



## ADVANCED DIPLOMA IN PRODUCT DESIGN

**Awarded by** : Raffles College of Higher Education, Singapore  
**Intakes** : January, April, July, and October  
**Duration** : 1 Year and 6 Months (Full-time)

### Core Modules

#### Human Factors

Through this subject, students will critically analyze the importance of user scenario. It will allow students to critically consider the importance of size, weight, as well as the comfort of the user. This module also examines the use of anthropological and ergonomic data in Product Design including understanding the psychology of consumer behaviour and identifying user needs through analyzing the role of the consumer in a contemporary and historical context by examining economic, social, commercial, and gender topics.

Credit Points: 10

#### Digital Presentation

The objective of this module is to provide students with general knowledge of digital presentation theories, planning, applications, and designs, as well as practical methods and practical skills for creating digital presentations. Students will be able to identify different methodologies and tools for presenting their ideas digitally as well as apply the appropriate digital medium for the generation of design ideas, thereby grasping the skills needed to prepare and deliver effective and meaningful presentations.

Credit Points: 10

#### 3D CAD Prototyping

This module provides students with essential knowledge for the production of 3D models using Computer-Aided Design (CAD). It addresses engineering challenges with a strong emphasis on industry standards and specifications and the interpretation and preparation required for output in 3D printing and laser cutting.

Credit Points: 15



### **Furniture Design and Application**

The objective of this module is to introduce students to the history and theory of furniture design and the application of history and theory to the furniture design process. Students will research and analyze the design and history of furniture, developing knowledge of material and form and their relation to cultural context. Students will also develop an understanding of the importance of ergonomics in the function of furniture. The ultimate goal of this module is to understand that history and theory can be inextricably connected to the design process and that a greater ability in theoretical and critical thinking will allow a greater ability in innovation.

Credit Points: 15

### **Electrical Product Design**

Students will be introduced to various rendering techniques and engage with multiple mediums to produce their final work; through the rendering process, students will effectively communicate their thoughts and ideas to stakeholders. This skill will enhance students' confidence and contribute to their development as professional designers by improving their abilities in accurate communication, freehand drawing, and idea discussion. Furthermore, students will explore diverse drawing styles utilizing mediums such as coloured pencils, watercolours, pastels, markers, and digital technologies to create commercial design drawings

Credit Points: 15

### **Academic Research and Communication Skills**

This unit covers key aspects of research and communication studies in academic contexts relevant to students of design and marketing. Students engage in collaborative learning activities throughout the term in order to develop their teamwork skills.

Students learn to locate, understand, and critically evaluate information from books, journals, the Internet, and primary sources, in order to do effective research. Using these sources of information, students then produce an extended piece of analytical writing and give oral presentations to their peers. Skills in doing primary research (i.e. conducting interviews and surveys), accessing and evaluating information, paraphrasing, using established referencing systems, applying the principles of effective communication, and the professional presentation of documents, are all covered during the module.

Credit Points: 15

### **Design Rendering**

Students are exposed to different rendering skills and will use different types of mediums to render the final work. Through rendering, students are able to demonstrate their thoughts and ideas clearly to clients or lecturers. This skill will enhance students' confidence and develop them as professional designers in terms of improving accurate communication, live freehand drawing, and discussion of ideas and concepts to develop.

Students will be exposed to a range of drawing styles using different medium such as pencil colour, water colour, pastel, and marker to illustrate commercial drawing in jewellery design or product design.

Credit Points: 15



### **Lighting Fundamentals and Design**

The objective of this module is to provide students with technical information and necessary knowledge related to lighting design. Students will be introduced to the fundamentals of lighting principles, concerning indoor environments, and setting specific atmospheres within a given set of specifications associated with different lighting requirements. The emphasis of this module will be on the specifications of lighting fixtures and basic calculation according to usages of spaces, and understanding the importance and relevance of lighting elements within a contemporary design environment.

Credit Points: 15

### **Visual Merchandising**

To provide students with an understanding of the history of modern retail environment and its development and practical knowledge of Visual Merchandising techniques. Students will understand store layouts, fixtures & fittings, mannequins, lighting, display principles and in-store merchandising systems.

Credit Points: 15

### **Manufacturing Technology**

This module emphasizes the understanding of the designer's approach towards the production of goods which impacts on consumers indirectly or directly, analyzing, investigating a range of manufacturing processes from one-off to mass production, with focus on quality, safety, vendor selection, efficiency, sustainability, and costs. Students will gain knowledge and understanding of the constraints of specific processes and apply that within 3D Design.

