

**Dual-degree Program in Technology & Management (T&M-
DDP) Interdisciplinary Program Office**
TEMG3950 T&M Case Analysis and Product Innovation
Spring term, 2024-25

1. GENERAL INFORMATION

Course credits:	3 credits
Class meeting time:	Tuesday evenings 18:00 to 20:50
Course pre-requisite(s):	nil
Course exclusion(s):	nil
Course enrollment:	All students are welcome. Priority given to T&M-DDP students.
Classroom:	Room 5619, near lift 31-32
Instructor, Part1:	Chiming CHAN Professor Emeritus, Department of Chemical and Biological Engineering Adjunct Professor, Division of Integrative Systems and Design Consultant, Dual-Degree Program in Technology & Management
Contact:	Kecmchan @ UST.HK
Office & office hours:	Friday afternoons for Q&A or project review
Instructor, Part2:	Betty LIN Associate Professor of Interdisciplinary Education Associate Director of T&M-DDP Undergraduate Coordinator for T&M-DDP
Contact:	BettyLin @ UST .HK, 3469-2235
Office & office hours:	Room 4366 – by appointment only

2. COURSE DESCRIPTION

TEMG3950 is divided into 2 parts to cover concepts required by TEMG4000-level courses.

Part 1 is “**T&M Product Innovation**” to cover foundational concepts for TEMG4970 “T&M [Startup] IBPC or ABPC” co-offered with multiple universities. Through lectures and teamwork on a startup-up project, students will master the following concepts and tools:

- Market Segmentation & Demand Estimation - methods for assessing potential market demand.
- Value Proposition Design – a methodology for identifying customer’s hidden needs using Design Thinking concepts to create higher value proposition.
- Business model canvas – a tool for capturing essence of a startup company using a 9-grid framework.

Part 2 is “**T&M Case Analysis**” to cover foundational concepts for TEMG4950 “T&M Consulting for a Client”. Instructor uses written cases for students master the following concepts and tools:

- MECE Frameworks for Problem-solving – instructor will choose 4 cases for each term and give students multiple opportunities in class and as assignments to become familiar with commonly used MECE frameworks for structured problem-solving, e.g., PESTLE, McKinsey 7Ss, Porter 5Fs and Chernev 5Cs.
- Blue Ocean Strategies for Startup Innovation – instructor will choose 1-2 cases for students to get a taste of successful innovators that were able to pivot away from Red Ocean and create their own Blue Ocean.

- **5-Step Persuasive Selling** – for complex problems, there may be more than one solution based on situation, constraints, and information available. Hence, the ability to present a solution with a suitable level of details and supporting evidence is crucial. Students will have multiple chances to practice written communication in this format.

Depending on the nature of each TEMG4900 experiential-learning courses, TEMG3950 may be a pre-requisite:

- **TEMG4950 T&M Consulting for a client** – where students use MECE frameworks and 5-Step Persuasive Selling in consulting report write-up and presentation to solve a real client’s needs based on given information, resource constraints and target decision-makers who will be present to assess.
- **TEMG4940 T&M Prototyping & Research for a client** – where students develop a software prototype that meets client’s business requirement using open source libraries for data pre-processing, data analysis, machine-learning algorithms and GUI front-end with database access. Occasionally, corporate sponsors will request desktop research plus Exploratory Data Analytics for business insight recommendations.
- **TEMG4970 T&M Asia or International Business Plan Competition** – where students from multiple universities conduct market research and develop a startup business plan for a solution that is technically feasible, financially viable and customer desirable.

3. COURSE GRADE

Assessment Methods	Description	Weight (%)
Class participation	On-time class attendance and contribution to in-class discussion	8%
T&M Product Innovation	Individual assignments and interim group project deliverables; plus, a final project presentation with peer evaluation.	46%
T&M Case Analysis	Individual and group case analysis assignments; plus, a written exam.	46%
	Total	100%

4. COURSE SCHEDULE

Regular class meeting time is Tuesday evenings from 6:00pm to 7:50pm plus Friday afternoons for by-appointment private coaching. Classes will be held in-person. Students who are unable to return to Hong Kong at the beginning of the semester can join via Zoom. On-time attendance and active in-class participation is mandatory and will be graded.

