

Technology

Year 7 - 10

VCE Food Studies

VCE Product Design & Technology (Textiles)

VCE Product Design & Technology (Wood)

VCE Systems Engineering

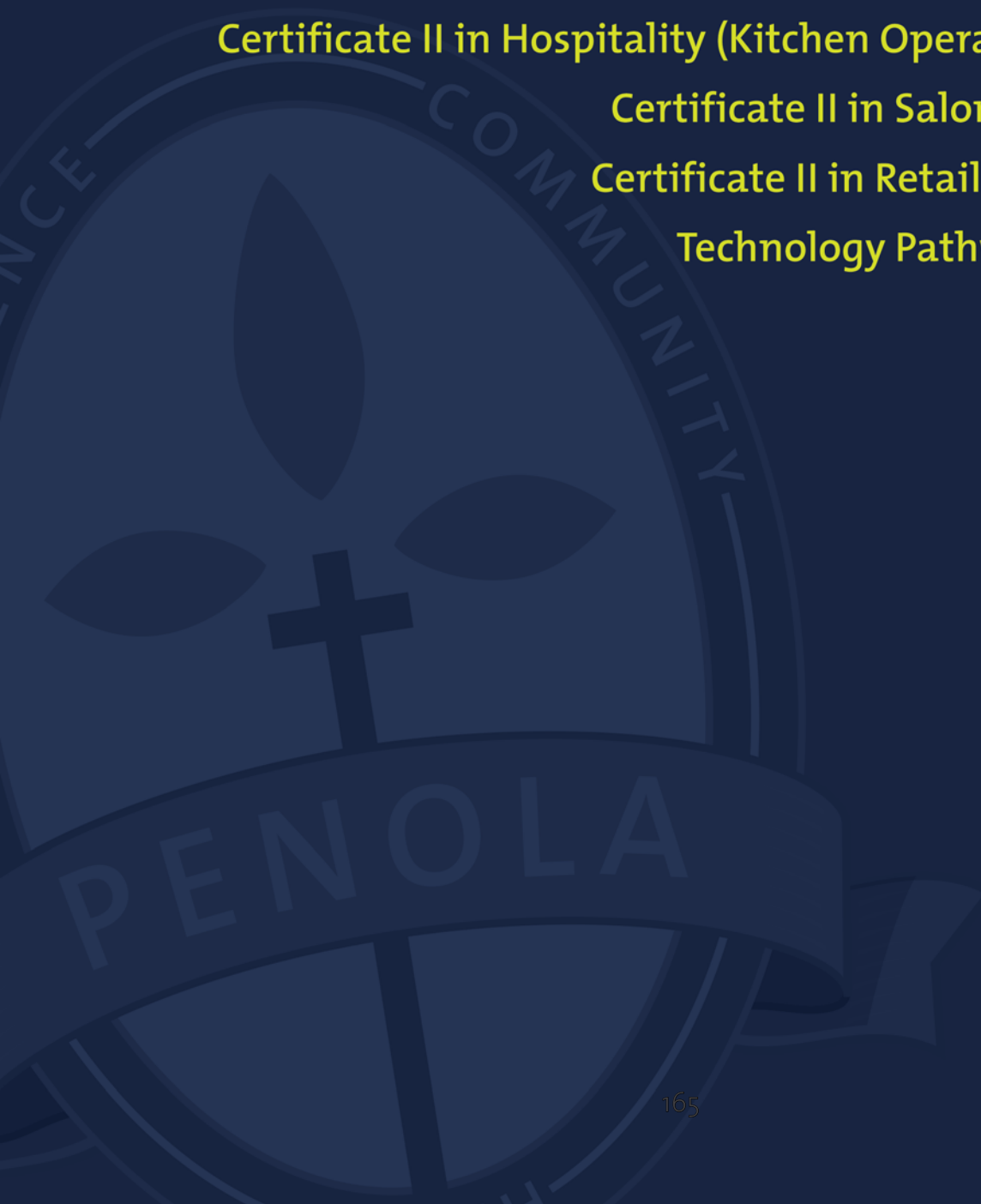
Certificate II in Engineering (VCE VET)

Certificate II in Hospitality (Kitchen Operations) (VCE VET)

