

BACHELOR OF SCIENCE IN PRODUCT DESIGN AND ENTREPRENEURSHIP

<https://www.pacific.edu/academics/product-design-degree-bs>

Degrees Offered

Bachelor of Science

Majors Offered

Product Design and Entrepreneurship (BS)

The Bachelor of Science in Product Design and Entrepreneurship prepares students with an entrepreneurial mindset to develop user-centered designs and innovative solutions that create value and positively impacting society and the economy. The program is intended to promote interdisciplinary, science-and technology-based entrepreneurship to fill the gap created by the lack of a cohesive, coordinated approach to innovation and entrepreneurship. Students can choose a track based on their interest. The two tracks in the program are: Physical Design & Manufacturing and Digital User Experience & AI. These tracks align with the growing market demand for skills in new product development, product design, and User Experience (UX).

Learning Outcomes

- Students will demonstrate the ability to apply creative and critical thinking skills to develop innovative, user-centered designs and solutions that address real-world challenges.
- Students will develop their communication and storytelling abilities, allowing them to effectively convey the value and impact of their ideas to various stakeholders through a variety of media.
- Students will connect diverse ideas and concepts, integrating knowledge from various disciplines to generate innovative solutions to complex problems.
- Students will develop and build prototypes using an iterative design process, incorporating feedback from stakeholders to ensure that strategy, planning, and implementation are grounded in the needs and experiences of the end-user.
- Students will effectively collaborate on teams whose members collectively provide leadership and create an inclusive work environment.
- Student will develop conceptual design, product (digital/physical) modeling, and prototyping skills to enhance the functionality and effectiveness of their designs and solutions.
- Students will demonstrate curiosity by actively exploring new concepts, emerging technologies, and new market trends, seeking to identify and engage with potential opportunities for innovation.
- Students will cultivate an entrepreneurial mindset, including the ability to conduct market research and financial forecasts to drive innovation that positively impacts society and the economy.
- Students will develop reliable, high-quality products with market appeal, within the budgets and time demanded by competitive businesses.

Bachelor of Science Major in Product Design and Entrepreneurship

Students must complete a minimum of 120 units of academic work in order to earn the bachelor of science in product design and entrepreneurship.

I. General Education Requirements

For more details, see General Education (<https://catalog.pacific.edu/uop/generalinformation/generaleducation/>)

Minimum 28 units and 9 courses that include:

A. CORE Seminars (2 courses)

CORE 001	Problem Solving & Oral Comm	3
CORE 002	Writing and Critical Thinking	4

Note: 1) CORE Seminars cannot be taken for Pass/No Credit. **2)** Transfer students with 28 or more transfer credits taken after high school are exempt from both CORE seminars.

B. Breadth Requirement (7 courses, at least 3 units each)

At least one course from each of the following areas:

Artistic Process & Creation
Civic & Global Responsibility
Language & Narratives
Quantitative Reasoning
Scientific Inquiry
Social Inquiry
World Perspectives & Ethics

Note: 1) No more than 2 courses from a single discipline can be used to meet the Breadth Requirement.

C. Diversity and Inclusion Requirement

All students must complete Diversity and Inclusion coursework (at least 3 units)

Note: 1) Diversity and Inclusion courses can also be used to meet the breadth category requirements, or major or minor requirements.

D. Fundamental Skills

Students must demonstrate competence in:

Writing
Quantitative Analysis (Math)

Note: 1) Failure to satisfy the fundamental skills requirements by the end of four semesters of full-time study at the University is grounds for academic disqualification.

II. Major Requirements

Students must complete all the required courses and five courses from a selected track.

PDEP 010	Product Design and Entrepreneurship Seminar	2
PDEP 057	AI for Designers	4
MATH 045 or MATH 051	Introduction to Finite Mathematics and Calculus Calculus I	3
MATH 037	Introduction to Statistics and Probability	4
BUSI 031	Principles of Financial Accounting	4
BUSI 053	The Legal and Ethical Environment of Business	4
BUSI 090	Introduction to Entrepreneurship	4
BUSI 105	Financial Management	4
BUSI 107	Marketing Management	4

BUSI 109	Management and Organizational Behavior	4
BUSI 141	Marketing Research	4
ECON 053	Introductory Microeconomics	4
PDEP 195	Capstone I	4
BUSI 173	Entrepreneurial Management Practicum	4
BUSI 180	Entrepreneurship and Business Strategy	4

Select one of the following:

HIST 080	Digital Narratives
COMM 050	Digital Communication
DATA 101	Data Visualization and Storytelling
COMM 155	Persuasion

Select one of the following:

PSYC 050	Introduction to Research Methods in Psychology
INTL 101	Social Science Research Methods
POLS 133	Political Science Research
COMM 043	Introduction to Interpersonal Communication
ENGL 039	Introduction to Digital Humanities

Select one of the following:

PSYC 031	Introduction to Psychology
PHIL 015	Introduction to Cognitive Science
PSYC 079	Sensation and Perception
PSYC 053	Behavioral Psychology

Select one of the following:

IDEA 040	Engineering Design Thinking
ARTH 101	Design Thinking

Select one of the following:

