Course Code
Web Product Development and Management
Module 4, 2025-2026 Academic Year

Course Information

Instructor: WeiMing Ye
Office: PHBS Building, Room 645
Phone: 86-755-2603-2704
Email: yewm@phbs.pku.edu.cn
Office Hour: Tue. & Fri. 11:00-12:00

Teaching Assistant:
Phone:
Email:

Classes:
Lectures: Day Tue. & Fri., Time 1330-1520
Venue: PHBS Building, Room

Course Website:
If any.

1. Course Description

1.1 Context

Course overview: Product Design and Management is a project-based course that covers modern tools and methods for product design and management, focusing on the cross-functional nature of product design activities and decision making. The cornerstone is a project in which teams of interdisciplinary students conceive, design, prototype, and testing a product. Class sessions are conducted in workshop mode and employ cases and hands-on exercises to reinforce the key ideas.
This course involves product development collaboration with two key natural science laboratories at Peking University. Since communication with the engineers will be conducted primarily in Chinese, the course is taught bilingually in **Chinese and English**.
Core Philosophy: User-Centric Design, Tech-Driven Innovation, Evidence-Based Management.
Topics include: design thinking skills, product planning, customer needs analysis, concept development, industrial design, concept testing, prototyping, design for environment, product architecture, project management.

Prerequisites: Social Research Methods

1.2 Textbooks and Reading Materials

Ulrich, K. T. and Eppinger S. D. (2019). Product design and development. New York: McGraw-Hill Education.
詹姆斯·卡尔巴赫. (2018). 用户体验可视化指南. 人民邮电出版社.
宋世祥.(2020).厚数据的创新课程. 果力文化 / 漫游者事业股份有限公司.
阿尔贝托·索维亚.(2021).做对产品. 天津科学技术出版社.
Scrum Guide (2020). https://scrumguides.org/docs/scrumguide/v2020/2020-Scrum-Guide-US.pdf
Ries, E. (2011). The Lean Startup. Crown Publishing Group.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or NO)
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	Yes. Product planning and business plan.
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	YES. Product develop and case present.
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	YES. During group projects, discussions, and collaboration with natural science laboratories.
	2.2. Students will be able to apply leadership theories and related skills.	
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	YES. Design for environment, design for society.
	3.2. Our students will practice ethics in the duration of the program.	
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	YES. Readings and discussions.
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	YES. Theory of Invention Problem Solving, Technology Acceptance Model, etc.
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	YES. Product development and business plan.
	5.3. Our students will demonstrate competency in critical thinking.	YES. Critical design review.

2.2 Course specific objectives

2.3 Assessment/Grading Details

This is an 18-unit graduate course. It is expected that each student will prepare for and attend all of the class sessions and will regularly enhance class discussions.
Most important though are substantial and continuous contributions to the progress of the team project.

Activities/ Milestones	Percentages
Class Participation, discussions	10%
Product Definition	20%
User Research Report	30%
Business Plan & Presentation	40%

1. Class participation: .
2. Team assignments: student group (no more than 3 students) will go through one product development process
   - Report 1 Preliminary Product Definition Document Based on Technical Workshops, due May 14.
   - Report 2 User Research Report, includes interview notes, user personas, and requirements prioritization, due June 18.
3. Final project presentation: each group will present their final work Business Plan.

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

AI tools requirements：
Using AI tools to complete assignments or assessments without the approval of the course instructor will be regarded as an act of academic dishonesty. Depending on the severity of the situation, penalties will be implemented in accordance with the provisions of the Peking University Graduate Student Handbook.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule

1.1.1. Part I: Foundations and Technology Frontier

Session 1: Introduction to PDM & Brainstorming the AI Era (May 6)

Introduction: Overview of the product development lifecycle. Collaborative brainstorming session: "Defining the Product in the AI Age"—how LLMs, autonomous agents, and ubiquitous computing redefine 'web products'.

References: * Ulrich & Eppinger (2019), Chapter 1.

Brown, T. (2008). *Design Thinking*. Harvard Business Review.

Session 2: Technology Frontier Workshop I: Intelligence & Infrastructure (May 8)

Introduction: Joint workshop with technical engineers. Discussion on current front-end/back-end capabilities, AI APIs, and data infrastructure. Understanding the "feasible" to inspire the "desirable".

References: * Savoia (2021), Part I: The Law of Market Failure. https://albertosavoia.medium.com/the-law-of-market-failure-1dba44b148f

Technical Whitepapers (OpenAI/Google/Meta) assigned by guest engineers.

Session 3: Technology Frontier Workshop II: Emerging Tech & Constraints (May 12)

Introduction: Deep dive into specialized tech (e.g., edge computing, or multimodal AI). Engineers demonstrate architecture constraints that impact product management decisions.

References: * Ulrich & Eppinger (2019), Chapter 2 & 3.

