

METROPOLITAN STATE UNIVERSITY OF DENVER  
Office of Academic and Student Affairs

**REGULAR COURSE SYLLABUS**

College of: Professional Studies

Department: Engineering and Engineering Technology

Prefix & Course Number: CPE 4700 Crosslisted With\*: \_\_\_\_\_

Course Title: Senior Design I

Transcript Course Title (30 characters): Senior Design I

Check All That Apply: Required for Major:  Required for Minor: \_\_\_\_\_ Specified Elective: \_\_\_\_\_  
Required for Concentration: \_\_\_\_\_ Elective: \_\_\_\_\_ Service Course: \_\_\_\_\_

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:  
(1) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or (2) at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward to the award of credit hours. 34CFR 600.2 (11/1/2010)

Credit Hours: 1 (0+2) Schedule Type: A Grade Mode: L

Face-to-Face or Equivalent Hours per course:

Lecture    Lab 30 Internship \_\_\_\_\_ Practicum \_\_\_\_\_ Other (please specify type and hours): \_\_\_\_\_

Additional Student Work Hours per course: 30

Variable topics umbrella course: No  Yes \_\_\_\_\_ If yes, number of credits/repeats allowed \_\_\_\_\_

Specified repeatable course: No  Yes \_\_\_\_\_ If yes, number of credits/repeats allowed \_\_\_\_\_

Prerequisite(s): COM 2610, CS 2400 and CPE 4370 (with a grade of "C" or better for all prerequisites)

Corequisite(s): \_\_\_\_\_

Prerequisite(s) or Corequisite(s): \_\_\_\_\_

APPROVED:

\_\_\_\_\_  
Department Chair OR Program Director Date

\_\_\_\_\_  
Dean OR Associate Dean Date

\_\_\_\_\_  
Associate VP, Academic and Student Affairs Date

\*If crosslisted, attach completed Course Crosslisting Agreement Form

Prefix and Course Number:

**Banner Enforced Coding:**

**Prerequisite(s):** COM 2610, CS 2400 and CPE 4370 (with a grade of "C" or better for all prerequisites)

**Corequisite(s):** \_\_\_\_\_

**Prerequisite(s) or Corequisite(s):** \_\_\_\_\_

**Registration restrictions:** Level \_\_\_\_\_ Class \_\_\_\_\_ Program/Major \_\_\_\_\_ Student attribute \_\_\_\_\_

**Catalog Course Description:**

This is a Senior Experience, capstone course designed to teach engineering design skills to students through project based learning. The course will focus on team project incorporating the application of fundamental engineering knowledge and skills. Projects requires planning and design in consultation with faculty advisors and industry contacts. Through this course the students will learn the design process in a hands on way through conceptualization, construction, testing and presenting a deliverable project.

**Specific Variable Topics Course Description (if applicable, umbrella course description included above):**

**Required Reading and Other Materials will be equivalent to:**

None.

**Specific, Measurable Student Behavioral Learning Objectives:**

Upon completion of this course the student should be able to:

1. Integrate and apply the knowledge gained in the CPE education to develop, design, and document a technology based project with completion in CPE 4800 Senior Design II
2. Create a formal presentation of the project technology, projected cost and design implementation
3. Work together as a team

**Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/Internship (experience, responsibilities and supervision):**

- I. Orientation
  - A. Course Goals
  - B. Project Selection Criteria
  - C. Research methods and references
- II. Design project research methods
- III. Design project planning and design techniques
- IV. Project management techniques
- V. Final critical Design Review

**Evaluation of Student Performance:**

1. Written Technical Report
2. Final Presentation
3. Status Reports
4. Peer Teamwork Evaluation

**REQUEST FOR NEW OR CONTINUED SENIOR EXPERIENCE DESIGNATION  
SENIOR EXPERIENCE**

(To accompany old and new regular syllabus form and Curriculum Change Proposal forms)

Date: August 1, 2016  
School: Professional Studies  
Department: Engineering and Engineering Technology

Prefix	Course Number	Credit Hours	Contact Hours	CIP Number
CPE	4700	1	30	

Title: Senior Design I

Prerequisites: COM 2610, CPE 3330

Corequisites: \_\_\_\_\_

Recommended maximum enrollment per section: \_\_\_\_\_

Current Course Status (check all that apply)

- New course
- Existing Senior Experience Course

**Approvals:**

\_\_\_\_\_  
Department Curriculum Committee / Date

\_\_\_\_\_  
Department Chair OR Program Director/ Date

\_\_\_\_\_  
School Curriculum Committee / Date

\_\_\_\_\_  
Dean or Associate Dean / Date

\_\_\_\_\_  
Chair, Faculty Senate Curriculum Committee / Date

\_\_\_\_\_  
Associate Vice President, Academic and Student Affairs/Date

### Criteria for Senior Experience

The following criteria must be addressed for all courses seeking Senior Experience designation.  
**Please type on this form; it will expand to accommodate any length of text.**

The Senior Experience must allow students to:

1. synthesize learning through critical analysis and logical thinking.

Students form teams where they design a project based on the breadth of course work that is covered in the degree program.

2. apply theoretical constructs to practical applications.

The proposed projects are created with the expectation that the final project actually works.

3. critique philosophical tenets and current practices.

The proposed projects are approved based on the breadth of knowledge and the level of complexity. The initial project plan includes a time-line with list of tasks and a budget estimate.

4. integrate and refine oral and/or written communication skills.

The teams are required to submit documentation as they develop the project and make a final formal presentation at the end of the semester to their peers, faculty and other invited guests.

5. verify their expertise.

The final project is demonstrated as part of the final presentation. The final presentation includes a question and answer time with the audience.