

PRODUCT DESIGN & INNOVATION COURSE MODULES

How do you define good design? We see it as innovations that are equal parts attractive, practical and functional, and are able to differentiate themselves from their competitors. Through our Diploma in Product Design & Innovation [POI], you will get to design your very own smart innovation and learn about why some products become successful in the market.

The course integrates three important disciplines of product design - Arts, Engineering and Business. You will get to explore design processes at every stage, from idea conceptualisation to realisation, and graduate with quality design folios, including working prototypes. With our studio-based learning approach, you will work in modern design studios and develop prototypes using state-of-the-art model making equipment and facilities.

In your first year, learn about fundamental design principles as well as engineering concepts that are applied to the design process. You will be taught how to use computer-aided design software in your second year, and apply what you have learnt to actual product design projects. You will then progress to more advanced product innovation and development projects in your final year when you learn about the business management aspects of product development. You will also go on a three-month internship at leading companies.

Under our partnership with Motorola Solutions, top designs in the students' final-year projects are given awards by Motorola.

To top it off, we've got local and overseas field trips to design centres and museums in countries such as Australia, so your learning journey is nothing short of fulfilling.

LEVEL 3.1

Design for Manufacturability

The module covers the principles of Concurrent Engineering, with a focus on Design for Manufacturability (DFM) and Design for Assembly (DFA). It includes the concepts and applications of the DFM and DFA methods, and also includes topics on Value Analysis, Quality Function Deployment, Failure Mode Effects and Analysis, Computer Aided Engineering and Rapid Prototyping in the context of product design and development. Students gain an appreciation of the importance of these methods in reducing manufacturing costs, enhancing product quality, reducing product development cycle time and enhancing innovation. Case studies, assignments and projects are used to enhance learning.

Entrepreneurship & Business Plan

This module provides students with an understanding of the nature and attributes of entrepreneurship and business planning. Through case studies, lectures, tutorials and discussions, students learn the general process and factors of how to start a business and develop it into a successful enterprise. The contents of a good business plan for starting a new business or for the expansion of an existing enterprise are learnt through case studies and assignments. Students will be required to write a feasibility plan for a product design and development project that they undertake in another module.

Product Design Studio 3

In this studio project module, students undertake a major individual project in designing a revolutionary product that considers future trends, avant-garde design features and application of factors in product design. Students are required to complete the product design process from the conceptualisation of the product idea to the product design, with a 3D CAD model, and drawings and documentation for production purposes. There will be guest lectures by practising designers, case studies, discussions and exercises on contemporary design topics, product innovation topics and emerging design trends.

LEVEL 3.2

3-Month Internship

The internship exposes students to the work environment as well as practices related to product design. It offers them the opportunity to apply the knowledge and skills acquired in the classroom to the real-world in areas of problem solving, communication and interpersonal skills. The internship allows students to work independently and in teams, while they take on one or more practical projects under the supervision of industry practitioners. The objective is to

develop a professional approach to work, based on the relevant code of practice.

Capstone Project

This is a major project module in the PDI curriculum. It provides students with the opportunity to apply the knowledge and skills learnt to complete a major project. In this 12-week full-time project module, students undertake a major individual project, completing the life-cycle product design and development process that involves various phases from the conceptualisation of a product idea to product design, prototype making and testing, and finally preparation of drawings and documentation for production purposes.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 3	
Level 3.1 (20 hours per week)	
Design for Manufacturability	4
Entrepreneurship & Business Plan	3
Product Design Studio 3	9
Interdisciplinary Studies (IS) elective ^	2
World Issues: A Singapore Perspective ^	2
Level 3.2 (22 hours per week)	
3-Month Internship	12
Capstone Project	10

Notes:

^ For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.