



North Central State College  
**MASTER SYLLABUS**  
**2019-2020**

- A. Academic Division: Business, Industry and Technology
- B. Discipline: Mechanical Engineering
- C. Course Number and Title: MECT2440 Strength of Materials
- D. Course Coordinator: Mike Beebe  
Assistant Dean: Toni Johnson, PhD

Instructor Information:

- Name: Click here to enter text.
- Office Location: Click here to enter text.
- Office Hours: Click here to enter text.
- Phone Number: Click here to enter text.
- E-Mail Address: Click here to enter text.

- E. Credit Hours: 3  
Lecture: 2 hours  
Laboratory: 2 hours
- F. Prerequisites: MECT2330
- G. Syllabus Effective Date: Fall, 2019
- H. Textbook(s) Title:

*Statics and Strengths of Materials*

- Author: Cheng
- Copyright Year: 1997
- Edition: Second
- ISBN #: 0028030672

- I. Workbook(s) and/or Lab Manual: None; Class Handouts will be distributed
- J. Course Description: A study of the effects of load on structures, frames, beams, columns, and mechanisms; including stress and strain in tension, compression, shear, and torsion; column buckling; torsion, axial and lateral deflections; thermal stresses and strains, and properties of materials. (TAG# OET008)
- K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

<b>Outcomes</b>	<b>Assessments – How it is met &amp; When it is met</b>
1. Analyze and compute stress and deflection in basic machine elements	Weekly quizzes and homework Midterm Week 5, final exam
2. Design bolted and welded joints per AISC codes and standards	Weekly quizzes and homework Midterm Week 5, final exam
3. Prepare and use beam diagrams	Weekly quizzes and homework Midterm Week 10, final exam
4. Compute beam stresses and deflections	Weekly quizzes and homework Midterm Week 10, final exam
5. Compute torsional loads and deflections	Weekly quizzes and homework Final exam
6. Use Mohr's Circle to determine bi-axially loaded stress elements	Weekly quizzes and homework Final exam
7. Determine shaft diameters loaded with both bending and torsional forces	Weekly quizzes and homework Final exam
8. Analyze short and slender columns	Weekly quizzes and homework Final exam

M. Topical Timeline (Subject to Change):

- Wk 1-2 Introduction and Review of Statics
  - a. Simple Stresses and Strains Defined
  - b. Stress/Strain Curves
  - c. Temperature Induced Stresses and Strains
  - d. Dissimilar Materials under Load
- Wk 3-4 Joint Design
  - a. Failure Mode
  - b. Design Codes - AISC and ASME
  - c. Pressure Vessels
- Wk 5-7 Mathematical Background for Beams:
  - a. Centroid
  - b. Center of Gravity
  - c. Moment of Inertia
  - d. Solids of Revolution
- Wk 8-9 Beams
  - a. Shear Force and Moment Diagrams
  - b. Tensile, Compressive and Shear Stresses
  - c. Allowable Stresses per AISC Code
- Wk 11 Shafts:
  - a. Stresses and Deflections - Lateral and Angular
- Wk 12 Combined Stresses and Mohr's Circle
- Wk 13 Design for Different Types of Loading
- Wk 14-15 Column Design

N. Course Assignments:

Graded assignments:

1. Written assignments
2. Weekly quizzes
3. Midterm
4. Final Exam

O. Recommended Grading Scale:

<b>NUMERIC</b>	<b>GRADE</b>	<b>POINTS</b>	<b>DEFINITION</b>
93-100	A	4.00	Superior
90-92	A-	3.67	Superior
87-89	B+	3.33	Above Average
83-86	B	3.00	Above Average
80-82	B-	2.67	Above Average
77-79	C+	2.33	Average
73-76	C	2.00	Average
70-72	C-	1.67	Below Average
67-69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

Click here to enter text.

Q. Examination Policy:

Click here to enter text.

R. Class Attendance and Homework Make-Up Policy:

Click here to enter text.

S. Classroom Expectations:

Click here to enter text.

T. College Procedures/Policies:

**Important information regarding College Procedures and Policies can be found on the [syllabus supplement](#) located at <https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf>**

**The information can also be found** Choose an item.