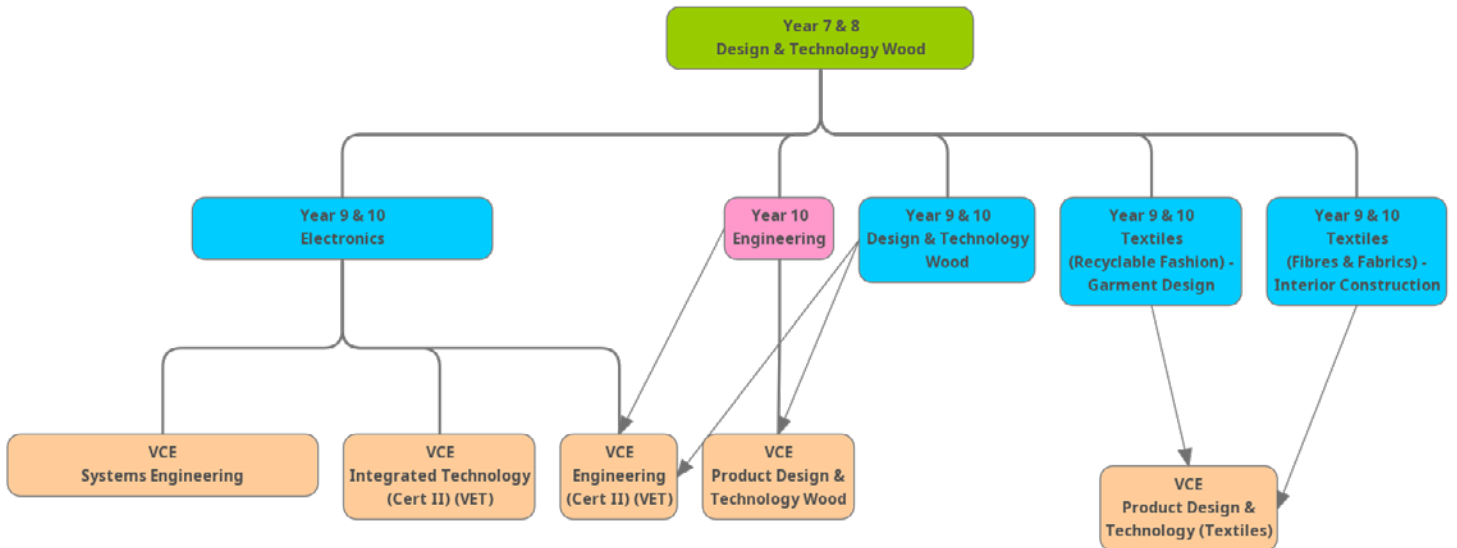
Certificate II in Salon Assistant (VET)

Certificate II in Retail Cosmetics (VET)

Technology Pathways Year 7 to 12

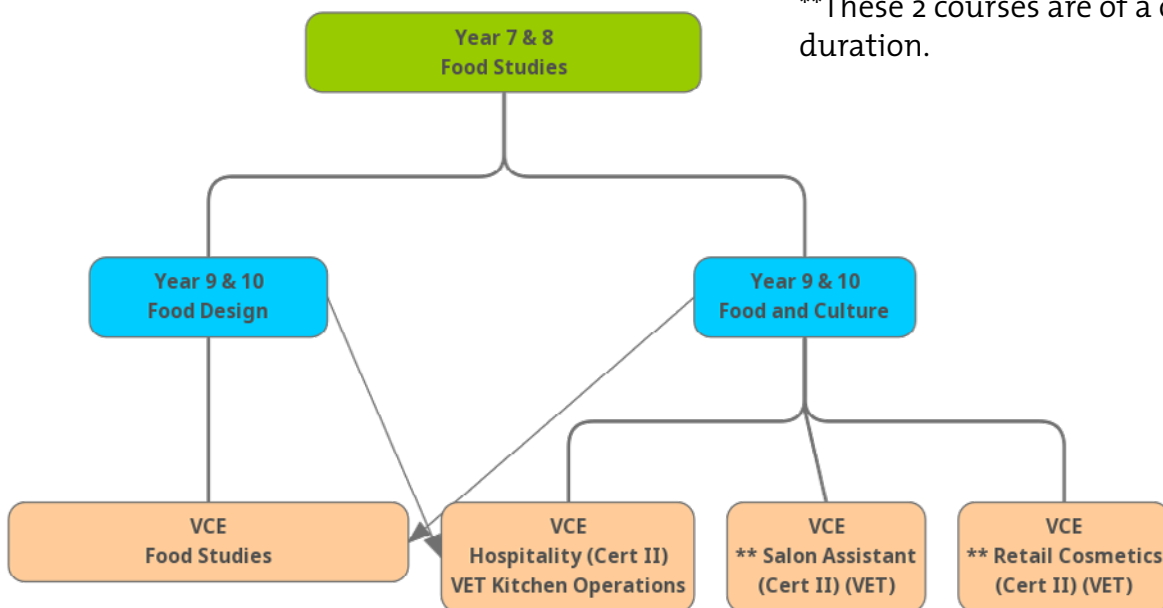


Technology Pathways



Please note: *Year 9 Students can apply to accelerate in any of the Year 11 Technology subjects on offer.

**These 2 courses are of a one year duration.



Technology

Year 7 - 8

Technology studies at Penola Catholic College involve the purposeful application of knowledge, experience and resources to create products and processes that meet human needs. It is important that students learn to use technology and learn about its power and scope as well as its limitations. They need to learn to be innovative in perceiving possible uses of technology to solve human problems, and to orient themselves towards the future with an awareness of the implications of these possibilities. With the appropriate knowledge and skills, students will be able to use technology in an efficient and responsible manner and thus, be better able to adapt to the rapid changes taking place in their career prospects, future work places and life styles. An understanding of the influences on, and limitations of, developments in technology will enable students to be better prepared to adapt to new applications of technology and to participate in controlling and monitoring their development. The Technology Learning Area explores the processes involved in production, regardless of what medium or material is chosen. Students will be working with equipment that complements their own skills development and enhances their knowledge of the area studied.