EMGT 142 & 142L	Design and Innovation and Design and Innovation Lab
BUSI 143	Product Innovation

Select one of the following:

BUSI 124	Entrepreneurial Finance
BUSI 125	Intermediate Financial Management

For Physical Design + Manufacturing Track

ARTS 009	Principles of 3-D Design	4
MECH 015	Mechanical Engineering Graphics	3
PDEP 046	Material Processing and Selection	4

Select one Manufacturing electives:

MECH 100 & 100L	Manufacturing Processes and Manufacturing Process Lab
ARTS 037	Sculpture
or EMGT 145	Product Design & Additive Manufacturing

For Digital User Experience + AI Track

ARTS 010	Introduction to Digital Design	3
COMP 051	Introduction to Computer Science	4
or COMP 061	Introduction to Programming for Data Science	
COMP 135	Human-Computer Interface Design	3
PDEP 157	UI Techniques and Applications	4

Select one UX Design elective:

BUSI 151	Digital Marketing
MPRO 003	Media Tools
MPRO 005	Principles of Storytelling
PHIL 126	Digital Well-Being

Electives - select two out of the following:

ARTH 101	Design Thinking
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ARTS 037	Sculpture
BUSI 124	Entrepreneurial Finance
BUSI 125	Intermediate Financial Management
BUSI 134	Conflict Management
BUSI 142	Personal Selling and Sales Management
BUSI 143	Product Innovation
BUSI 149	Marketing Analytics
BUSI 151	Digital Marketing
BUSI 169	International Management
BUSI 175	Leadership and Change
BUSI 181	Strategic Management and Policy
COMM 043	Introduction to Interpersonal Communication
COMM 050	Digital Communication
COMM 155	Persuasion
DATA 101	Data Visualization and Storytelling
EMGT 142 & 142L	Design and Innovation and Design and Innovation Lab
EMGT 145	Product Design & Additive Manufacturing
ENGL 039	Introduction to Digital Humanities
IDEA 040	Engineering Design Thinking
IDEA 130	Introduction to Mobile Robotics
INTL 101	Social Science Research Methods
HIST 080	Digital Narratives
MPRO 003	Media Tools
MPRO 005	Principles of Storytelling
PHIL 015	Introduction to Cognitive Science
PHIL 126	Digital Well-Being
PHIL 142	Business Ethics
PSYC 031	Introduction to Psychology
POLS 133	Political Science Research
PSYC 050	Introduction to Research Methods in Psychology
PSYC 053	Behavioral Psychology
PSYC 079	Sensation and Perception

Intrdiscip Prod Des Ent Courses

PDEP 010. Product Design and Entrepreneurship Seminar. 2 Units.

This course provides students with a unified cohort experience and essential skills for success in the Product Design and Entrepreneurship major at Pacific. Students actively participate in curriculum planning, explore techniques for college and career success, and implement strategies for continuous improvement. Students learn about research and internship opportunities and are introduced to campus resources.

PDEP 046. Material Processing and Selection. 4 Units.

This course introduces the student to the concepts of materials processing and selection and the criteria used in these processes. The broad scope of manufacturing and processing technologies for metals, ceramics and polymers are introduced. This is followed by the development of a deeper appreciation of the influence of processing upon the structure and properties of these materials. Prerequisite: MECH 015 with a "C-" or better.

PDEP 057. AI for Designers. 4 Units.

This course provides an exploration of the application of Artificial Intelligence (AI) in the field of design, tailored for students in the Product Design and Entrepreneurship program. Focusing on generative AI, the course covers both theoretical concepts and practical tools that enable designers to enhance creativity, streamline workflows, and develop innovative products and experiences. Students engage with AI tools to design both physical products and digital experiences, preparing them for the evolving landscape of design industries. By the end of the course, students develop a portfolio of AI-assisted design projects and an understanding of how AI can be integrated into the design process. Prerequisite: PDEP 010 with a "C-" or better.

PDEP 157. UI Techniques and Applications. 4 Units.

This course explores the principles of Human-Computer Interaction (HCI) with a focus on advanced design techniques, emerging technologies, and critical evaluation of user interfaces. Students study complex interaction paradigms, conduct comprehensive usability studies, and work on sophisticated interface design projects. The course emphasizes the integration of AI, virtual/augmented reality, and multimodal interfaces, preparing students to tackle cutting-edge challenges in HCI. Prerequisite: COMP 135 with a "C-" or better.

PDEP 195. Capstone I. 4 Units.

In this capstone course, students focus on the advanced application of product modeling and design simulation. They are challenged to develop a product, app, or solution that requires the integration of design specifications and simulation practices, such as finite element analysis and mold flow analysis for manufacturing, as well as prototyping and usability testing for UX. The course emphasizes the identification of market opportunities, creative brainstorming, sketching, and prototyping, all within the context of the chosen theme. Students take a new product from concept to virtual development, creating prototypes that align with consumer demands. Prerequisites: Completion of all Fundamental Skills and Senior Standing and EMGT 142 or BUSI 143 with a "C-" or better.