

**TR3001 New Product Development**

**Lecturer** : Neo Kok Beng  
Adjunct Associate Professor

**Session** : Semester 2, 2014/2015

**Venue** : BIZ2, Seminar Rm 2-3

**AIMS & OBJECTIVES**

This is an experiential course that focuses on the conceptualization, design and development of new products that meet market demand. It integrates product planning, marketing, design and manufacturing functions of a company, established or startups.

Intensive workshops and field visits are included to enrich the field experience. The final presentation will be to the officers in charge of NUS Enterprise Practicum Grant.

This course is designed for students taking Minor in Technopreneurship, iLEAD (innovative Local Enterprise Achiever Development) Programme, Minor in Management of Technology or Double Major in Management (Technology); and undergraduates who are interested to learn and acquire the skills in new product development

At the end of the module, the students will:

- a) understand the product development process;
- b) learn to manage multi-disciplinary approach to new product creation;
- c) have confidence & competence in developing a new product.

The key deliverables at the end of the course are:

- a) a patentable new product idea;
- b) comprehensive & realistic product development plan;
- c) conceptual or functional prototype.

Note:

- 1) The course instructor will work with selected teams after the end of course to assist in the commercialization of the product ideas developed during the course.
- 2) Past course participants have filed patents and set up companies using the product idea and product plan developed during the course; tapping on funding from NUS Enterprise & EDB/SPRING. The latest startups are TinyMOS and Pirate3d.
- 3) Prototyping fund is available for successful project team applicants at the end of the module for:
  - a) NUS Enterprise Innovation Practicum – Prototyping Grant
  - b) MIT SMART Innovation Center – Student Explorer Grant

## PREQUISITIES

There are **no pre-requisites** for this course.

**Do note that this is a level 3 module, and students should have good knowledge of marketing and accounting.**

## TEACHING MODES

Lecture, videos and case studies. Students are expected to read the assigned chapters and papers before class and to participate actively in class discussions.

Students are to post their views, comments and feedback on IVLE forum.

## SCHEDULE

**There will be 4 class meetings (1 introductory lecture & 3 project presentations), 3 full-day workshop on Saturdays and 2 field visits (to startups)**

## ASSESSMENT

a) Class participation	20%	(Individual)
b) Projects		
Project 1 (New Product Idea)	20%	(Individual)
Project 2 (Product Specs/Brochure)	20%	(Group)
Project 3 (Product Development Plan)	15%	(Group)
Project 4 (NUS Enterprise Presentation)	15%	(Group)
c) Insights Paper	10%	(Individual)

There is **no final examination** for this subject.

## TEXTBOOK

Required Text: Ulrich, Karl T. and Steven D. Eppinger,  
Product Design and Development, **5th edition (2012)**,  
Irwin/McGraw-Hill

References: Crawford, C. Merle and C. Anthony Di Benedetto,  
New Product Management, 7th edition (2003),  
Irwin/McGraw-Hill

## SYLLABUS

Note: Cases & exercises may change according to student composition and preferences.

	Date	Topic	Remarks
1	16 Jan (Fri)	Introduction Design Thinking Process	Exercise: Design Thinking Methodology Exercise: Generating New Product Ideas using Brainstorming & Systematic Inventive Thinking
2, 3, 4	24 Jan (Sat)	Opportunities Generation & Evaluation Business Model Lean Methodology Intellectual Properties	Workshop # 1 Exercise: Evaluate new product ideas that are sizeable, sustainable and scalable. Exercise: Identify patentable claims based on novelty, usefulness and non-obviousness.
5	23 Jan (Fri)	Field visit 1*	Visit to NUS Enterprise @ Blk 71 to understand product development process in tech startup.
6	13Feb (Fri)	Project 1 Submission & Presentation	Individual students do a product pitch, and to submit report based on 3S model and business model. Students form Groups after the presentation.
7, 8, 9	14 Feb (Sat)	Customer Needs Product Specifications Concept Generation, Selection and Testing Architecture & Platform Leadership Quality System & Product Certifications	Workshop # 2 Exercise: Interview skills, identify customer needs and generating specifications Exercise: Platform design.
10	TBA	Field Visit 2*	Visit to startup company developing new products. Date to be confirmed – Pirate3d.
11	6 Mar (Fri)	Project 2 Submission & Presentation	Groups have to develop StoryBoard and present in class besides submitting report.
12, 13, 14	7 Mar (Sat)	Design For Manufacturing Product Development Economics Project Management	Workshop # 3 Exercise: Bill of Materials. Exercise: Scenarios Analysis on Financials. Exercise: Project Management Tools.
15	28 Mar (Wed)	Project 3 Submission Project 4 Presentation	Groups present to NUS Enterprise for potential practicum grant. Full product development report to be submitted.

\*Note: Field visits may change depending on availability.

Past guest speakers include Lim Qingru (Co-founder – Zopim), Roger Chang (Co-founder – Pirate3d), Grey Chen (TinyMos) and Tan Lihan (Dynaoptics).