



ANTELOPE VALLEY COLLEGE
Academic Affairs
Course Outline of Record

Academic Affairs Only

<input type="checkbox"/>	New Course
<input type="checkbox"/>	Effective Date (for articulation)
<input checked="" type="checkbox"/>	COR Revision 5/13/2010
<input checked="" type="checkbox"/>	Pre Req/Advisories 201170
<input type="checkbox"/>	Other Changes
<input checked="" type="checkbox"/>	SLOs 5/27/2008

COURSE SUBJECT & NUMBER: ENGR 210

COURSE NAME: Statics

COURSE UNITS: 3 **COURSE HOURS:** 3 hours weekly

COURSE REQUISITES: *(Follow format of similar courses found in the college catalog.)*

PREREQUISITE: Completion of MATH 150 and PHYS 110.

COREQUISITE: Concurrent enrollment in ENGR 210PS.

COURSE DESCRIPTION: *(Write a short paragraph providing an overview of topics covered. Be sure to identify target audience--transfer, major, GE, degree/certificate, etc. If repeatable, state the number of times at end of description as (R#).*

Analytical and graphical study of force systems, concurrent and non-concurrent, coplanar and non-coplanar. Centroids, principal moment of inertia, trusses, frames, friction, virtual work, potential energy will be studied; vector methods and calculus will be used as appropriate. NOTE: Offered fall semester only. (CSU, UC, AVC)

COURSE OBJECTIVES: *(Title 5 requires that courses show evidence of critical thinking skills. Use Bloom's taxonomy to formulate concise, performance-based measurable objectives common to all students. Objectives must be closely aligned with course content, assignments, and methods of evaluation)*

Upon completion of course, the successful student will be able to:

1. *Set up freebody diagrams for two and three dimensional structures.
 2. *Calculate vector cross and scalar products to find moments about points and lines.
 3. *Calculate reactions and internal loads of frames, trusses and beams.
 4. *Draw and compute shear and bending moment diagrams.
 5. *Use virtual work to find static solutions to mechanism's.
 6. *Calculate centroids and principal moment of inertia of area and mass.
 7. *Solve for impending motion of block and wedge problems.
 8. * Read and apply technical literature to analysis of technical problems.
 9. * Listen to technical lectures and apply these lectures to technical problems.
 10. * Increase learning skills.
- *Denotes application of SCANS competencies.

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COURSE CONTENT: *(Enter course content in terms of specific topics or a specific body of knowledge that each instructor must cover. Put topics in outline form with major and minor headings. Each instructor must cover all material listed below.)*

- I. Two dimensional statics
- II. Vector analysis
 - A. Cross product
 - B. Dot product
 - C. Triple product
- III. Trusses
- IV. Frames
- V. Moment of inertia of
 - A. Area
 - B. Mass
- VI. Virtual work
- VII. Friction
 - A. Wedges
 - B. Blocks
- VIII. Principal moment of inertia of
 - A. Area
 - B. Mass

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TYPICAL HOMEWORK ASSIGNMENTS: (Do not include in-class work, quizzes, or tests)

This information is necessary for all credit courses. Assignments should be closely related to course objectives, content, and methods of evaluation. (See sample of a "Model Outline" in the AP&P Standards & Practices Handbook.) Include a range of assignments (minimum of three) from which faculty may choose when designing their syllabus.

1. Describe nature and frequency of typical reading assignments if applicable; note if any are required:

Reading may include approximately 8 pages from the textbook per week

2. Describe nature and frequency of typical writing assignments if applicable; note if any are required:

N/A

3. Describe nature and frequency of typical computational assignments if applicable; note if any are required:

Most of the assignments involve calculations utilizing algebra and trigonometry. Some calculations utilize elementary calculus of integration and differentiation.

4. Describe other types of homework assignments that students may be asked to complete (oral presentations; special projects; visual/performing arts; etc); note if any are required:

N/A

For categories 1-4 above, list the estimated hours per week it would take a student to complete assignments. Title 5 (section 55002) requires that each unit must be shown to require three hours of work per week by the student either in or out of class. Homework formula: 3 hours of class work times each unit of credit minus classroom hours equals required homework hours.

Reading Assignments: 3

Writing Assignments: 0

Computational Assignments: 7

Other Assignments: 0

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METHODS OF INSTRUCTION: *(Methods must be consistent with content and appropriate to objectives; state in terms of what instructor will be doing in order to present course content to students: for example, lecture, demonstration, present audio/visual materials; facilitate group work, etc. Do not list specific instructional equipment.)*

Mainly lecture with some demonstrations .

METHODS OF EVALUATION: *(These must be clearly related to course objectives and reflect course content and assignments in order to comply with Title 5 requirements. Describe what instructor will be looking for when evaluating various assignments and tests in order to determine whether students have met course objectives. Grades must be based on demonstrated proficiency in subject matter and determined, where appropriate, by essays, objective and essay tests, research papers or projects, problem solving exercises, or skills' demonstrations.)*

Evaluation will be through the use of tests and homework (Objectives 1-9).

Assignments will be evaluated based on correctness of answers (Objectives 1-9).

Suggested Texts or Other Instructional Materials

(List several when possible; include title, author, publisher, date, and latest edition. If older than five years, provide brief rationale.)

Title: Engineering Mechanics Statics, 12 edition

Author: Hibbeler

Publisher: Pearson Prentice-Hall, 2010