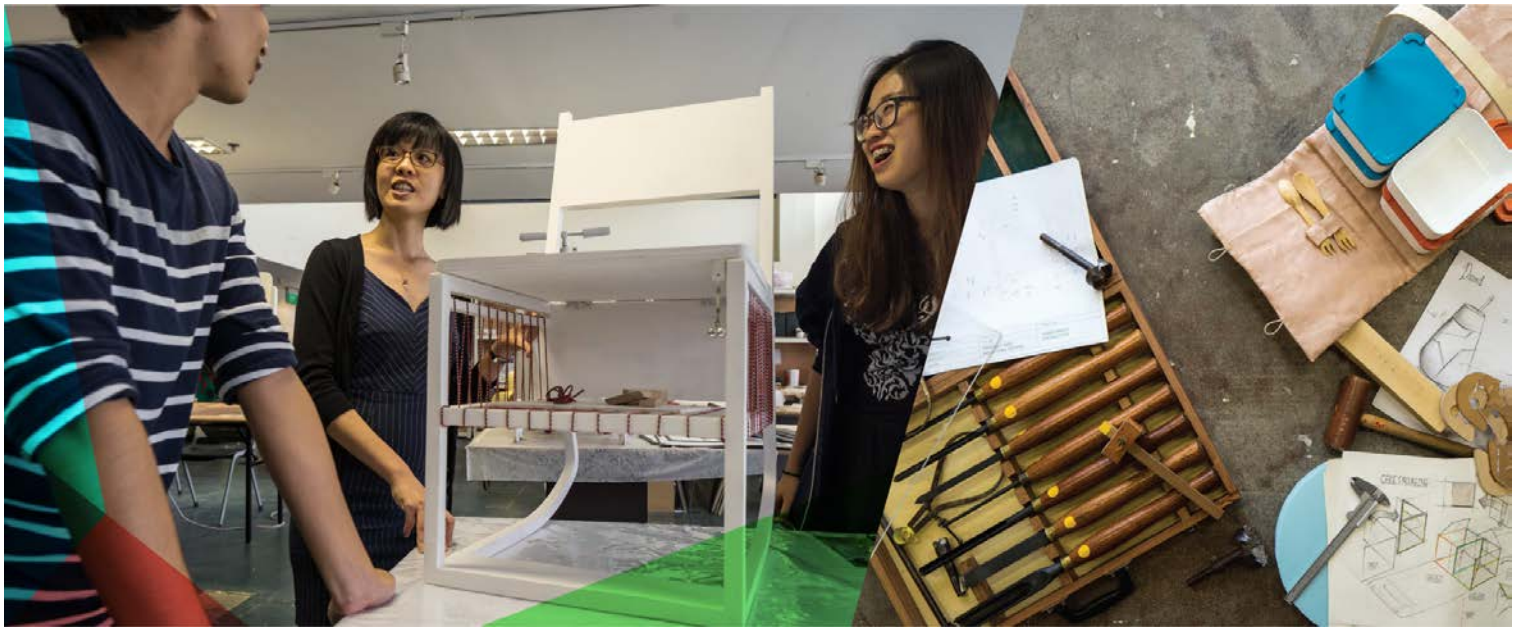
Product & Industrial Design

OVERVIEW



Good product design has the power to improve lives. Get ready to break down conventional thinking and seek fresh and bold ideas, prototyping them with the latest 3D printing technology and traditional workshop tools. Learn from different materials, human-centred design and the newest technologies and trends to keep up with emerging lifestyles and innovations.

You will hone your sense of craft, critical thinking, technical and reasoning skills, expanding your capacity to communicate and make compelling ‘live’ industrial project pitches through purposeful product design, rational design research and analytical processes. Your creation could transform the mundane into nifty, intelligently-designed gadgets that can add value to lives and businesses.

Your Journey

Year 1

Learn about how shapes and forms can be manipulated to communicate an idea. Be introduced to 3D printing and other prototyping tools. Get the basics of visual presentation skills and be introduced to design research.

Year 2

Year 2 is where you go deeper into understanding the design research process in terms of creating a better experience and improving usability. Study trips are also on the cards to round out your perspectives on different lifestyles, culture, social platforms.