Scrum Guide (2020). https://scrumguides.org/docs/scrumguide/v2020/2020-Scrum-Guide-US.pdf

Session 4: Milestone 1: Defining the Product Direction (May 15)

Introduction: (Milestone 1 Due) Students present their initial product mission statements based on the insights from technology workshops. Selection of projects and team formation.

References: * Ulrich & Eppinger (2019), Chapter 4.

Savoia (2021), Part II: Pretotyping.

1.1.2. Part II: User-Centric Research and Innovation

Session 5: Thick Data and Mapping the Experience (May 19)

Introduction: Moving beyond big data to "thick data". Using qualitative insights to understand human emotions and context. Introduction to visualizing user journeys.

References: * Song (2020), Chapters 2-3.

Kalbach (2018), Chapters 1-4.

Session 6: Identifying Customer Needs and Research Design (May 22)

Introduction: How to conduct effective user interviews and ethnographic observations. Designing the research plan for the field study assignment.

References: * Ulrich & Eppinger (2019), Chapter 5.

Song Shixiang (2020), Chapters 4-5.

Session 7: Milestone 2: User Persona and Needs Analysis (Presentation) (May 26)

Introduction: (Milestone 2 Due) Students report on their field interviews. Presentation of user personas (User Profiles), empathy maps, and prioritized needs lists.

References: * Kalbach (2018), Chapters 6-8.

Garrett (2011), *The Elements of User Experience*, Chapters 1-2.

Session 8: Concept Generation and Systematic Innovation (May 27)

Introduction: Using systematic methods to generate product concepts. Transitioning from "problems" to "solutions" without losing the user's voice.

References: * Ulrich & Eppinger (2019), Chapter 7.

TED Talk: *The Puzzle of Motivation* (Dan Pink).
https://www.youtube.com/watch?v= rrkrvAUbU9Y

1.1.3. Part III: Design, Validation, and Guest Insights

Session 9: Pretotyping: Building the "Right It" before "Doing it Right" (May 29)

Introduction: Learning the Savoia method. Designing experiments to validate market demand with minimum cost. Distinguishing between prototypes and pretotypes.

References: * Savoia (2021), Part III: The Strategy of Pretotyping.

Ulrich & Eppinger (2019), Chapter 14.

Session 10: Guest Seminar: Aligning Needs with Tech in Startups (June 12)

Introduction: A session with a senior entrepreneur. Real-world case studies on how to pivot when technology and user needs are misaligned, and how to scale a project from 0 to 1.

References: * Case studies provided by the speaker.

Savoia (2021), Part IV: Analysis.

Session 11: The Elements of User Experience & Interface Strategy (June 16)

Introduction: Deep dive into the skeleton and surface planes of web products. How information architecture supports user mental models.

References: * Garrett (2011), Chapters 3-5.

Kalbach (2018), Chapter 10.

Session 12: Service Design and Experience Visualization (June 17)

Introduction: Products as services. Using service blueprints to manage the backstage and frontstage of a web product.

References: * Kalbach (2018), Chapters 11-12.

Ulrich & Eppinger (2019), Chapter 17.

1.1.4. Part IV: Architecture, Testing, and Business Strategy

Session 13: Product Architecture and Modularity (June 19)

Introduction: Impact of architecture on business strategy. How modularity allows for rapid iteration and scaling in the web environment.

References: * Ulrich & Eppinger (2019), Chapter 10.

Baldwin & Clark (2000), *Design Rules*.

Session 14: Product Testing and Market Validation (June 23)

Introduction: Alpha and beta testing strategies. Managing the feedback loop between developers and early adopters.

References: * Ulrich & Eppinger (2019), Chapter 9.

Ries, E. (2011). *The Lean Startup*. https://ia800509.us.archive.org/7/items/TheLeanStartupErickRies/The%20Lean%20Startup%20-%20Erick%20Ries.pdf

Session 15: Product Economics and the Business Plan (June 24)

Introduction: Financial modeling for web products. Understanding LTV (Lifetime Value), CAC (Customer Acquisition Cost), and the structure of a professional business plan.

References: * Ulrich & Eppinger (2019), Chapter 18.

Kawasaki, G. (2015). *The Art of the Start 2.0*. https://guykawasaki.com/books/the-art-of-the-start/

Session 16: Product Lifecycle, Intellectual Property, and Ethics (June 26)

Introduction: Managing growth and decline. Patent strategies and the ethical implications of AI product management (privacy, bias, and algorithmic transparency).

References: * Ulrich & Eppinger (2019), Chapter 16.

WIPO Guide to IP for Startups. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_961.pdf

1.1.5. Part V: Final Deliverables

Session 17: Milestone 3: Final Pitch & Business Plan Report (Part I) (June 30)

Introduction: Group presentations of the comprehensive business plan, including product definition, user research evidence, technical feasibility, and financial projections.

Session 18: Milestone 3: Final Pitch & Business Plan Report (Part II) (July 3)

Introduction: Continuation of final reports followed by a course wrap-up and "lessons learned" discussion.

4. Miscellaneous

4Cs: Curious! Critical! Creative! Caring!