

Course Outline

COURSE: ENGR 10B **DIVISION:** 10 **ALSO LISTED AS:**

TERM EFFECTIVE: Fall 2011 **Inactive Course**

SHORT TITLE: INTRO ENGR II

LONG TITLE: Introduction to Engineering II

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
2	18	Lecture:	1.5	27
		Lab:	1.5	27
		Other:	0	0
		Total:	3	54

COURSE DESCRIPTION:

Engineering 10B continues the introduction to the engineering profession begun in Engineering 10A. Topics will include an introduction to experimental methods and data analysis; continued introduction to the engineering design process with more challenging design problems and the introduction of analysis in engineering design; engineering problem-solving using the personal computer; continued personal and professional growth techniques; communication skills; and working as a member of a team. Engineering 10A and 10B, together, are equivalent to Engineering 10 at San Jose State University. **PREREQUISITE:** Engineering 10A

PREREQUISITES:

Completion of MATH 10A, 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

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

STUDENT LEARNING OUTCOMES:

1. Students will identify, compare and contrast the various ethical considerations of the engineering design process.
2. Students will identify, compare and contrast the various concepts and analysis tools available to collect and analyze data.
3. Students will identify, compare and contrast the various methods and tools available for simple mathematical modeling of engineering problems.
4. Students will identify, compare and contrast the methods for designing, constructing, predicting and testing a real object.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Inactive Course: 04/25/2011

WEEKS HOURS CONTENT:

- 1,2,&3 4.5 Lec Introduction to ethics in engineering.
- 4.5 Lab Working as a team, students will identify, compare and contrast the issues that require consideration during the development of an "ethical" engineering design philosophy. Students will prepare a written report and make a presentation using appropriate software.
- 4,5,6 6 Lec Introduction to data collection and analysis.
&7 Working as a team, students will design and perform various experiments and collect data from these experiments and analyze the results using appropriate spreadsheet, statistical and presentation software (Excel, Minitab, PowerPoint, or equivalent.)
- 6 Lab Working as a team, students will identify, compare and contrast methods and techniques for collecting, evaluating and analyzing data through tabular, graphical and statistical means. Students will present their findings in both written and oral form.
- 8,9,10, 7.5 Lec Introduction to mathematical modeling.
11&12
- 7.5 Lab Working as a team, students will solve simple engineering problems using mathematical modeling on a computer.
Students will identify, compare and contrast the requirements for modeling simple engineering systems using various appropriate software programs (Excel, Matlab, or equivalent).
- 13,14 7.5 Lec Engineering design project.
15,16&
- 17 7.5 Lab Working as a team, students will employ the skills obtained throughout the course to conceive, design model, build, test, analyze and critique an object.

Students will define the design problem; search for and study existing solutions; develop, compare and contrast criteria for evaluation of the existing solutions; compare, contrast and analyze various existing solutions; develop specifications for the design of the project; construct the object; predict the performance of the object using various modeling techniques; test the object and collect and analyze data that describes the performance of the object in relation to the design criteria specified.

18 2 Final design project presentations.

See content.

METHODS OF INSTRUCTION:

Primarily lecture and laboratory

METHODS OF EVALUATION:

The types of writing assignments required:

Written homework

Lab reports

The problem-solving assignments required:

Field work

Lab reports

Exams

The types of skill demonstrations required:

Class performance

The types of objective examinations used in the course:

Multiple choice

Other: Problem solving

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 30% - 50%

Problem-solving demonstrations: 30% - 50%

Skill demonstrations: 5% - 10%

Objective examinations: 10% - 20%

Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:

Raymond B. Landis, ^uStudying Engineering, A Road Map to a Rewarding Career^s, 1995, Discovery Press, or equivalent college level text.

Reading level of text: 12 Grade

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 200270

UC TRANSFER:

Transferable UC, effective 200270

SUPPLEMENTAL DATA:

Basic Skills: N

Classification: A

Noncredit Category: Y

Cooperative Education:

Program Status: 2 Stand-alone

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department: ENGR

CSU Crosswalk Course Number: 10B

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000381743

Sports/Physical Education Course: N

Taxonomy of Program: 090100