Year 3

Lots of exposure to industry practice through actual ‘live’ briefs. Coupled with internship and preparation for the Major Project, year 3 will prepare you for life after graduation as young designers.

ENTRY REQUIREMENTS

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

Minimum Entry Requirements

English Language (EL1)*	Grades 1-7
Mathematics (E or A)	Grades 1-7
Any three other subjects, excluding CCA	Grades 1-6

Applicants must also have sat for at least one of the following subjects: Additional Combined Science, Additional Science, Art/ Art & Design, Biology, Biotechnology, Chemistry, Combined Science, Computer Studies, Creative 3D Animation, Design & Technology, Engineering Science, Food & Nutrition, Fundamentals of Electronics, General Science, Higher Art, Human & Social Biology, Integrated Science, Media Studies (English), Media Studies (Chinese), Physics, Physical Science, Science (Chemistry, Biology), Science (Physics, Biology), Science (Physics, Chemistry), Science (Physics, Chemistry, Biology).

Note: *Applicants who have partial or complete colour appreciation deficiency should not apply for this course. Applicants who do not satisfy the pre-requisite may not be accepted into the course. For safety reasons, applicants must ensure that they do not suffer from medical conditions such as epilepsy or hearing deficiency.*

See also the minimum entry requirements for:

- ITE Certificate Holders
- International Students

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COURSE STRUCTURE

TP Fundamentals (TPFun) Subjects

Subject code	Subject	Level	Credit Units
DCS1017	Communication & Information Literacy In this subject, you will learn how to conduct research for relevant information and validate information sources. You will also learn to recognise and avoid plagiarism, and follow standard citation and referencing guidelines when presenting information. In the course of learning, you will be required to plan, prepare and present information appropriately in written and oral form. You will also be taught to consider the **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) when writing and delivering oral presentations.	1	2
DCS1018	Workplace Communication In this subject, you will be taught how to conduct effective meetings while applying team communication strategies and the skills for documenting meeting notes. You will be required to write clear emails, using the appropriate format, language, tone and style for an audience. You will also be taught to communicate appropriately in and for an organisation when using various platforms. In all aspects, the principles of applying **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) will be covered.	1	2
DCS1019	Persuasive Communication In this subject, you will be taught how to use persuasive language in written documents. You will be required to use information to your advantage to verbally communicate and convince an audience about your idea, product or service. Skills such as persuasive vocabulary, language features, graphical illustrations, tone and style would also be covered. The **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) will also be applied when engaging in verbal and written communication.	1	2
GCC1001	Current Issues & Critical Thinking This subject presents you with a panoramic view of current local and global issues, which may have long term implications for Singapore. You will learn to apply critical thinking tools to examine current issues, support your views with relevant research and up-to-date data, articulate an informed opinion and mature as civic-minded individuals.	1	2

DIN1001	Innovation & Entrepreneurship The Innovation & Entrepreneurship subject is designed for learners from all disciplines to embrace innovation in either their specialised fields or beyond. You will first learn the Design Thinking framework, where you will develop problem statements and ideate solutions. Next, you will discover the tools for prototyping and innovation, such as 3D printing and laser cutting, at TP's Makerspace+ facility. Finally, you will acquire commercial awareness through the LEAN Startup framework of idea crystallisation, prototype building, customer testing and validation, refinement of business model canvas, and crowdfunding or crowdsourcing avenues.	1	2
LEA1011	Leadership: Essential Attributes & Practice 1 LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	1	1
LEA1012	Leadership: Essential Attributes & Practice 2 LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	1	1
LEA1013	Leadership: Essential Attributes & Practice 3 LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.	1	1
LSW1002	Sports & Wellness This subject will help you develop both the physical and technical skills in your chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, you will learn to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will be supplemented by health-related topics to provide you with a holistic approach to healthy living.	1	2
MCR1001	Career Readiness 1 This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	1	1