Part I: T&M Product Innovation – Prof. Chiming Chan

1. Week01 Feb 4: Course Intro, Project Intro & Ideation
2. Week02 Feb 11: Customer Validation & Competitor Analysis
3. Week03 Feb 18: Design Thinking and Customer’s Voice
4. Week04 Feb 25: Customer Profile + Value Map
5. Week05 Mar 04: Business Model Canvas
6. Week06 Mar 11: Written Exam
7. Week07 Mar 18: Final Presentation

Part II: T&M Case Analysis – Prof. Betty Lin

8. Week08 Mar 25: MECE Frameworks for Situation Analysis

9. Week09 Apr 08: Cause Mapping & 5-Step Persuasive Selling
10. Week10 Apr 15: McKinsey 7S & PPTG Change Impact
11. Week11 Apr 22: Blue Ocean Strategy
12. Week12 Apr 29: Profitability Framework & 2nd Half Review
13. Week13 May 06: Written Exam

Please refer to CANVAS for actual class meeting plan: <https://canvas.ust.hk/courses/62768/>

5. RECOMMENDED READING

1. Osterwalder, A., et al. (2015). *Value Proposition Design: How to Create Products and Services Customers Want*. John Wiley & Sons.
2. Osterwalder, A., et al. (2010). *Business Model Generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.
3. Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Currency.
4. Cosentino, M. (2013). *Case in Point: Complete Case Interview Preparation*. Burgee Press.
5. Kim, W.C., & Mauborgne, R.A. (2014). *Blue Ocean Strategy: How to create Uncontested Market Space and Make the Competition Irrelevant*. Harvard business review Press.

6. COURSE POLICY (regarding plagiarism, course contents copy right, academic honesty, attendance, etc.)

Course policies will strictly follow HKUST policies. Cheating, dishonesty and plagiarism will not be tolerated at any time and may result in strict sanctions.

1. **Attendance:** Please be punctual. Late arrival by more than 3 minutes or early departure will be marked as absent unless student notifies instructor at least 24-hour in advance with evidence of legitimate reasons.
2. **Participation:** Active participation is required and is an important part of the grade. Students are required to make at least one suggestion, comments, and question per class meeting. This can be done in person, by raising your hand physically or online via Zoom chat.
3. **Beeping devices:** mobile phones and other beeping devices need to be turned off or put on silent mode. Portable computers, laptops and tablets are allowed so long as they do not lead to inappropriate behavior and disturbance.
4. **Video recording:** recording may be arranged by the School and the Instructor. Any other recording (photo, audio or video) is strictly prohibited. Lectures are the copyright property of the instructor. Any recording can only be produced with the express consent of the instructor.
5. **Exam:** There will be no make-up exam. Unexcused absence will result in zero grading for that test. Students are advised to contact the instructor prior to week 3 to negotiate schedule conflicts with other courses, especially during mid-term time.
6. **Course materials and handouts:** Course materials will be posted on the University's CANVAS, please check the website on a regular basis for new postings. The Lecture notes are the copyright property of the instructor and are provided for the sole private use of the students. They may not be reproduced or disseminated without the express consent of the instructor.

7. INTENDED LEARNING OUTCOMES

T&M Dual-degree Program's Intended Learning Outcomes

1. P-ILO1: Adopt an inter-disciplinary approach to tackle complex real-world problems.
2. P-ILO2: Communicate effectively with people of different levels and work areas.
3. P-ILO3: Transfer acquired knowledge to meet changes and challenges in different fields.
4. P-ILO4: Engage in activities that lead to impact of social improvement.
5. P-ILO5: Have the ability to create and innovate with divergent thinking.
6. P-ILO6: Be able to apply technical and business skills in an integrated manner in problem-solving.
7. P-ILO7: Be a leader in the field of technology management and innovation, and entrepreneurship.

TEMG3950 Course Intended Learning Outcomes

1. Gain skills and confidence to analyze a complex problem and ability to apply suitable tools for a multi-dimensional approach to problem analysis (P-ILO1, P-ILO3, P-ILO5)
2. Through solving written cases (which are extracted from real-world situations) and product development, gain insight into business domain familiarity from either an enterprise or as a group of consumers (P-ILO2)
3. Improve professional communication in written format and public presentation (P-ILO2, P-ILO7)
4. Improve teamwork across culture, age and disciplines (P-ILO5)