Designers play an important role in our daily lives. They determine the form and function of the products we use. They transform ideas into drawings and plans for the creation and manufacture of useful products that fulfill human needs and wants. In recent history, the use of resources to create an ever-increasing array of products has resulted in designers adopting a more sustainable approach to design, manufacture, use and disposal. In this study students assume the role of a designer-maker, which involves the identification and definition of need; investigation through informed research to aid the development of ideas and solutions; the development of a knowledge of materials and processes; planning, construction and evaluation.

The study of Product Design Technology follows the requirements established by the VCAA. The subject is offered in the areas of both timber and textiles/fashion.

Note: Units 3 and 4 do not require the prerequisite study of Units 1 and 2.

**Product Design Technology - Wood**

**Unit 1: Product Redesign and Sustainability**

Unit 1 introduces students to the design process, product design factors and intellectual property. Students consider an existing product and how it fulfils the needs of the end user. Students consider how it could be improved, including its sustainability. Students develop a design brief and evaluation criteria to assess design options and the product they produce in response to the design brief.

**Assessment**

There are two elements to the assessment for Unit 1:

- A design folio that contains a design brief, evaluation criteria, research, design options, working drawings, production plan and an evaluation report.
- A completed product with records of production and modification.

**Unit 2: Collaborative Design**

Design is a collaborative enterprise involving many people with specialised knowledge and skills. In unit 2, students work individually and in teams to develop an item in a product range that addresses a problem, need or opportunity and consider the associated human-centred design factors. Students gain inspiration from an historical and/or cultural design movement or style and its defining factors such as ideological or technological change, philosophy or aesthetics.

**Assessment**

There are two elements to the assessment for Unit 2:

- A design folio that contains a design brief, evaluation criteria, relevant research, design options, working drawings, production plans and an evaluation report.
- A completed product that is part of a product range with records of production and modification.

**Unit 3: Applying the Product Design Process**

In Unit 3, students will be engaged in the design and development of a product that meets the needs and expectations of a client and/or end user. Students will consider a range of factors that include purpose, function, and context; human-centred design factors; innovation and creativity; visual, tactile and aesthetic factors; sustainability; economic limitations; legal responsibilities; material characteristics and properties; and technology. Students will investigate the relationship between the designer, client and/or end user in product development and product development in industry.

**Assessment**
Internal assessment is conducted throughout this unit following the criteria set out by VCAA and contributes to the subject score that is part of the ATAR.

**Outcome 1**: A structured, annotated design brief, four-part evaluation criteria and an explanation of how a designer will research and develop ideas in response to the design brief.

**Outcome 2**: A short written report explaining and analysing the influences on design, development and manufacture of products within industrial settings.

**Outcome 3**: Present a design folio that documents the product design process and commence production of the designed product.

**Unit 4: Product Development and Evaluation**

In Unit 4, students will continue to develop and manufacture the product designed in Unit 3, documenting the production process and modifications to the production plan and product. Students will also compare, analyse and evaluate similar commercial products to make judgements about commercial product design and development. On completion of the production process students will evaluate the effectiveness and efficiency of the techniques they used and the quality of the product with reference to client feedback and pre-established evaluation criteria.

**Assessment**

Outcome 3, Unit 3; Outcome 2, Unit 4 and Outcome 3, Unit 4 are subject to external review according to the criteria published by VCAA.

**Outcome 1**: A functional product that conforms to standards of quality accompanied by a record of production and a written justification of decisions and modification during the production process.

**Outcome 2**: An evaluation report of the product and the design, planning and production process.

**Outcome 3**: The VCAA will externally assess a student’s key knowledge and skills that underpin the outcomes in units 3 and 4 in a one-and-a-half-hour exam.

**Unit 1: Sustainable product redevelopment**

This unit focuses on the analysis, modification and improvement of a product design with consideration of sustainability. Students consider the sustainability of an existing product, such as the impact of sourcing materials, manufacture, distribution, use and likely disposal. They consider how a redeveloped product should attempt to solve a problem related to the original product.

**Area of Study 1**: Sustainable redevelopment of a product.

In Area of Study 1 students consider the sustainability of an existing product and acknowledge the intellectual property (IP) rights of the original designer. Working drawings are used to present the preferred design option.

**Area of Study 2**: Producing and evaluating a redeveloped product.

In Area of Study 2, students produce a redeveloped product. They compare their product with the original design and evaluate it against the needs and requirements outlined in their design brief.

**Assessment**

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of 2 outcomes specified for the unit.

