ENGR 101 Course Outline as of Fall 2014

CATALOG INFORMATION

Dept and Nbr: ENGR 101 Title: ENGR DESIGN PROJECT
Full Title: Engineering Design Project
Last Reviewed: 4/13/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	0.75	17.5	Lecture Scheduled	13.13
Minimum	1.00	Lab Scheduled	0.75	2	Lab Scheduled	13.13
		Contact DHR	0		Contact DHR	0
		Contact Total	1.50		Contact Total	26.25
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 26.25 Total Student Learning Hours: 52.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
Students will work in small groups to investigate, choose, refine and construct engineering design projects. This hands-on class allows participants to develop their engineering skills in a team-oriented environment.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Students will work in small groups to investigate, choose, refine and construct engineering design projects. This hands-on class allow participants to develop their engineering skills in a team-oriented environment. (Grade or P/NP)
Prerequisites/Corequisites:
Recommended:
Limits on Enrollment:

Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Apply the individual and team skills appropriate for functioning as an engineering professional.
2. Complete small scale projects related to an engineering discipline of their choice.

Objectives:
Upon completion of this course, the students will be able to:
1. Define, describe, and employ standard team member roles and behaviors in an engineering design environment.
2. Define, describe, and employ team management and project planning skills in an engineering design environment.
3. Organize presentation and associated materials to present project information in a clear and concise manner.
4. Apply simple construction, manufacturing, or assembly processes related to at least one engineering discipline.

Topics and Scope:

Topics will include, but not be limited to:
I. Team Roles and Individual's Behaviors
  A. Team interaction goals
  B. Facilitator, Timekeeper, Recorder, and other roles
  C. Appropriate and inappropriate behaviors
  D. Participation levels: Hibernator vs. Dominator
II. Team Time Management
  A. Setting realistic team goals
  B. Appropriate allocation and scheduling of man-hours
  C. Follow-up and accountability mechanisms
  D. Overview of engineering design algorithms

III. Oral Presentation Basics
  A. Determining target audience and the corresponding requirements.
  B. Selecting and preparing presentation materials
  C. Paring material and topics to time constraints.
  D. Pace, volume, posture, and related presentation mechanics
IV. Project Identification
  A. The internet as a design reference
  B. Technical journals as design references
  C. Limiting project scope
  D. Planning documents
V. Refinement Processes
  A. Materials selection
  B. Choosing connections
  C. Construction options
  D. Surface finishing
  E. Aesthetic concerns
  F. Cost/benefit analysis
VI. Technology Training (as needed)
  A. Hand tool basics
  B. Machine shop material processing
  C. Welding and joining processes
  D. Electronics assembly
  E. Software programming
  F. 3D printing

Lab Related Activities
I. SRJC Facility Training Visits
  A. Lounibus machine shop
  B. Lounibus welding shop
  C. Lounibus casting room
  D. Bussman electronics labs
  E. Shuhaw CAD & graphics labs
  F. Shuhaw materials lab
II. Possible Other Field Trips
  A. O'Reilly Publishing
  B. Chimera Arts and Maker Space
  C. Maker Faire

Assignment:

1. Planning documents such as project goals, specifications, and time- lines (at least 1 set)
2. Meeting minutes or logs (3 to 6)
3. Progress reports detailing project status (1 to 3)
4. Oral presentations on project status (1 to 2)
5. Self and team assessment report (1)
6.. Small project based assignments
7. Final project construction and demonstration (1)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Planning documents, meeting minutes, progress and assessment reports	Problem solving 20 - 40%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Oral presentations, project demonstration	Skill Demonstrations 30 - 40%

Exams: All forms of formal testing, other than skill performance exams.

None	Exams 0 - 0%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation in class activities	Other Category 20 - 40%

Representative Textbooks and Materials:
Engineering Design: An Introduction, Karsnitz, O'Brien & Hutchinson, Cengage, 2013
Instructor prepared materials