

**Clackamas Community College**  
Online Course/Outline Submission System

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**Section #1 General Course Information**

**Department:**Engineering Sciences

**Submitter**

First Name: Eric

Last Name: Lee

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Email: elee

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**Course Prefix and Number:**ENGR - 213

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**# Credits:**4

**Contact hours**

Lecture (# of hours): 44

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 44

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

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**Course Title:**Strength of Materials

**Course Description:**

Introduces the relation of externally applied loads and their internal effects on deformable bodies, such as columns, shafts, beams and statically indeterminate structures or systems made up of such members.

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**Type of Course:**Lower Division Collegiate

Is this class challengeable?

**No**

Can this course be repeated for credit in a degree?

**No**

Is general education certification being sought at this time?

**No**

Does this course map to any general education outcome(s)?

**No**

Is this course part of an AAS or related certificate of completion?

**No**

Are there prerequisites to this course?

**Yes**

**Pre-reqs:ENGR-211**

**Have you consulted with the appropriate chair if the pre-req is in another program?**

**No**

Are there corequisites to this course?

**No**

Are there any requirements or recommendations for students taken this course?

**No**

Are there similar courses existing in other programs or disciplines at CCC?

**No**

Will this class use library resources?

**No**

Is there any other potential impact on another department?

**No**

Does this course belong on the Related Instruction list?

**No**

GRADING METHOD:

A-F or Pass/No Pass

**Audit:No**

When do you plan to offer this course?

**✓ Spring**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

**No**

Will this course appear in the college catalog?

**Yes**

Will this course appear in the schedule?

**Yes**

**Student Learning Outcomes:**

Upon successful completion of this course, students should be able to:

1. determine the conditions of equilibrium based on the forces exerted on a structure,
2. describe the relationship between stress and strain in a given material,
3. analyze the internal stresses imposed by the supports and loading of a structure.

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***This course does not include assessable General Education outcomes.***

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**Major Topic Outline:**

1. Stress and Strain.
2. Axial Loading.
3. Torsion.
4. Pure Bending.
5. Transverse Loading.
6. Transformations of Stress and Strain.
7. Design of Beams.

**Does the content of this class relate to job skills in any of the following areas:**

- |                                      |           |
|--------------------------------------|-----------|
| 1. Increased energy efficiency       | <b>No</b> |
| 2. Produce renewable energy          | <b>No</b> |
| 3. Prevent environmental degradation | <b>No</b> |
| 4. Clean up natural environment      | <b>No</b> |
| 5. Supports green services           | <b>No</b> |

Percent of course:0%

## **Section #2 Course Transferability**

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state currently requires us to certify that at least one OUS school will accept a new LDC course in transfer. Faculty should communicate with colleagues at one or more OUS schools to ascertain how the course will transfer by answering these questions.

1. Is there an equivalent lower division course at the University?
2. Will a department accept the course for its major or minor requirements?
3. Will the course be accepted as part of the University's distribution requirements?

If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course, though it will likely not be eligible for Gen Ed status.

Which OUS schools will the course transfer to? (Check all that apply)

- PSU (Portland State University)**
- OIT (Oregon Institute of Technology)**
- OSU (Oregon State University)**

Identify comparable course(s) at OUS school(s)

- OIT - ENGR 213
- OSU - ENGR 213
- PSU - EAS 212

How does it transfer? (Check all that apply)

- required or support for major**

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First term to be offered:

**Next available term after approval**

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