specifically listed on the cover page of all assignments to assure due credit is given to all participants.

Despite the instructor's tolerance for collaboration in MEEN 2250, each student must submit a unique and original version of all individual homework assignments. Academic sanctions will be brought against students who submit unoriginal work.

Citations:

As part of assignment solutions, students must list all technical reference sources for any information or knowledge they did not generate on their own. This requirement also covers Internet sources. There are many Internet sites that are not acceptable technical reference sources; for example wikipedia, blogs, and personal Web pages. In general, acceptable Internet technical references must have an identifiable author and be subject to editorial oversight.

If you are in doubt as to the legitimacy of a resource, do not use it. Use of illegitimate technical references or failure to cite knowledge that is not your own will be treated as academic dishonesty.

Plagiarism and Copying:

According to dictionary.com (last accessed 5/15/2008), plagiarism is "the unauthorized use or close imitation of the language and thoughts of another author and the representation of them as one's own original work." Plagiarism is a form of academic dishonesty. Also, copying large sections of another author's work, even with proper attribution, is not acceptable. Students may not copy, paste, and quote their way through assignments; all content submitted in MEEN 2250 must be the student's original work.

Technology, Recording, and Computer Use Policy:

During the skills practice portions of the class, students are permitted and encouraged to use any technology appropriate to execute the course deliverables. During lecture portions of the class, students may take notes using the computer stations in front of them. However, students may *not* use these computers or any other electronic device for dilatory activities (such as playing computer games). The recording of audio or visual information during any portion of the class is a violation of copyright law and is prohibited. Dr. Traum will warn students to discontinue the use of recording devices when it becomes appropriate.

Students in violation of the MEEN 2250 Technology, Recording, and Computer Use Policy will be asked to leave class and will be counted as absent from the class session in which the violation occurred. More than four violations will result in automatic grade of "F".

Disability Accommodation Policy:

UNT Policy 18.1.14 states that the intent of the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973 is to ensure a level playing field for all students. Leveling can be accomplished by modifying course requirements to accommodate students' special needs in such a manner as to not fundamentally alter the course. Approval for the modification involves two steps: (1) interaction between a student and the Office of Disability Accommodation; and (2) interaction between a student and the faculty member.

Students requesting special accommodation in MEEN 2250 must first visit the UNT Office of Disability Accommodation (ODA). If the ODA confirms need for special accommodation, the student must then provide Dr. Traum ODA documentation to enable discussion of how special needs can be met in the context of MEEN 2250. ODA documentation confirming a student's special needs must be delivered to Dr. Traum before Friday, January 30, 2009, or special accommodations will not be extended.

Document History

This MEEN 2250 course syllabus was last updated by Dr. Matthew J. Traum on 1/19/2009. This syllabus is subject to change at the instructor's discretion up until the twelfth day of class.