

INDUSTRIAL TECHNOLOGY AND PACKAGING (BS)

Offered at: San Luis Obispo Campus

The Industrial Technology and Packaging (ITP) major blends business, design, science, and technology to prepare students for the development of innovative, sustainable products and packaging systems, and the efficient supply chains needed to bring them to market.

Graduates are well-positioned for diverse and high-demand roles, including packaging engineer, structural designer, product developer, industrial engineer, supply chain specialist, manufacturing engineer, quality engineer, operations engineer, and business analyst.

The ITP curriculum spans a wide array of interdisciplinary subjects, such as user-centered design, design thinking, sustainability, entrepreneurship, marketing, project management, advanced manufacturing systems, materials science, supply chain and operations management, distribution and logistics, lean processes, Lean Six Sigma, technical sales, business analytics, program management, and procurement.

Students select from two concentrations aligned with current industry needs:

- Industrial Technology
- Packaging

Throughout the program, students engage in collaborative, project-based learning that emphasizes real-world application. This immersive approach builds strong teamwork skills and develops future industrial leaders with the ability to manage innovation, optimize processes, and drive sustainable business solutions.

Concentrations

Industrial Technology

Offered at: San Luis Obispo Campus

The Industrial Technology Concentration offers an exceptional interdisciplinary curriculum centered around product development, manufacturing, and the intricacies of supply chain and operations management.

Students will immerse themselves in a diverse array of courses encompassing technology, product design, materials, manufacturing technology, quality assurance, automation, process improvement, Lean Six Sigma methodologies, innovation commercialization, entrepreneurship, business administration, project management, operations management, and the dynamics of supply chain management.

Packaging

Offered at: San Luis Obispo Campus

Packaging has evolved from a purely logistical or materials-based function into a dynamic, strategic discipline central to value creation in modern business. The Packaging Concentration offers a comprehensive exploration of the entire packaging value chain, integrating key elements of business, design, engineering, materials science, and technology.

Students in this program develop a deep understanding of critical industry challenges, including sustainability, inclusion, accessibility, and globalization, along with their broader impacts. We empower students to align their passions with purpose, equipping them to contribute meaningfully across a range of industries such as food and beverage, cosmetics and personal care, consumer goods, automotive, healthcare, and electronics.

Graduates of this highly regarded program are well-prepared for diverse career paths in packaging engineering, research and development, procurement, manufacturing, technical sales, and management. The Packaging Concentration opens doors to a wide spectrum of opportunities, reflecting its relevance, versatility, and growing demand across the global marketplace.

Program Learning Objectives

1. Apply knowledge and skills to identify opportunities and solve problems related to packaging systems, product development, and supply chain management.
2. Use appropriate methods and current technology to analyze data and drive decisions related to packaging systems, product development, and supply chain management.
3. Evaluate the implications of business, design, science, and technology decisions on society.
4. Recognize the ethical consequences of business, design, science, and technology decisions.
5. Apply sustainability principles to packaging systems, product development, and supply chain management.
6. Demonstrate effective visual communication skills.
7. Demonstrate effective written communication skills.
8. Demonstrate effective oral communication skills.
9. Demonstrate effective participation in teams.

Concentrations

Industrial Technology

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Packaging

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Degree Requirements and Curriculum

In addition to the program requirements listed on this page, students must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/>) section of this catalog, including:

- 40 units of upper-division courses
- 2.0 GPA
- Graduation Writing Requirement (GWR)
- U.S. Cultural Pluralism (USCP)

Note: No Major or Support courses may be selected as credit/no credit. In addition, no more than 12 units of cooperative or internship courses can count towards your degree requirements.

Code	Title	Units
MAJOR COURSES		
ITP 1100	Student Orientation, College Success, and Career Readiness	1
ITP 1125	Introduction to Industrial Technology and Packaging	1
ITP 1150	Power Systems and Renewable Energy	3
ITP 2233	Product Modeling and Communication	3
ITP 3303	Lean Six Sigma Green Belt	3
ITP 3326	Product Design and Development	3
ITP 3330	Packaging Fundamentals (Upper-Division 2/5) ¹	3
ITP 3341	Packaging Polymers and Processing	3
ITP 3371	Supply Chain Management in Manufacturing and Services	3
ITP 4409	Packaging Machinery and Processes	3
ITP 4411	Packaging Sustainability	3
ITP 4464	Senior Project	3
Concentration		
(See list of concentrations below)		30-32
SUPPORT COURSES		

BUS 3346	Principles of Marketing	3
BUS 3391	Information Systems	3
CHEM 1120	Fundamentals of Chemical Structure and Properties (5A & 5C) ¹	4
ECON 2001	Survey of Economics (4B) ¹	3
Select from the following: (2) ¹		4
MATH 1261	Calculus I	
MATH 1267 & MATH 1277	Business Calculus and Business Calculus Workshop	
PHYS 1121	College Physics I	4
STAT 1110 or STAT 1210	Applied Statistical Concepts and Methods Business Statistics I	3
GENERAL EDUCATION		
(See GE program requirements below)		30
FREE ELECTIVES		
Free Electives ²		2-4
Total Units		120

¹ Required in Major or Support; also satisfies General Education (GE) requirement.