MCR1002	Career Readiness 2 This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	1	1
MCR1003	Career Readiness 3 This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.	1	1
DGS1002	Global Studies This subject provides essential skills and knowledge to prepare you for an overseas experience. You will examine the elements of culture and learn the key principles of cross-cultural communication. In addition, you will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment.	1	3
DGS1003	Managing Diversity at Work* This subject explores the concepts of identity, diversity and inclusion at the workplace. It examines the relationship between identity and diversity, the benefits and challenges of diversity and the strategies that promote inclusion and inspire collaboration in a diverse workplace. Examples of the elements of diversity covered in this subject include nationality, generation, ethnicity and gender.	1	3
DGS1004	Global Citizenship & Community Development* Students will examine the meaning and responsibilities of being a Global Citizen, in order to contribute towards a more equitable and sustainable world. In addition, students will learn how sustainable solutions can support community development, and, execute and critique a community action plan that addresses the needs of a specific community/cause.	1	3
DGS1005	Expressions of Culture* This subject provides a platform for an understanding of culture and heritage through modes of expression. Students will be introduced to global and local cultures via everyday objects, places and human behaviour seen through time and space. Students will explore issues and challenges in culture and heritage sustainability in community, national and global contexts.	1	3
TGL1001	Guided Learning The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills.	1	3

DSI3029	Student Internship Programme (PID) This is a graded subject that prepares you for the world of work. The internship period is 16 weeks long. You will learn to identify prospective companies, prepare your portfolio, application letter and resume, and attend job interviews. You may have the opportunity to work with firms locally or overseas. The internship will expose you to actual design industrial or business environments, giving you a realistic perspective of working life. You will work with commercially “live” projects and demonstrate the ability to transit from student to employee. You will journal, record and evaluate your progress and learning with your supervisors and your lecturers.	3	12

** Students must choose to take either one of these three subjects or TGL1001 Guided Learning.*

Diploma Subjects - Core Subjects

Subject code	Subject	Level	Credit Units
DPD1432	Prototyping Workshop This subject introduces you to a wide variety of basic processing of wood, metal, plastics, composite materials and safe operations with workshop tools and machineries. You will acquire a working knowledge of Workplace Safety & Health (WSH), material specification, their characteristics and properties, prototype techniques, and competency in joining different materials together using the right methods of construction and techniques of casting, surface finishing as well as application of product graphics on 3-D prototypes.	1	6
DPD1433	Evolution of Industrial Design This subject gives an insight into the evolution of product design and its impact on society. It traces the rich heritage of man’s quest for ideas and forms since industrialisation by examining developments in art and the design of product and architecture. It also follows the changes of product design from traditional to mechanical forms and finally examines its present state in the electronic age.	1	3
DPD1434	Concept Visualisation This subject gives an insight into the evolution of product design and its impact on society. It traces the rich heritage of man’s quest for ideas and forms since industrialisation by examining developments in art and the design of product and architecture. It also follows the changes of product design from traditional to mechanical forms and finally examines its present state in the electronic age.	1	3
DPD1435	Form Aesthetics This subject introduces you to form aesthetics in product design. It centres on methods and principles of form development and manipulation. It also looks into form proportion and the meaning of product form and how it communicates.	1	3
DPD1436	Visual Presentation This subject develops a range of presentation skills to produce strong and informative design concept presentation. You will experiment with different graphic presentation techniques, media and digital tools to effectively enhance and communicate design ideas.	1	3

