



## 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: 5

#### 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

#### Computer Aided Design (AutoCAD)

This module teaches students to produce computer-aided mechanical drawings, providing them with the necessary knowledge in engineering CAD Software drawing, based on 2D drafting, detailing, and 3D applications and their relevance within 3D Design, with a strong emphasis on the standards in technical drawings, specifications, interpreting and preparation of the drawing output (plotting).

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

### **Studio Practice: Electrical Product Design**

Electrical Product Design emphasizes examining consumer products through analyzing a range of electrical and electronic products within a creative, commercial, and highly competitive consumer market. In this module, students gain knowledge of internal components, structures, and materials, relating to electrical and electronic product design.

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

### **Studio Practice: Modular Design Systems**

Students will learn the applications and processes of modular design systems and the different forms in the industry, as well as the various approaches and better use of different tools to modular design products. Students will engage in modular assembly exploration of ways of advantages duplication and creation of valid appliance in varied contexts as an open system for flexible modularity.

Credit Points: 20



### **Solid Modeling – Rapid Prototyping**

Solid Modeling emphasizes the understanding of the designer's approach towards the presentation of design solutions in a three-dimensional form. In this module, students will be introduced to various types of rapid prototyping processes and 3D mechanical design applications, sectioning, and dimensioning; drawing standards and geometrical tolerances.

Students will also be provided with the fundamental knowledge to do calculations and stress test 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

### **3D Manipulation (3D Studio Max)**

Using the software 3D Studio Max, students will be trained to use a wide variety of techniques of virtual representation of concepts. Students will gain knowledge and skills in three-dimensional rendering through generation support for the presentation and demonstration through animation.

Credit Points: 15

### **Computer Rendering (Rhinceros)**

Students will learn applications and processes in computer rendering, designing and engineering products ranging from jewellery and furniture to automobiles, and how to build 3D models and prototypes with the NURBS-based modeling tools. Students are introduced to three primary entities (the curve, the surface, and the solid) and shown the best ways to draw curves and model 3D objects, to edit their geometry efficiently, and to render and export designs.

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

### **Major Design Project – Product Design**

This final project will be self-proposed, from previous projects undertaken throughout the year and developed through to pre-production stage, under the supervision and guidance of a studio lecturer.

Credit Points: 20

### **Studio Practice: Packaging Design**

In Packaging Design, students explore the fundamentals of packaging, considering and designing in three dimensions, mass design, designing for specific target markets, food containers, and new product launches and also techniques on creating packaging. They will also learn the functions of wrapping to protect the product create an identity for advertising as well as communicating to the consumers.

Credit Points: 15