² If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

Concentrations

Industrial Technology

Code	Title	Units
REQUIRED COURSES		
ITP 2260	Materials and Manufacturing Technology	3
ITP 3390	Industrial Automation	3
ITP 4403	Lean and Quality Systems Management	3
ITP 4410	Operations Planning and Control	3
ITP 4415	Supply Chain and Logistics	3
ITP 4428	Commercialization of Innovation	3
ITP 4496	Product Development and Manufacturing I	3
ITP 4497	Product Development and Manufacturing II	3
Approved Electives		
Select from the following:		6-8
Industrial Technology and Packaging		
ITP 2203	Personal Leadership - 7 Habits	
ITP 2211	Industrial Safety and Maintenance	
ITP 2234	Packaging Design Fundamentals	
ITP 2241	Industrial and Packaging Materials	
ITP 2270	Special Topics	
ITP 2275	Industrial Facilities Management	
ITP/BUS 3304	International Supply Chains	
ITP 4400	Special Problems for Advanced Undergraduates	
ITP 4404	Lean Six Sigma Green Belt Certification Project	
ITP 4406	Business-to-Business Complex Solutions Selling	
ITP 4412	Instrumental Analysis of Packaging Polymers	
ITP 4413	Quality Evaluation of Packaged Products	
ITP 4414	Packaging Laws and Regulations	
ITP 4419	Internship/Cooperative Education	
ITP 4430	Healthcare Packaging	
ITP 4475	Distribution Packaging Dynamics	

ITP 4498	Packaging Development
Business Analytics	
BUS 3392	Business Application Development
BUS 3393	Database Systems in Business
Business Management	
BUS 2212 or BUS 2214	Financial Accounting for Nonbusiness Majors Financial Accounting
BUS 2215	Managerial Accounting
BUS 3384 & 3384A	Human Resources Management and Human Resources Management Project
BUS 3387	Organizational Behavior
BUS 4489 & 4489A	Negotiation and Negotiation Project
Entrepreneurship	
BUS 3310	Introduction to Entrepreneurship
BUS 3313	Customer Development

Total Units **30-32**

Packaging

Code	Title	Units
REQUIRED COURSES		
ITP 2234	Packaging Design Fundamentals	3
ITP 2241	Industrial and Packaging Materials	3
ITP 3334	Structural Packaging Design	3
ITP 4408	Fiber-Based Packaging	3
ITP 4430	Healthcare Packaging	3
ITP 4475	Distribution Packaging Dynamics	3
ITP 4498	Packaging Development	3

Approved Electives

Select from the following: ¹ 9-11

Industrial Technology and Packaging	
ITP 2211	Industrial Safety and Maintenance
ITP 2260	Materials and Manufacturing Technology
ITP 2270	Special Topics
ITP 3304	International Supply Chains
ITP 3390	Industrial Automation
ITP 4400	Special Problems for Advanced Undergraduates
ITP 4403	Lean and Quality Systems Management
ITP 4404	Lean Six Sigma Green Belt Certification Project
ITP 4406	Business-to-Business Complex Solutions Selling
ITP 4410	Operations Planning and Control
ITP 4412	Instrumental Analysis of Packaging Polymers
ITP 4413	Quality Evaluation of Packaged Products
ITP 4414	Packaging Laws and Regulations
ITP 4415	Supply Chain and Logistics
ITP 4419	Internship/Cooperative Education
ITP 4428	Commercialization of Innovation
Food Science	
FSN 3319	The Science of Food for the Consumer
Business Analytics	
BUS 3392	Business Application Development
BUS 3393	Database Systems in Business
Business Management	

BUS 2212 or BUS 2214	Financial Accounting for Nonbusiness Majors Financial Accounting
BUS 2215	Managerial Accounting
BUS 3384 & 3384A	Human Resources Management and Human Resources Management Project
BUS 3387	Organizational Behavior
BUS 4489 & 4489A	Negotiation and Negotiation Project
Entrepreneurship	
BUS 3310	Introduction to Entrepreneurship
BUS 3313	Customer Development

Total Units **30**

¹ Units in excess of total will be applied towards major's free electives.

General Education (GE) Requirements

- 43 units required, 13 of which are specified in Major and/or Support.
- If any of the remaining 30 Units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.
- See the complete GE course listing (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>).
- A grade of C- or better is required in one course in each of the following GE Areas: 1A (English Composition), 1B (Critical Thinking), 1C (Oral Communication), and 2 (Mathematics and Quantitative Reasoning).

Lower-Division General Education

Area 1	English Communication and Critical Thinking	
1A	Written Communication	3
1B	Critical Thinking	3
1C	Oral Communication	3
Area 2	Mathematics and Quantitative Reasoning	
2	Mathematics and Quantitative Reasoning (3 units in Support) ¹	0
Area 3	Arts and Humanities	
3A	Arts	3
3B	Humanities: Literature, Philosophy, Languages other than English	3
Area 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	
4A	American Institutions (Title 5, Section 40404 Requirement)	3
4B	Social and Behavioral Sciences (3 units in Support) ¹	0
Area 5	Physical and Life Sciences	
5A	Physical Sciences (3 units in Support) ¹	0
5B	Life Sciences	3
5C	Laboratory (may be embedded in a 5A or 5B course) (1 units in Support) ¹	0
Area 6	Ethnic Studies	
6	Ethnic Studies	3

Upper-Division General Education

Upper-Division 2/5	Mathematics and Quantitative Reasoning or Physical and Life Sciences (3 units in Major) ¹	0
Upper-Division 3	Arts and Humanities	3
Upper-Division 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	3

Total Units **30**

¹ Required in Major or Support; also satisfies General Education (GE) requirement.

Coming soon