DPD1437	Prototyping Lab This subject develops your proficiency in generating concepts on screen using the appropriate Computer Aided Industrial Design (CAID) tools. You will develop skills in creating 3D concept visualisation using CAID tools and will be able to execute and manipulate the desired outcome best conveying your ideas within the CAID environment.	1	3
DPS1031	Design Fundamentals The subject introduces you to art and design fundamentals, aesthetic awareness and cultural appreciation. It will develop an understanding for the art and design processes, and enable you to reflect and see the world from a designer’s perspective. Through this subject, you will discover how to express yourself visually and with confidence in areas of art and design.	1	3
DPS1032	Collaborative Design The subject will cover the necessary ability to research, analyse and organise information relating to societal issues in a collaborative manner. It will introduce the various collaborative strategies, design frameworks and integrate critical thinking. It will also cover innovative and conceptual approaches in the context of design.	1	3
DVC1509	Digital Essentials Computer software knowledge is integral to the creative process in the design industry. This subject teaches you the fundamental knowledge and skills to carry out almost all forms of design solutions on the computer. From manipulating photos, illustrating your own graphics, to designing your very first layout — you will learn the digital tools that are essential in creating your own designs.	1	3
DPD2433	Design for Usability This subject introduces the basic product design lifecycle process. It will also look into individual’s cognitive and physical factors that influence usability of interaction with the products.	2	3
DPD2434	Design for Experience This subject deepens your knowledge of the design lifecycle. The subject centres on procedures to support design solutions to satisfy the needs and desires of individual users in the context of the environment. It will cover application of design reasoning and rationale necessary to develop a holistic solution.	2	3
DPD2435	Form Aesthetics 2 This subject deepens your knowledge of form aesthetics in product design, focusing on types and methods of product detailing in relationship to form and proportion. It will also look into how product detailing affects user experience and perception.	2	3
DPD2437	Visual Presentation 2 This subject helps you learn to present and communicate design solution in a visually persuasive and captivating way by deepening your knowledge and ability to combine research process, design principles and art direction with the latest presentation techniques and technology.	2	3

DPD2438	Prototyping Lab 2 This subject develops your proficiency in generating concepts on screen using the appropriate Computer Aided Industrial Design (CAID) tools. You will develop skills in creating 3D concept visualisation using CAID tools and will be able to execute and manipulate the desired outcome best conveying your ideas within the CAID environment.	2	3
DPD2439	Studio Project This subject introduces you to basic design vocabulary and the visual language of three-dimensional forms. Emphasis is placed on the realisation of sculptural forms as opposed to a utilitarian one. The core focus lies on the semantics of form and structure and the communication of ideas juxtaposed with issues of historical, social, cultural, functional and practical concern.	2	6
DPD2440	Studio Project 2 This project emphasises the application and use of industrial processes to meet user needs so that manipulative and workshop skills are developed into an understanding of production processes. You will learn entrepreneurship, leadership, batch production, marketing and sale of your designs.	2	6
DPD2441	Material & Fabrication Lab This subject covers the characteristics of materials available in the market. It also explores each material’s unique qualities and its application. The subject teaches you to express design ideas through various fabrication techniques for these materials.	2	3
DMP3011	Major Project : PID This self-initiated project gives you the latitude to put your critical thinking skills to the test as you create and propose design solutions that address new opportunities that stem from anthropological, social, cultural and technological change. The scope is wide and you will be encouraged to identify new niches in product design or propose new user experiences while taking into consideration, insight into human behaviour and new emerging trends.	3	9
DPD3433	Prototyping Lab 3 This subject covers fundamental techniques and theories of mechanical and structural engineering. CAID processes, additive manufacturing, prototyping technologies and product simulation with information and communication technology tools for product design will be taught.	3	3
DPD3434	Industry Studio Project This project provides you with a deeper engagement with industry through ‘live’ industry briefs. You are expected to utilise skills layered in earlier project modules to explore complex design challenges and offer appropriate solutions. Through this project-driven module, you will delve deeper into design research methodology, to practice and hone your skills in service design blueprint techniques, problem identification/ opportunity analysis and problem solving.	3	6

DPD3435	Design for Innovation The subject highlights the influence that science, technology, interface and interaction design has on modern product design. This includes the importance and value of product innovation processes including ways to enhance existing business services through the design of new product eco-systems.	3	3
DPD3436	Studio Project 3 Layering skills learned in early studio project modules, this subject takes a deeper look at design methodology, including research and analysis, problem identification and problem solving. The focus rests on identifying new opportunities for a product ecosystem and product innovation. This includes the technical skillsets to translate sketches into digital rendering and general assembly drawings with the aid of maquettes and mock ups. There is emphasis on human-centric design approaches, including the consideration of ergonomic and user interaction. Technical constraints, functionality, practicality and product semantics and aesthetics are emphasised and explored which ends in the production of highly finished three-dimensional presentation models to communicate design intent.	3	6

Graduation Requirements

Cumulative Grade Point Average	min 1.0
TP Fundamentals Subjects	36 credit units
Diploma Core Subjects	87 credit units
Total Credit Units Completed	**min 123 credit units**