Semester Spring 2024

Course Number ENGR 0135
Course Title Statics & Mechanics of Material 1

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Office Hours Wednesday 1:00-5:00PM, Thursday 1:00-5:00PM

Lecture Time Tuesday 15:40-18:25
Lecture Room Zone 4-204

Prerequisites MATH 0230 Analytic Geometry & Calculus 2
PHYS 0174 Basic Physics for Science & Engr. 1

Textbook W. F. Riley, L. D. Sturges, and D. H. Morris: Statics and Mechanics of Materials: An Integrated Approach. 2nd Edition. John Wiley & Sons, Inc.

Course Description This course is a 3-credit hour class. It introduces the mechanics of materials and structures by covering two major subjects in Mechanical Engineering: Statics and Mechanics of Materials. For statics, the course will discuss about forces in plane and space, equilibrium of particles and equilibrium of rigid body and analysis of structure for truss problem. For Mechanics of Materials, the concept of stress, the axial load, torsion load, bending load and combine load will be covered. Finally, the mechanical design of a system will also be discussed to help students to develop the logical thinking in handling the real problem in mechanics.

Course Outcome It is expected that the students will learn to develop an understanding of static equilibrium and stresses in statically determinate structures and how to apply them to engineering systems; learn a systematic approach to problem solving; and foster effective mathematical and graphical communication skills.
While there will be a chance for students to apply their mathematical skills in this subject, the emphasis is on the physical understanding of why a material or structure behaves the way it does in the engineering design.

Class Calendar

Session	Class Date	Chapter	Topic	Assignment
1	Feb 27		LN00A Course Housekeeping LN00B Course Overview	
2	Mar 05	Ch. 01	LN01 Introduction LN02A Review Vector/Dot Product	HW01
3	Mar 12	Ch. 02	LN02 Concurrent Force Systems LN02B Review of Concurrent Force Systems	HW02

4	Mar 19	Ch. 03	LN03 Equilibrium of Concurrent Force Systems	HW03
5	Mar 26	Ch. 4.1 ~ Ch. 4.5	LN04 Stress and Strain under Axial Loading Stress-Strain Diagram and Hooke's Law	HW04
6	Apr 02	Ch. 4.6 ~ Ch. 4.11	Thermal Effect Deformation under Axial Loading	HW05
7	**Apr 09**	**Sec Exam 01**		
8	Apr 16	Ch. 5.1 ~ Ch. 5.5	Chapter 5: Equivalent Force/Moment Systems LN05A Moments and Couples	HW06
9	Apr 23	Ch. 5.6 ~ Ch. 5.8	LN05B Centroids, Center of Mass, and Distributed Loads	HW07
10	Apr 30	Ch. 5.9 – 5.11	Centroids of Composite Bodies Distributed Loads on Structural Members	HW08
11	May 07	Ch. 6.1 ~ Ch. 6.3	Free-Body Diagrams Equilibrium in Two Dimensional Systems	HW09
12	**May 14**	**Sec Exam 2**		
13	May 21	Ch. 6.4 ~ Ch. 6.5	Frame &Machines Statically Indeterminate Problems	HW10
14	May 28	Ch. 6.6 – 6.9	Plane Truss Equilibrium in 3D and Friction	HW11
15	Jun 04	Ch. 7.1 ~ Ch. 7.4	Torsion I	HW12
16	Jun 11	Ch. 7.5 ~ Ch. 7.8	Torsion II	HW13
17	**Jun 18**	**Sec Exam 03**		
18	Jun 25	No Class		

In-Class Exercises	Hands-on calculation practices will be given during the class throughout the semester. Purpose is to promote in-class discussions and keep students in-sync with course material during lecturing.
Homework	Problem sets will be distributed each week after the class. Each problem set is designed to build upon the material covered in the preceding lectures and recitations. Homework assigned in a particular class is due at 8:15 AM on the day of the next class period, unless otherwise posted. **Late HW will not be accepted.**
Section Exams	There will be three section exams given throughout the semester. All exams in this course will be closed book and closed note. No make-up will be given for the missing exam. Exams missed due to unpredictable events will be dealt with on a case-by-case basis.
Exam Calculator	Always bring an engineering calculator for the classes and exams. A cell phone calculator is not adequate to support the demanding calculations. Programmable calculator of any kind is not allowed during exams.
Grades	Evaluation Weight • In-Class Practices: 15% • Homework: 20% • Section Exams: 65% **No curving of the final grade** **No make-up exam for the course**

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<tr><td></td><td>Letter grades will be assigned per following SCU scales:
附件：等级成绩和百分成绩、绩点对照表
<table>
<tr><td>字母等级</td><td>A</td><td>A-</td><td>B+</td><td>B</td><td>B-</td><td>C+</td><td>C</td><td>C-</td><td>D+</td><td>D</td><td>F</td></tr>
<tr><td>中文等级</td><td colspan="2">优秀</td><td colspan="2">良好</td><td colspan="2">中等</td><td colspan="4">合格</td><td>不合格</td></tr>
<tr><td>百分制</td><td>100~90</td><td>89~85</td><td>84~80</td><td>79~76</td><td>75~73</td><td>72~70</td><td>69~66</td><td>65~63</td><td>62~61</td><td>60</td><td><60</td></tr>
<tr><td>绩点</td><td>4</td><td>3.7</td><td>3.3</td><td>3</td><td>2.7</td><td>2.3</td><td>2</td><td>1.7</td><td>1.3</td><td>1</td><td>0</td></tr>
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<tr><td>Class Attendance</td><td>Students are expected to attend every class period.
Early is on time, on time is late. As a courtesy to your fellow classmates, be punctual and arrive no later than the class starting time.</td></tr>
<tr><td>Academic Honesty</td><td>All of us are equally responsible for ensuring a fair and positive learning environment. Students are permitted to discuss homework assignments together but should do their own work when preparing a problem solution.
All exams are to be completed without unauthorized assistance. Any student caught cheating on an assignment or exam will receive disciplinary action, including receiving a grade of “F” for the course.</td></tr>
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