All assessments at Units 1 and 2 are school-based.

On completion of outcome 1 the student should be able to design and plan the redevelopment of a product with the intention of developing a different product with consideration of sustainability issues.

On completion of outcome 2 the student should be able to select and apply materials, tools, equipment and processes to make a redeveloped product, and compare this with the original product.

**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 end-user/s’ 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.

In this unit students gain inspiration from an historical or a contemporary design movement or style and its defining factors such as ideological or technological change, philosophy or aesthetics.

**Area of Study 1**: Designing within a team

This area of study enables students to apply the product design process collaboratively and individually. Each student works in a design team to generate one design brief collaboratively from a scenario, based around a theme and contributes to the design, planning and production of a group product. Students investigate an historical or a contemporary design movement or style for inspiration.
Area of Study 2: Producing and evaluating within a team

In this area of study students make their product, designed in Area of Study 1, in accordance with the team requirements.

Students use appropriate methods of recording production processes and discuss modifications to production plans. They evaluate the transforming of their design options into a product range or team-designed product using the evaluation criteria.

Assessment As for Unit 1.

Unit 3: Applying the product design process

In this unit students are engaged in the design and development of a product that addresses a personal, local, or global problem (such as humanitarian issues), or that meets the needs and wants of a potential end-user/s. The product is developed through a design process and is influenced by a range of factors including the purpose, function and context of the product; user-centred design; innovation and creativity; design elements and principles; sustainability concerns; economic limitations; legal responsibilities; material characteristics and properties; and technology.

Area of Study 1: Designing for end-user/s

In this area of study students examine the product design process and develop skills in writing a design brief. They focus on identifying and designing for a potential end-user/s of an intended product. They consider development of a solution to a design problem.

Area of Study 2: Product development in industry

This area of study focuses on the factors, processes and systems that influence the design and development of products within industrial settings. Students explore specific cases and the reasons why design and innovation are integral to value-adding to products. They also examine how companies react to market demands and technological developments. Students look at the role of market research in determining end-user/s' needs in relation to sustainability.

Area of Study 3: Designing for others

This area of study focuses on students working as designers and applying the product design process to meet the requirements of an end-user/s. Students identify specific needs of the end-user/s by referring to the product design factors and conducting research. Students prepare a design brief that guides their work for this area of study and for Areas of Study 2 and 3 in Unit 4.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. They are as follows:

On completion of outcome 1 the student should be able to investigate and define a design problem, and discuss how the design process leads to product design development.

On completion of outcome 2 the student should be able to explain and analyse influences on the design, development and manufacture of products within industrial settings.

On completion of outcome 3 student should be able to document the product design process used to meet the needs of an end-user/s, and commence production of the designed product.

Unit 4: Product development and evaluation

In this unit students engage with an end-user/s to gain feedback throughout the process of production. Students make comparisons between similar products to help evaluate 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.

Area of Study 1: Product analysis and comparison

In this area of study students examine design factors that influence the success of commercially available products.

Products are analysed and evaluated in terms of the product design factors.

Area of Study 2: Product manufacture

This area of study focuses on the skills, production techniques and processes employed to make a product to suit the needs of an end-user/s.

They monitor and record their progress and make modifications if necessary.

Area of Study 3: Product evaluation

This area of study focuses on the student's application of evaluation criteria, the performance of checks and tests, and gaining end-user/s' feedback to determine how well a product meets the needs and requirements outlined in the design brief developed in Unit 3.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit.
On completion of outcome 1 the student should be able to compare, analyse and evaluate similar commercial products, taking into account a range of factors and using appropriate techniques.

On completion of outcome 2 the student should be able to apply a range of production skills and processes safely to make the product designed in Unit 3.

On completion of outcome 3 the student should be able to evaluate the finished product through testing and feedback against criteria, create end-user instructions or care labels and recommend improvements to future products.

**External assessment**

The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination.

Note: Students are expected to supply their own materials.

Food has been through a roller coaster ride’s worth of changes in recent history. Whether the focus is on the changes in Australia, or anywhere around the world, no culture is uninteresting. The purpose of VCE Food Studies is to explore these origins, the processes of food production, the food we eat in our daily lives, and the problems facing our food’s future.

**Unit 1: Food Origins**

In this unit, students will explore the origins and roles of food across the world and throughout time. It specifically looks at the sourcing of food, from hunter-gatherer society through to today’s urban lifestyle. It then moves focus into food origins in Australia. It explores food patterns before European settlement and how they have evolved through to now. The cooking for this unit focuses on exploring the world of food, before focussing specifically on Australian cuisine and influences.

