Course Outline

COURSE: ENGR 2   DIVISION: 10   ALSO LISTED AS:

TERM EFFECTIVE: Fall 2012   CURRICULUM APPROVAL DATE: 03/12/2012

SHORT TITLE: STATICS

LONG TITLE: Statics

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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<td>3</td>
<td>17.34</td>
<td>Lecture:</td>
<td>3</td>
<td>52.02</td>
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<tr>
<td></td>
<td></td>
<td>Lab:</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>Other:</td>
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<td>Total:</td>
<td>3</td>
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COURSE DESCRIPTION:

Vector treatment of two- and three-dimensional force systems acting on particles and engineering structures in equilibrium. Topics include forces, moments, couples, resultants, equilibrium conditions, trusses, centroids, moment of inertia, beams, shear and moment diagrams, cables, fluids and friction. PREREQUISITE: Mathematics 1A and Mathematics 1B and Physics 4A with a grade of ‘C’ or better.

PREREQUISITES:
Completion of MATH 1A, as UG, with a grade of C or better.
AND Completion of MATH 1B, as UG, with a grade of C or better.
AND Completion of PHYS 4A, as UG, with a grade of C or better.

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES
L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:
02 - Lecture and/or discussion

STUDENT LEARNING OUTCOMES:
1. Construct free-body diagrams.
Measure: Homework, exams.

5/11/2012
2. Identify, set-up, and solve force problems in two- and three- dimensions.
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

3. Identify, compare, contrast, and analyze trusses, frames, and simple machines
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

4. Set-up and solve problems to locate the centroids of areas and volumes.
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

5. Identify, compare, contrast, set-up, and solve internal forces and bending moments in beams.
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

6. Identify, set-up, and solve for internal forces and bending moments in beams.
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

7. Identify, set-up, and calculate cable loads.
   Measure: Homework, exams.
   PLO: 1, 4
   ILO: 7, 1
   GE-LO: B1, 3
   Year Assessed:

8. Identify, compare, contrast, set-up, and solve for frictional forces.
CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Curriculum Approval Date: 03/12/2012

15 Hours
CONTENT: Forces, moments, couples, resultants, equilibrium, trusses.
STUDENT PERFORMANCE OBJECTIVES: Identify and apply the principles of forces to the solution of quantitative problems.
OUT-OF-CLASS ASSIGNMENT: Reading and problems from the text.

10 Hours
CONTENT: Centroids and moment of inertia.
STUDENT PERFORMANCE OBJECTIVES: Identify and apply the principles of centroids and moment of inertia to the solution of quantitative problems.
OUT-OF-CLASS ASSIGNMENT: Reading and problems from the text.

15 Hours
CONTENT: Beams and shear and moment diagrams.
STUDENT PERFORMANCE OBJECTIVES: Identify and apply the principles of beam theory to the solution of quantitative problems.
OUT-OF-CLASS ASSIGNMENT: Reading and problems from the text.

6 Hours
CONTENT: Fluids.
STUDENT PERFORMANCE OBJECTIVES: Identify and apply the principles of fluid statics to the solution of quantitative problems.
OUT-OF-CLASS ASSIGNMENT: Reading and problems from the text.

6 Hours
CONTENT: Friction.
STUDENT PERFORMANCE OBJECTIVES: Identify and apply the principles of frictional forces to the solution of quantitative problems.
OUT-OF-CLASS ASSIGNMENT: Reading and problems from the text.

2 Hours
CONTENT: Final Exam

METHODS OF INSTRUCTION:
Instruction is by lecture, discussion, demonstrations and/or illustration.
Students are required to present problem solutions to their classmates.
Students are also required to complete a Bridge design Project and fabricate a wooden dowel bridge.

METHODS OF EVALUATION:
CATEGORY 1 - The types of writing assignments required:
Percent range of total grade: 0 % to %
If this is a degree applicable course, but substantial writing assignments are not appropriate, indicate reason:
- Course primarily involves skill demonstration or problem solving

CATEGORY 2 - The problem-solving assignments required:
Percent range of total grade: 20 % to 40 %
- Homework Problems

CATEGORY 3 - The types of skill demonstrations required:
Percent range of total grade: 60 % to 80 %
- Performance Exams

CATEGORY 4 - The types of objective examinations used in the course:
Percent range of total grade: 0 % to %

REPRESENTATIVE TEXTBOOKS:
Required:
Reading level of text, Grade: 13 Verified by: RWL using MS Word

ARTICULATION and CERTIFICATE INFORMATION
  Associate Degree:
  CSU GE:
  IGETC:
  CSU TRANSFER:
    Transferable CSU, effective 198670
  UC TRANSFER:
    Transferable UC, effective 198670

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: A
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN: ENGR8
CAN Sequence: XXXXXXXX
CSU Crosswalk Course Department: ENGR
CSU Crosswalk Course Number: 2
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N

5/11/2012
Occupational Course: E
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000180918
Sports/Physical Education Course: N
Taxonomy of Program: 090100