

Laboratory Contact Hours, 1 unit: 48-54; Outside-of-class Hours: 0; Total Student Learning Hours: 48-54

Laboratory Contact Hours, 2 units: 96-108; Outside-of-class: 0; Total Student Learning Hours: 96-108

Laboratory Contact Hours, 3 units: 144-162; Outside-of-class Hours: 0; Total Student Learning Hours: 144-162

## **CUYAMACA COLLEGE**

### **COURSE OUTLINE OF RECORD**

#### **Engineering 199 – Special Studies or Projects in Engineering**

48-162 laboratory hours, 1-3 units

##### **Catalog Description**

Individual study, research or projects under instructor guidance. Written reports and periodic conferences required. Content and unit credit to be determined by student/instructor conferences and the Office of Instruction. *May be repeated with different content for a maximum of 9 units.*

##### **Prerequisite**

None

##### **Course Content**

Students will have the opportunity to work under an instructor in particular areas of engineering so that students can strengthen particular engineering skills. Content will include topics in engineering not presented in the regular curriculum at Cuyamaca College or further emphasis in certain areas of specialization. Students will be better prepared for working in specialized areas of engineering.

##### **Course Objectives**

Students will be able to:

General choice of independent study directions, topics, timelines and problems to be at the sole discretion of the supervising faculty. This includes but is not limited to the initial conference between supervising faculty and student to agree on topics, timeline and student expectations; faculty presentation of necessary preparation materials, e.g., problems, textbook references, etc.; student homework, reading and testing; student research; and, integration of technology with research and homework where appropriate.

##### **Method of Evaluation**

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Research papers applicable to the topic
- 2) Projects
- 3) Examinations
- 4) Presentations

##### **Special Materials Required of Student**

None

##### **Minimum Instructional Facilities**

None outside of various avenues of communication, e.g., email, conferences, Canvas

**Method of Instruction**

Individualized guidance/instruction from instructor. The following methods are typical of the instructional methods of this course; however, instructors may employ other related methods and not all methods listed are necessarily performed by each instructor:

- 1) Critique
- 2) Directed study
- 3) Discussion
- 4) Guided inquiry
- 5) Handouts
- 6) Instructor-prepared materials
- 7) Observation and demonstration
- 8) Projects
- 9) Email or other forms of written communication

**Out-of-Class Assignments**

Assignments will vary according to the nature of the topics discussed in the initial conference with the supervising faculty member. These may range from completion of out-of-class lab work, field trips, visits to businesses and colleges, and any other assignment showing an understanding of the concepts being studied as well as written and critical thinking skills.

**Texts and References**

- 1) Required (representative example): varies depending on the topic of study.
- 2) Supplemental: as supplied by the instructor

**Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

- 1) Demonstrate increased knowledge and understanding in diverse areas of engineering.
- 2) Develop skill in an engineering topic not addressed in the regular curriculum.