SYLLABUS
MENG 2223 - 301: MECHANICS OF SOLIDS
(Required Course)
Summer Session 2019 (First Term)

Instructor: Dr. Zeki Ilhan

Office: McCoy Hall 219E

Office Phone: (940) 397-4004

E-mail: zeki.ilhan@msutexas.edu

Office Hours: Monday: 10:00 am – 12:00 pm
Tuesday, Wednesday and Thursday: 11:20 am – 12:20 pm

Teacher Assistant: TBA

Course Schedule: MTWR: 12:20 pm – 2:20 pm

Class Location: McCoy Hall 207

COURSE DESCRIPTION
Analysis of structures using stress-strain diagrams, generalized Hooke's law. Stress and strain due to axial, torsional, shear, and flexural loads.

COURSE PRE-REQUISITES
MENG 2113 (Statics)

REQUIRED TEXTBOOK
Mechanics of Materials. R.C. Hibbeler, 10th Edition, Pearson.

TOPICS COVERED
- Stress and strain
- Mechanical properties of materials
- Axial load
- Torsion
- Bending
- Transverse shear
- Combined loadings
- Stress and strain transformations
- Deflection of beams

Additional material might be covered as time permits.

GRADING
The overall grade for the course will be based on the scores earned on the homework assignments, exams, and the attendance. The homework assignments account for 10% of the course grade, exams account for 80% of the course grade, and attendance accounts for 10%. The overall score for the course is determined as follows.

Table 1: Percentage contribution of each assignment.

Assignments	Contribution
Test 1	25%
Test 2	25%
Final Exam	30%
Attendance	10%
Homework	10%
TOTAL	100%

FINAL EXAM
Wednesday, July 3, 12:20 pm – 2:20 pm

COURSE ORGANIZATION AND ASSESMENT

- **Course Format:**
  This course consists of four 120-minute sessions each week. Class meetings will contain lecture sessions that cover the relevant topics for that particular class. Not all material can be covered during the class session. Expect to spend an appropriate amount of time outside of class on assignments and projects.

- **Class Attendance:**
  You are expected to attend class regularly and are responsible for notes, homework assignments, and exams missed while absent. ***Attendance is considered very important in this course, and counts for 10% of the grade.***

- **Student Attitude:**
  Once class starts, the use of cell phones, reading of newspapers, conducting private discussions, using the computer (unless requested by the instructor), working on anything that is not directly related to the course, and making derogatory remarks about your classmates or instructor will not be accepted and may result in your dismissal from the class. Poor attitude directly affects the course grade.

- **Homework Evaluation Method:**
  Your performance will be tested regularly throughout the semester by homework assignments. While several homework problems may be assigned as part of a homework assignment, it may be the case that only a subset of problems will be graded. However, you must attempt all problems. ***Do not try to guess which (if any) problems will not be graded.***

- **Late Assignments:**
  Homework assignments must be turned in on the due date, at the beginning of class. Once class starts, late assignments will ***NOT*** be accepted.

- **Pop-Quizzes:**
  There ***MIGHT*** be a few pop-quizzes throughout the semester that are related to the specific homework problems assigned to distinguish those who work by themselves from those who copied others' works, or the solution manual.

- **Exam Make-up:**
  You are expected to take all exams on the scheduled date and time. 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.

- **General Study Guidelines:**
  Plan on spending few hours outside of class each week to study the material and to work on homework assignments. Do not wait until the last day to start the homework or to prepare for exams. Utilize office hours throughout the semester whenever you need help about the assignments or the course material.

GENERAL EDUCATION STATEMENT
Students in this course must demonstrate their proficiency in oral and written communication through written homework assignments and exams.

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.

DISABILITY SUPPORT SERVICES
If you have a documented disability that will impact your work in this class, please contact me to discuss your needs.

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

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, please refer to https://mwsu.edu/campus-carry/rules-policies

COURSE LEARNING OBJECTIVES AND RELATIONSHIP TO STUDENT OUTCOMES

Table 2: Course learning objectives related to the ABET criteria (3a-3n)

Outcome-Related Course Learning Objectives	3a	3b	3c	3d	3e	3f	3g	3h	3i	3j	3k	3l	3m	3n
Define normal and shear stresses-strains.	X				X						X		X	X
Apply Hooke's law and understand the relationship between stress and strain.	X				X						X		X	X
Calculate the normal stress and strain for an axially loaded member.	X				X						X		X	X
Calculate the shear stress and the angle of twist for a member under torsional load.	X				X						X		X	X
Find the internal shear force and bending moment in a beam.	X				X						X		X	X
Estimate the stresses and deformations of a beam.	X				X						X		X	X
Estimate the shear stresses and shear flow in a beam.	X				X						X		X	X
Apply superposition and estimate stresses caused by combined loadings.	X				X						X		X	X
Define the principal stresses-strains, and the maximum in-plane shear stresses-strains.	X				X						X		X	X

Table 3: Detailed interpretations of the ABET criteria (3a-3n) listed in Table 2.

ABET Criteria	Interpretation
3a	an ability to apply knowledge of mathematics, science, and engineering.
3b	an ability to design and conduct experiments, as well as to analyze and interpret data.
3c	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability.
3d	an ability to function on multidisciplinary teams.
3e	an ability to identify, formulate, and solve engineering problems.
3f	an understanding of professional and ethical responsibility.
3g	an ability to communicate effectively.
3h	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
3i	a recognition of the need for, and an ability to engage in life-long learning.
3j	a knowledge of contemporary issues.
3k	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
3l	a knowledge of chemistry and calculus-based physics with depth in at least one.
3m	the ability to apply advanced mathematics through multivariable calculus and differential equations
3n	the ability to work professionally in both thermal and mechanical systems areas including the design and realization of such systems.

Prepared by Zeki O. Ilhan, June 2019.