



Strengths



Instructor: Perry Carmichael

Zoom: <https://linnbenton.zoom.us/j/5419174774>

E-Mail: perry.carmichael@linnbenton.edu

Office Hours: Monday~Thursday 9 to 10:00am, Friday 10am to Noon or by appointment

Course Goals and Objectives:

An introduction to the mechanics dealing with forces as they relate to tension, compression, torsion and shear. Three major factors are involved, including metals, time and force. Mechanical properties of metal are examined as these properties relate to service performance

Required Text and Supplies:

Introduction to Coplanar Statics, P. Carmichael, Applied Strengths of Materials for Engineering Technology, B. Dupen
Engineering paper, 0.7mm or 0.5mm pencil, Red Pen, Straight edge, TI 85 calculator or equivalent or better, camera or scanner with the ability to create PDF documents, computer and Zoom software.

Evaluation:

A: 100-90%
B: 89~80%
C: 79~70%
D: 69~60%
F: 59% or below

Grade Weighting

Assignments: 40%
Quizzes: 15%
Tests: 45%

IN: By signed agreement, student requested. All coursework to be made up within a term.

Outcomes:

- Understand forces on a body
- Understand the relationship of force to bending and shear stresses
- Apply mathematical formulas and principles of mechanics of materials to design structural components

Miscellaneous:

- **Success** in this program is easily attainable through the following:
 - Attend promptly every day
 - Inform the instructor of missed classes in advance
 - Work to the best of your ability
 - Be prepared
 - Conduct yourself respectfully
 - Care about what happens in class
- If you miss a class you are responsible for assignments and due dates.
- All homework is due at the beginning of class.
- Late homework is not accepted. For more information and exceptions, see the [late policy](#).
 - Exceptions may be made due to illness/accidents or other unusual circumstances
 - Late homework may be taken due to pre-planned events but **arrangements must be made in advance**
- NO LATE HOMEWORK WILL BE TAKEN AT THE FINAL.
- Extra credit will boost the assignment portion of your grade. Extra credit applies after regular homework only.
 - No late extra credit will be taken.
- All homework is unique and original work created by the person named on the drawing for whom the homework is being turned in by. No part of the homework, except group projects, shall be copied, duplicated, shared or in any way represent work done by someone else.
- Students who may need accommodations due to documented disabilities, or who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor during the first week of class. If you believe you may need accommodations, but are not yet registered with CFAR, please go to <http://linnbenton.edu/cfar> for steps on how to apply for services or call 541-917-4789.

Course Outline:

(Note: This may change and is not all inclusive)

Week 1:	Trigonometry, Forces, Units	ICS p1~7, ASM CH. 1
Week 2:	Moments, FBD	ICS p7~15
Week 3:	Stress & Strain,	ASM CH. 2
Week 4:	Poisson's Ratio, Bolted & Welded Joints	ASM CH. 3, 5
Week 5:	Centroids, Area Moments of Inertia, Stress	ASM CH. 6
Week 6:	Beam Reactions, Midterm	ASM CH. 8
Week 7:	Shear & Moment	ASM CH. 8
Week 8:	Beam Stress, Design	ASM CH. 9, 10
Week 9:	Monday: Memorial Day (No School), Beam Design	ASM CH. 11
Week 10:	Connections, Review	ASM CH.
Week 11:	Final, Monday, 10-11:50am	

ICS= Introduction to Coplanar Statics
ASM= Applied Strengths of Materials for Engineering Technology