**Assessments:**

The assessments for Unit 1 encompass a range of practical activities, as well as opportunities to present and display through methods such as reports, practical demonstrations, and many other methods.

**Outcomes:**

1. Students should be able to identify and explain major factors in the development of a globalised food supply, and demonstrate adaptations of selected food from earlier cuisines through practical activities.
2. Students should be able to describe patterns of change in Australia’s food industries and cultures, and use foods indigenous to Australia and those introduced through migration in the preparation of food products.

**Unit 2: Food Makers:**

The focus for Unit 2 shifts to the way in which today’s food in Australia is made. The first focus is on the food production industry, with focus on the processing of food for primary production through to sale of the product. Then a shift to the importance of the food production industry to our economy, highlighting the challenges and opportunities facing this industry. New food product development is also key to this unit, and the ways in which these products are developed, tested, produced and evaluated.

The focus then shifts towards the smaller scale domestic production of food. This includes investigation into the provision and preparation of food, and adapting food to meet the growing needs of families. Students test their ideas and skills through ‘entrepreneurial’ projects to improve design ideas and products towards commercial applications.

**Assessment:**

The assessment for Outcome 1 is to design and develop a practical food solution in response to an opportunity or a need in the food industry or school community.

The assessment for Outcome 2 is to design and develop a practical food solution in response to an opportunity or a need in a domestic or small scale setting.

**Outcomes:**

1. Students should be able to describe Australia’s major food industries, analyse relationships between food suppliers and consumers, discuss measures in place to ensure a safe food supply and design a brief and a food product that demonstrates the application of commercial principles.
2. Students should be able to compare and evaluate similar foods prepared in different settings, explain the influences on effective food provision and preparation in the home, and design and create a food product that illustrates potential adaptation in a commercial context.

**Unit 3: Food in Daily Life:**

The focus of Unit 3 is the role of everyday influences on food. Area of Study 1, within unit 3, delves into the science of food. Students investigate the processes behind eating, with focus on the microbiology of digestion, and the role of macro nutrients in the body. Students also develop their ability to analyse food choices. Food science terminology will be developed through the investigation into the chemical changes of food during preparation and cooking.

Area of Study 2 focuses on patterns of eating in Australia. This includes the influences of social and economic impacts, and looks into the cultural and emotional significance of food, and the effects on psychological welfare. Students also focus on the role of media in advertising as an influence on food habits and beliefs, especially on children and the encouragement of healthy eating.

**Assessments:**

Unit 3 SACs contribute 30% to the overall study score of this subject.
Assessments for both outcomes 1&2 comprise a range of practical activities, and visual/written reports.

Outcomes:

1. Students should be able to explain the processes of eating and digesting food and absorption of macronutrients, explain causes and effects of food allergies, food intolerances and food contamination, analyse food selection models, and apply principles of nutrition and food science in the creation of food products
2. Students should be able to explain and analyse factors affecting food access and choice, analyse the influences that shape an individual’s food values, beliefs and behaviours, and apply practical skills to create a range of healthy meals for children and families.

Unit 4: Food Issues, Challenges and Futures:

The focus of Unit 4 is the food system globally, and within Australia. In Area of Study 1, students investigate the debates surrounding global food systems and their effects on the environment, ethics, technologies, food access and safety, and the continued use of agricultural resources. Students then undertake a critical inquiry into the debates, looking at the current and possible future states of production. They select one debate and continue to research it in depth, viewing both sides of the debate, and look at the possible solutions from both an environmental and ethical standpoint.

Area of Study 2 explores the world of food misinformation and information, and the building of food knowledge, skills and habits. Students investigate the notions of food fads, trends, and diets, as well as the credibility of them based on resources such as the Australian Guide to Healthy Eating. They also develop their food selection skills through the study of food labels and the market terms on food packaging.

Assessments:

Unit 4 SACs contribute 30% to the overall study score of this subject.

As well as practical assessments;

- Outcome 1 has a written report based on the debate chosen in Area of Study 1.
- Outcome 2 has a visual/written report.

Outcomes:

1. Students should be able to explain a range of food systems issues, respond to a selected debate with analysis of problems and proposals for future solutions, apply questions of sustainability and ethics to the selected food issue and develop and create a food repertoire that reflects personal food values and goals
2. Students should be able to explain a variety of food information contexts, analyse the formation of food beliefs, evaluate a selected food trend, fad or diet and create food products that meet the Australian Dietary Guidelines.

The end of year exam contributes 40% to the study score.