Credit Points: 15

### **Modular Design Systems**

Students will learn about the applications and processes associated with modular design systems. They will examine various systems and connectors that enable functional partitioning into discrete, scalable, and reusable modules, all aimed at cost reduction. In addition, students will actively participate in modular assembly activities to explore the advantages of duplication and the creation of functional appliances across various contexts.

Credit Points: 20



### **Generative Design**

This module emphasises understanding the designer's approach towards presenting design solutions in a three-dimensional form; students will be introduced to the most efficient shape based on defined material, constraints and stresses. It takes modelling from computer-aided to computer-driven – with resulting forms. Creating lighter components, minimising material waste in downstream manufacturing, and creating highly customised designs well-suited for casting or high-resolution 3D printing, with the fundamental knowledge to do calculations and stress tests on the designed components, preparing the project for manufacturing.

Credit Points: 15

### **Design Management**

To prepare students for the real-world industry, students are taught the necessary skills for communication of their portfolio, website, interview session, resume, and curriculum vitae. In this module, the dialogue and research is a crucial factor to assemble a good collection of techniques that will help them in the professional environment. Students need to understand the importance of professional practice, including areas of project management, intellectual property, legal aspects, meeting procedures, client management, market and user research. This module provides Product Designers an insight into how to manage a project while appreciating the roles of design as well as the designer in projects. It covers the concept of design for value, integrated design, the client's brief, design evaluation, and the impact of design.

Credit Points: 15

### **Parametric Modeling**

This course enhances students' understanding of algorithmic thinking, digital workflows, and innovative methods for developing functional solutions. Students will explore the relationships between design concepts, form generation, materials, and fabrication processes, merging creativity with technical precision to transform 2D ideas into 3D parametric models.

Credit Points: 15

### **Computer Rendering**

Students will acquire knowledge of fundamental algorithms, data structures, and programming models utilized in 3D graphics applications. The curriculum will encompass the processes of creating computer-generated images and videos, which are now ubiquitous in contemporary society and serve as vital tools for conveying and developing conceptual ideas. Students will examine methods for generating photorealistic and non-photorealistic images from 3D models, engaging with these concepts through practical implementation in modern computer graphics software. This approach will provide a comprehensive understanding of the relevant techniques in a contemporary context.

Credit Points: 15



### **Industrial Attachment**

This module aims to provide students with the opportunity to gain real-world industry experiences and professional practices in their chosen discipline. It allows students to establish connections, develop useful contacts, and gain industrial skills and an overall perspective of the discipline. The industrial attachment is intended to enhance students' educational experience and prepare them for their careers.

Credit Points: 20

### **Industry and Community Engagement**

In this module, students are required to use their design knowledge and skills in industry-focused and/or community-based projects. These projects are facilitated by the lecturer or tutor, and there will be interactions with and feedback from key industry/community project mentors. The module is intended to prepare students for the expectations of the fast-paced real-world industry, and professional practices in careers in their chosen discipline.

Credit Points: 20

### **Product Design Project**

This module represents the culminating stage of the programme, in which students will apply the knowledge and skills acquired in prior modules to develop a self-initiated final project. In this project, students are tasked with producing tangible outcomes or deliverables to be presented and showcased.

Credit Points: 20

### **Packaging Design**

The module provides students with the essential knowledge and skill sets to gain proficiency in the field of packaging design in visual communication. The guidance will take the form of lectures, demonstrations, practicals, and critique sessions. The components of the module includes the roles and functions of packaging in visual communication, package material studies and considerations, structure construction based on dieline, visual designs for package corresponding to brand image and positioning, etc.

Credit Points: 15



### **Digital Videography**

The module provides students with the essential knowledge and skill sets to gain fundamental understandings of capturing moving images through digital videography. In the module, students will be guided to explore both the technical and aesthetic aspects of videography as a contemporary medium of expression in visual communication. The guidance will take the form of lectures, tutorials, technical demonstrations, practicals, and critique sessions. The components of the module include video production workflow from storyboarding to audio integration, art directions in videography and cinematography, video editing and compositing with industry standard tools, effects treatment in post-production, etc.

Credit Points: 15

### **Interaction Design**

This module provides students with foundational knowledge and skill sets for developing effective interaction interfaces. Through a blend of theoretical instruction and practical application, students will devise and design human-centric systems that prioritise accessibility and usability within the user experience framework.

Key focus areas will include understanding user behaviour patterns, information architecture, planning and sequence mapping, graphical user interfaces (GUI), visual hierarchy, navigation, and prototyping at various fidelity levels (low, medium, and high). The module will also examine both the technical and aesthetic dimensions of interaction design and the role of interactivity in enhancing user experience.

Credit Points: 15