In VCE Product Design and Technology students assume the role of a designer-maker. In adopting this role, they acquire and apply knowledge of factors that influence design. Students address the design factors relevant to their design situation.

**Year 11**

**Unit 1: Product re-design and sustainability**
This unit focuses on the analysis, modification and improvement of a product design with consideration of the materials used and issues of sustainability. Finite resources and the proliferation of waste require sustainable product design thinking. Many products in use today have been redesigned to suit the changing needs and demands of users but with little consideration of their sustainability. Knowledge of material use and suitability for particular products is essential in product design. Additionally, knowledge of the source, origin and processing of materials is central to sustainable practices. Students consider the use of materials from a sustainable viewpoint. Sustainable practices claimed to be used by designers are examined. Area of Study 1 provides an introduction and structured approach towards the Product design process and Product design factors. Students learn about intellectual property (IP), its implications related to product design and the importance of acknowledging the IP rights of the original designer. In Area of Study 2, students produce a re-designed product safely using tools, equipment, machines and materials, compare it with the original design and evaluate it against the needs and requirements outlined in their design brief. If appropriate, a prototype made of less expensive materials can be presented; however, the specific materials intended for the final product would need to be indicated. A prototype is expected to be of full scale and considered to be the final design of a product before production of multiples.

**Unit 2: Collaborative design**
In this unit students work in teams to design and develop an item in a product range or contribute to the design, planning and production of a group product. They focus on factors including: human needs and wants; function, purpose and context for product design; aesthetics; materials and sustainability; and the impact of these factors on a design solution. Teamwork encourages communication between students and mirrors professional design practice where designers often work within a multi-disciplinary team to develop solutions to design problems. Students also examine the use of ICT to facilitate teams that work collaboratively but are spread across the globe. In this unit students are able to gain inspiration from an historical and/or a cultural design movement or style and its defining factors such as ideological or technological change, philosophy or aesthetics. In Area of Study 1, students work both individually and as members of a small design team to address a problem, need or opportunity and consider the associated human-centred design factors. They design a product within a range, based on a theme, or a component of a group product. They research and refer to a chosen style or movement. In Area of Study 2 the product produced individually or collectively is evaluated.

**Year 12**

**Unit 3: Applying the Product design process**
In this unit students are engaged in the design and development of a product that meets the needs and expectations of a client and/or an end-user, developed through a design process and influenced by a
range of complex factors. These factors include the purpose, function and context of the product; human centred design factors; innovation and creativity; visual, tactile and aesthetic factors; sustainability concerns; economic limitations; legal responsibilities; material characteristics and technology. Design and product development and manufacture occur in a range of settings. An industrial setting provides a marked contrast to that of a ‘one-off situation’ in a small ‘cottage’ industry or a school setting. Although a product design process may differ in complexity or order, it is central to all of these situations regardless of the scale or context. This unit examines different settings and takes students through the Product design process as they design for others. In the initial stage of the Product design process, a design brief is prepared. It outlines the context or situation around the design problem and describes the needs and requirements in the form of constraints or considerations. In Area of Study 1, students examine how a design brief is structured, how it addresses particular Product design factors and how evaluation criteria are developed from the constraints and considerations in the brief. They develop an understanding of techniques in using the design brief as a springboard to direct research and design activities. In Area of Study 2, students examine how a range of factors, including new and emerging technologies, and international and Australian standards, influence the design and development of products within industrial manufacturing settings. They consider issues associated with obsolescence and sustainability models. In Area of Study 3, students commence the application of the Product design process for a product design for a client and/or an end-user, including writing their own design brief which will be completed and evaluated in Unit 4.

Unit 4: Product development and evaluation
In this unit students learn that evaluations are made at various points of product design, development and production. In the role of designer, students judge the suitability and viability of design ideas and options referring to the design brief and evaluation criteria in collaboration with a client and/or an end-user. Comparisons between similar products help to judge the success of a product in relation to a range of Product design factors. The environmental, economic and social impact of products throughout their life cycle can be analysed and evaluated with reference to the Product design factors. In Area of Study 1, students use comparative analysis and evaluation methods to make judgments about commercial product design and development. In Area of Study 2, students continue to develop and safely manufacture the product designed in Unit 3, Outcome 3, using materials, tools, equipment and machines, and record and monitor the production processes and modifications to the production plan and product. In Area of Study 3, students evaluate the effectiveness and efficiency of techniques they used and the quality of their product with reference to evaluation criteria and client and/or end-user feedback. Students make judgments about possible improvements. They produce an informative presentation to highlight the product’s features to the client and/or an end-user and explain its care requirements.

Assessment: Each Unit in Product Design and Technology consists of Outcomes that students need to satisfactorily complete in order to gain an S for each Unit of the subject. These Outcomes consist of both practical design work and written theory tasks.

Suggested Pre-requisites: There are no pre-requisites for Product and Design Technology. However experience in Materials Technology at years ten and or eleven is an advantage to the student.