SYLLABUS
MENG 4212 : Topics in Engineering Fundamentals
{Required Course}
Spring 2021

Instructor: Dr. J. Brink
Office No.: MY 137
Telephone: 397-4589
E-mail: jan.brink@msutexas.edu
Office Hours: MWF: 11-12 pm; TR: 11-12 pm
Course Schedule: M: 2-3.50 pm
Lecture McCoy Hall 136 + Computer (Hybrid) (exception: Tests are in class)

CATALOG DESCRIPTION:
Review of topics covered on the general session of the Fundamentals of Engineering exam

COURSE PREREQUISITES
Must be in your Senior Year of Engineering. You must have taken all mathematics classes, physics classes and freshman, sophomore and junior engineering classes.

OTHER PREREQUISITES
Basic computer skills, hand calculator

REQUIRED TEXT BOOKS
(1). FE Mechanical Review Manual by Michael R. Lindeburg from Professional Publications, Inc., ISBN #: 978-1-59126-441-5 and
(2). NCEES Reference Handbook 9.3 version for Computer Based Testing ISBN #: 978-1-932613-67-4. You can get this book for free on line from the NCEES website.
You will have to get your own books from for example Amazon. Our bookstore will not sell the books.

TOPICS COVERED
Engineering Economics
Statics
Dynamics, Kinematics, and Vibrations
Mechanics of Materials
Material Properties and Processing
Fluid Mechanics
Thermodynamics
Heat Transfer
Measurements, Instrumentation, Controls
Mechanical Design and Analysis
Computational Tools
Probability and Statistics
Ethics and Professional Practice
Mathematics
Electricity and Magnetism
All fifteen topics as tested on the FE Mechanical Engineering Exam

Outcome Related Course Learning Objectives	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Student will be competent in working Mathematics problems related to Analytic Geometry, Calculus, Linear Algebra, Vector Analysis, Differential Equations and Numerical Methods	x	x					
Student will be able to work probability and statistics problems	x	x					
Student will be able to work computational tool problems	x	x					
Student will be able to solve ethics and professional problems		x		x			
Student will be able to solve engineering economics problems	x	x					
Student will be able to work electricity and magnetism problems	x	x					
Student will be able to solve statics problems	x	x					
Student will be able to solve dynamics, kinematics, and vibrations problems	x	x					
Student will be able to solve mechanics of materials problems	x	x					
Student will be able to solve materials science and processing problems	x	x					
Student will be able to solve thermodynamics problems	x	x					
Student will be able to solve heat transfer problems	x	x					
Student will be able to solve mechanical design and analysis problems	x	x					
Student will be able to solve measurements, instrumentation and control problems	x	x					

1: an ability to identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics
2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental, and economic factors
3: an ability to communicate effectively with a range of audiences
4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5: an ability function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7: an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

COURSE ORGANIZATION AND ASSESSMENT

- Lecture Format
  Review sessions will be held by different engineering professors in 15 different topics. These topics will be on the Fundamentals of Engineering exam for mechanical engineering.

- Class Attendance
  You are expected to attend class in person or by computer and you are responsible for notes and study material.

- Student Attitude
  Once class starts, the use of cell phone and/or pager, reading a newspaper, conducting private discussions, using the computer (unless asked by your instructor), working on anything that is not directly related to the course, making derogatory remarks about a classmate or your instructor will not be accepted and may result in your dismissal from the class. You can come see the instructor in his office for any concerns you have regarding the class.

- Exam Make-up
  You are expected to take the exams on the scheduled date and time IN CLASS when it is given. However, if for some acceptable reason you are not able to do so, then you must inform the instructor in advance. The instructor will then decide whether you will be allowed to take a make-up exam, depending on the validity of your excuse. No exceptions will be made, unless an official written statement is given by a physician or attorney.

- Exam Content
  The exam problems are based on the material covered and have a similar degree of difficulty as those done in class.

- Evaluation Method
  Your performance will be tested before midterm by one exam (one hour) that will cover five different topics and one final exam (two hours) given during the final exam period that covers ten different topics.
- Course Grade
  The final grade for the course will be based on the exam The overall average score (X) for the course is determined as follows:
  X = 0.34 x (Exam1) + 0.66 x (Exam 2 = Final EXAM)

The final letter grade for the course is based on the value of X and is determined from to the following grade levels: TABLE Grading Ranges and Letter Grades

Value Range of X (in %)	Letter Grade
90.0 and above	A
80.0 and <90.0	B
70.0 and < 80.0	C
60.0 and <70.0	D
< 60.0	F

GENERAL GUIDELINES

- This course is a preparation course for the FE Mechanical Engineering Exam. Do expect to have to do a lot of self-study for the real FE. This course will help you prepare for this FE exam, but it will not be able to cover all topics as are listed in the study manual.
- You get an A in the course MENG 4212 if you pass the FE-exam before EXAM 1 of MENG 4212. You must provide the instructor of proof of this before EXAM 1. In this case you will not have to take Exam 1 and 2 of MENG 4212 anymore.

  An A in the MENG 4212 course will be given to you if you make an A on our EXAM 1 and then after this take and pass the real FE Exam before EXAM 2. You must provide proof to the instructor of passing this exam before EXAM 2 is given. NOTE: This benefit will not be honored after the TEST 2 date. (You are required to take EXAM 2 if you made a B, C, D or F) and will be given the regular grade for the class based on your performances on EXAM 1 and EXAM 2 regardless if you passed the FE-exam.

ACADEMIC INTEGRITY POLICY

Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the student handbook regarding student responsibilities & rights, and the intellectual

property policy information about procedures and what constitutes acceptable on-campus behavior.

LICENSED HANDGUN HOLDERS

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at http://mwsu.edu/campus-carry/rules-policies.

DISCLAIMER STATEMENT

Information contained in this syllabus, other than grading, and attendance policies, may be subject to change with advance notice, as deemed appropriate by the instructor.

CONFLICT RESOLUTION

a. The student should contact the instructor face to face or via e-mail if there is an issue with the course or the instructor. The faculty and the student will discuss this face to face or via email. Hopefully a resolution is reached on the issue.
b. The student should notify the faculty via email again if the issue still did not get resolved after the first encounter or communication.
c. The student can then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, (raj.desai@msutexas.edu), and discuss this issue. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the result of this discussion with the student. Hopefully a resolution is reached on the issue after this.
d. The student should notify the Chair via email if the issue still did not get resolved.
e. The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee if necessary.

COVID REQUIREMENTS:

Students must wear at all times in McCoy the face masks correctly in the McCoy building. This in the interest of all of us. Here is the link.
https://msutexas.edu/return-to-campus/_assets/files/msu-texas-facial-covering-requirement.pdf

THE FINAL EXAM (EXAM 2) will be held on Wednesday, April 28th from 5.45-7.45 pm. It will be in class only just like exam 1.