

635:496/497
Co-Op Internship in Ceramic and Materials Engineering
(3,3 Credits, Pass/No Credit Basis Only)

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Description:

The internship provides the student with the opportunity to practice and/or apply knowledge and skills in various ceramic or materials engineering professional environments. This internship is intended to provide a capstone experience to the student's undergraduate studies by integrating prior course work into a working engineering environment. The credits earned are for the educational benefits of the experience. The student will be provided with real world experience covering the fundamentals of materials, equipment, processing, plant design and product performance.

Prerequisite:

Open only to third year Ceramic Engineering Students

Course Outline:

The students must satisfy the following criteria to be eligible to enter an internship:

- (i) Complete minimum of 85 credits within a cumulative grade point average of at least 2.5 and cannot currently be on probation.
- (ii) Complete a minimum of 30 credits in the major, with a major cumulative grade point average of at least 2.5.
- (iii) The internship would be taken in the fall semester of the student's senior year. A student would receive 3 credits for a single semester internship. Students who extend this internship through the summer, with the same employer, may receive an additional 3 credits. However, co-op credit will not be given for summer employment alone.
- (iv) Student's participating in the Co-op Internship during the summer must register for the 3 credit Co-op Internship course during the summer session.
- (v) In cases where students have completed the eighth semester sequence of classes early or are out of sequence, i.e. 4-1/2 year students, a student may take the Co-op Internship starting in the spring semester and continuing the Internship through the summer.
- (vi) The 6 credit Co-op Internship would replace one Department Elective and the General Elective.
- (vii) Students electing to participate in the Co-op Internship program cannot designate any additional Technical Electives as Pass/No Credit.

The following are the requirements to satisfy the undergraduate internship activities for credit:

1. A suitable project must be formulated as a self-contained individual effort under the supervision of a practicing professional and a faculty member.
2. A written proposal must be submitted to the Department by the student. The proposal must be approved by the Undergraduate Director and the Faculty

- Advisor. The written proposal should include educational benefits, engineering related responsibilities at work site, project tasks, and the plan for evaluation.
3. The proposal defined above, with the signatures of approval by a faculty member practicing profession is required. This must be submitted to the Undergraduate Director before registration. The registration is by special permission only obtained from the Undergraduate Office.
 4. Students hired as technicians within the Department or University cannot use this to fulfill the Co-op Internship requirements.
 5. All internship work will include a daily/weekly log book, progress report, and final report. The final report and the semester grade must be signed by the supervising practicing professional and the faculty member.

Objective:

The objective of this course is to provide the student with a capstone experience in Ceramic Engineering. Ceramic Engineering Co-op internship stresses the concept of design related to the manufacturing and engineering. Students will develop an understanding of real world manufacturing. While on their internship, students will work with qualified professionals. Students will work in teams. Student groups will select an internship from a list provided by the department.

Grading:

The grading for this course will be based upon the recommendation of the student's industrial supervisor in consultation with the faculty advisor. Students will be required to make a presentation and provide a report, detailing their experience.

Contributions of Course to Meeting the Professional Component:

Ceramic Engineering Co-op is the capstone course for students wishing to emphasize production and management in ceramic engineering. The course integrates the fundamental science, e.g. physics and chemistry, and mathematics with the engineering courses the students completed in earlier semesters. By going through the process of material selection and process development and performance evaluation, the student will be able to understand how their prior education is critical in the engineering profession.

Relationship of Course to Program Objectives:

Ceramic Engineering Co-op provides the student with an opportunity to integrate engineering principles developed in prior courses into a single goal, that being the conceptualization and manufacturing of parts needed for a specific application. The students must demonstrate an understanding of structure, processing, performance and properties of a specific ceramic system during the course of their internship. Students will prepare reports and make presentations weekly in a manner similar to that expected from an engineer. This will be done under the guidance and supervision of their industrial supervisor. Students develop an understanding of teamwork and by making presentations develop organizational skills.