

## **STRENGTH OF MATERIALS: ENGR213: Spring 2020**

**Class Time:** Online

**Instructor:** David Kidd      email: kidd@linnbenton.edu

**Office Hours** Email for an appointment

I will take questions on Zoom Tuesday, Friday 4:30 – 5:00 and 7:00 – 7:30

**Course Description and Outcomes:** This class covers the analysis of stress, strain and deformation in structural members. Upon successfully completing the course, a student should be able to

1. Analyze structural members for basic stress and strain
2. Analyze biaxial stress and strain
3. Analyze torsion in shafts
4. Analyze axial and shear stresses in beams, and determine beam deformation

**Prerequisite Classes:** ENGR 211, Statics; Math 252, Calculus II

**Texts:** Strength of Materials Notes, Edition 3.1; LBCC

Mechanics of Materials, Gere (and Timoshenko)

### **Grading:**

Exams and Quizzes	75%	A 90% - 100%	D 60% - 69%
Homework	25%	B 80% - 89%	F < 60%
		C 70% - 79%	

To make up an exam, a student must contact the instructor before the exam and schedule a make-up exam within one week of returning. Incompletes will be handled on a case by case basis, it is the responsibility of the student to discuss the situation with the instructor.

The lowest weekly homework score will be dropped. Generally, late homework will not be accepted. In the event of illness, etc.; a student can contact me **before** the due date to request an extension. Any excused late homework must have a clear note on it stating the reason for the late submission and the date. I will keep graded homework papers up to a week, and dispose of them after that.

This course prepares students for a professional work environment. Students are expected to act in a professional manner, attend online class regularly, and participate in class activities.

### **Class Schedule**

<b>Week</b>	<b>Subject</b>
1	Axial Stress and Strain, Modulus of Elasticity
2	Shear Stress and Strain, Axial Deformation, Statically Indeterminant Objects
3	Axial Stress, Biaxial Stress
4	Biaxial Stress, Biaxial Strain
5	Hooke's Law, Volume Change, Energy in Structures
6	Pressure Vessels, Torsion
7	Torsion
8	Moment of Inertia, Shear and Moment
9	Bending Stress and Shear in Beams
10	Beam Deflection, Columns

**Final Exam:** Tuesday March 16 2:30 – 4:30

## **WHAT DO EMPLOYERS EXPECT OF ME AS AN EMPLOYEE?**

### **They expect me to:**

1. Come to work, everyday ... on time.
2. Make smart decisions.
3. Follow directions.
4. Concentrate on my work and care about the quality of my work.
5. Read, write, and calculate well.
6. Recognize problems and find solutions.
7. Finish a job when I am supposed to without sacrificing quality.
8. Be honest and dependable.
9. Take the lead and work hard.
10. Communicate well and get along with other people ... especially customers.
11. Dress properly and practice good grooming.
12. Be cooperative.
13. Have a positive attitude.

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### **Academic Honesty:**

Please work together on homework; but to receive credit, do your own work. Any cheating on homework or tests will result in a zero being assigned for the grade. Students who aid other students who cheat will be also be held responsible.

**Disability Services and Emergency Planning:** Students who may need accommodation due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor the first week of class. If you have not accessed services and think you may need them, please contact Disability Services, 917-4789

**Anti Discrimination Statement:** LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws.

**Student Rights and Responsibilities:** Please review your rights and responsibilities (<http://linnbenton.edu/go/studentrights> ). If you believe a student is violating your rights, ask to be treated with respect. If that does not cure the situation, report to Student Conduct and Retention Manager Jill Childress, [childrj@linnbenton.edu](mailto:childrj@linnbenton.edu). If you believe a faculty member or LBCC employee is violating your rights, please report to the Director of Human Resources, Scott Rolens, [rolens@linnbenton.edu](mailto:rolens@linnbenton.edu).

**Roadrunner Resource Center:** The Roadrunner Resource Center can help you with barriers and disruptions that can come up and keep you from staying in school. This includes assistance with childcare, food, emergency housing, healthcare, taxes, utilities, textbooks and supplies, transportation, and other issues.

[Resources@linnbenton.edu](http://linnbenton.edu/resources)