



**INTRODUCTION**

The senior project in Industrial Technology and Packaging (ITP) is the culmination of the academic program. The project will be independent work by the student, developed on a timetable and based on certain course requirements. A typical ITP senior project involves solving a focused and practical real-world problem in one of the following areas:

- Exploring the solutions for improving operational management of a company
- Exploring the opportunities for using sustainable energy, or environmental-friendly products/operations
- Designing/building a prototype for a new product/device and exploring its commercialization aspect
- Creating/testing a new package design/system or testing a new packaging material
- Analysis and testing of a new technology/material

**OBJECTIVES**

The objectives of the senior project course are:

- 1) To apply the skills and techniques that students have learned during the undergraduate studies to real-world problems.
- 2) To develop solutions for improving the management of materials, labor, and machines and/or develop a new product.
- 3) To enhance the technical writing ability of students through development of a formal report that entails the project activities.

**DELIVERABLES**

Project deliverables may include:

- A significant product, an improved management system or procedure
- Written formal report on project work, typically 40-50 pages long
- An oral presentation to technical or industry advisor
- Intermediate progress reports to ensure that the project is "on track."

**PROJECT  
CONSTRAINTS**

- 1) The project should respond to, and where possible, solve a specific need for the company.
- 2) The company must be willing to assign a staff member as a technical advisor who is knowledgeable in the subject of project. The project advisor should have a vested interest in the success of the project and be willing to work with student and faculty advisor.
- 3) The company must understand and agree with the scope and requirements of the project, so the student can have access to the site for data collection.
- 4) The timetable of the class must be kept in mind as projects will be completed within two quarters (20 weeks) of a 2-student work. The project typically starts in the last week of September and ends in the second week of March.
- 5) The workload of the project should be within a range of 200-250 hours for a 2-student project.
- 6) The student should not be paid for the work done as senior project. However, it is possible to provide funding for expenses related to the project.
- 7) Projects, in general, should not be classified or highly proprietary, although exceptions may be appropriate in certain circumstances. Students should be able to present their work in the normal academic settings of the university.
- 8) Projects, in general, should not be in critical path of another project.
- 9) The technical advisor will provide feedback to faculty advisor regarding progress/ problems and final performance evaluation of the project.

**PROJECT  
PROPOSAL**

The students will prepare a project proposal in coordination with technical advisor. The proposal will be submitted to faculty advisor for review and approval.

**PROJECT  
SUPERVISION**

There are two key supervisory people for this course, a faculty advisor and a technical advisor, whose roles are described as follows:

- The **faculty advisor** is the faculty member in charge of the course. He will manage organizational meetings and monitor the project progress. The faculty advisor will also handle academic administration of the course and will be responsible for assigning a grade based on the criteria specified in the course syllabus/manual. The final grade for the course will be also affected by feedback from the technical advisor.
- The **technical advisor** is an associate of the company. The technical advisor will monitor the technical aspects of your project and the quality of the work done. He/she will provide feedback to the faculty advisor in at least two occasions which will be used to improve the project and as one of the grading criteria, it will affect the final grade. The student should not be paid for the work done as senior project. However, it is possible to provide funding for expenses related to the project.

**BENEFITS**

Some of the benefits of an industry-sponsored senior projects for a company include:

- 1) **Problem Solving Assistance:** Each project will have a range of 200-250 student hours and many faculty hours of coaching invested.
- 2) **Interaction with Cal Poly:** As company managers and engineers interact more with faculty, they gain valuable resources to draw upon to receive help on other projects and develop a partnership in education.
- 3) **Visibility with students:** The company and its products are recognized by the university and presented in a positive way to the student body, thus improving the company's ability to recruit outstanding students.
- 4) **Opportunities to observe the best students:** Senior projects allow a company to get a close recruiting look at Cal Poly's Industrial Technology and Packaging students.



**THE PROCESS**

- 1) The company sends an email to Dr. Koushik Saha ([ksaha@calpoly.edu](mailto:ksaha@calpoly.edu)), indicating its willingness to participate in this joint educational effort.
- 2) The company sends a description of the project/idea along with expected outcomes/deliverables to the faculty advisor. Multiple projects are welcome. Please send this information in by the third week of May.
- 3) Each project is taken by a 2-student or 3-student group.
- 4) Students develop a proposal in coordination with the company and faculty advisor.
- 5) Faculty advisor will review and approve the proposal by June.
- 6) The project officially starts on the first day of Fall classes (typically around September 20<sup>th</sup>).
- 7) The company informs students and the faculty advisor in case there is any change in the plan before the first day of classes. The company provides an alternative project in case the original project is no longer available.

**PROJECT  
EXAMPLES**

- Greenwashing Audit: A Study on Green Claims in the Consumer Packaging Sector
- The Effect of Unitized Mixed Loads on Compressive Force And Load Stability
- Comparison Testing of High and Normal Performance Stretch Films
- Stability Testing of Multiple Unitized Load Configurations
- Fabrication of Polylactic Acid (PLA) and Metal-Organic Framework (MOF) composites and effect of MOF particles on the thermal and mechanical properties, and crystallization kinetics of PLA films
- Using Eye Tracking Technology for Packaging Usability
- Study of Pallet Vibration on Tractor-Trailer Storage Structures
- Usability Testing of Packaging with Surgical Technicians and Nurses at Sierra Vista Medical Center