Year 7 & 8 Food Studies

All students complete a semester of Food Studies in Year 7 & 8. The students participate in units which introduce them to the functions of proper use of kitchen equipment. Students develop food skills, an understanding of nutrition, preparation and consumption.

In the second year, students broaden their knowledge of various food groups. They develop skills in the production process by safe use of tools and equipment in the kitchen preparing, cooking and final presentation.

Year 7 & 8 Design & Technology (Wood)

All students complete a semester of Design & Technology Wood in Year 7 & 8. The students are introduced to various timbers and plastics. They are involved in the design process and develop an understanding of simple construction techniques while considering safe working practices. In the second year, students further develop skills in this area to get a better understanding of construction techniques through the safe use of hand and power tools.



Technology

Year 9

Students are required to choose two Technology electives in Year 9. They may select from the following units:

- **Electronics**
- **Food Studies**
- **Textiles Technology**
- **Design & Technology (Wood)**

The choices made in Year 9 do not limit future choices in Years 10 and 11.

Points to note

There are no prerequisites for any Year 10 unit or any VCE unit in this learning area. Students who wish to study a second Language (Italian and French or Japanese and French) must select one Technology/Information Technology unit only.

Students select from the following subjects:

Electronics

In this unit, students will learn about circuit symbols, the purpose of electronic components and the use of multimeter to measure voltage and resistance in simple electronic models.

They will assemble, modify and evaluate basic electronic circuits based on one or two transistors. Students will also investigate the operation of a modern technological system.

Food Studies

This unit focuses on food, health and technology. Students will broaden their knowledge of food as a functional material in preserving, the study of the Food Groups, nutrition and fast foods. Students develop skills in the production process by safe use of tools and equipment in preparing a wide variety of foods.

Textiles Technology

Students have the opportunity to investigate the nature of textiles through designing and creating a variety of products. A creative approach to textiles is taken; this can range from visual merchandising, such as textiles used for window display, to interior design products such as lamps, screens, furniture coverings, body art and wearable art and costume. Emphasis is given to designing and accessing material to generate interesting ideas.

Design & Technology Wood

In this unit, students broaden their knowledge of the technology of various materials. Students further develop skills in an understanding of construction processes through the safe use of hand and power tools. The students will use materials such as wood and metal to design and manufacture products, models and/or prototypes to specifications and standards. They will use a range of appropriate techniques and equipment to specified degrees of accuracy and precision to make modifications when required.

Technology

Year 10

At Year 10, students begin to design their pathway to the future. The Technology learning area provides a wide range of opportunities for students to develop skills which relate to many industries. They can select from the following areas:

- Electronics
- Food and Culture
- Food Design
- Textiles Fibre and Fabrics
- Textiles Recyclable Fashion
- Design and Technology (Wood)
- Engineering

Penola Catholic College offers state of-the-art facilities and resources to support the broad range of Technology pathways on offer. The Year 10 Subjects are Semester units.

- The choices made in Year 10 do not limit future choices in Year 11.
- There are no prerequisites for any VCE units in this Learning Area.
- Students may also apply to accelerate in the VCE Technology subjects on offer.
- Students who are very interested in the Technology subjects can choose extra units from the free choices.

Food and Culture

In this unit, students are introduced to different cuisines from many countries around the world. Students will learn how to prepare, cook and serve a wide variety of food from other culture.

Food Design

This unit focuses on the creative area of food design and preparation. Students will establish skills in the construction of both savoury and sweet appetisers, to create “Cafe Style” themed assessment.

Design and Technology Wood

In this unit, students broaden their knowledge of the Technology of various materials, predominantly wood. Students develop skills and understanding of construction processes through safe use of hand and power tools. Students further develop problem-solving skills through the design and construction process.



Engineering

This unit is an introduction to VET Engineering and covers areas of understanding and interpreting technical drawings, machine processes and fabrication techniques. It also investigates Occupational Health and safety principles and using power tools for engineering related work activities. The study provides students with practical and theoretical skills to construct models from plans.

Textiles – Fibres and Fabrics

Students explore the concept of textiles through looking at textile fibre, printing and decorating and manipulation of a wide variety of textile materials. The idea of textiles in interior design, furniture, costume, dress and contemporary culture may be explored through design and production.

Textiles – Recyclable Fashion

In this unit, students will broaden their knowledge whilst using a variety of sustainable textiles materials. Students will develop the skills and understanding of the construction process through the safe use of the sewing machine and other textiles related equipment. Problem solving skills in design, deconstruction and construction will be developed through the investigation of recycled and up cycled theories in fashion to create a functional final product.

Electronics

In this unit, students will use basic tools to complete a series of electronic models. They will learn simple circuit theory enabling them to make simple calculations on voltage, current and resistance. They will use measuring instruments to test the operation of their models.



VCE Food Studies

VCE Food Studies examines the background to Australia's varied and abundant food supply, and explores reasons for our food choices. This study is designed to build the capacities of students to make informed food choices. Students develop their understanding of food while acquiring skills that enable them to take greater ownership of their food decisions and eating patterns.

The study is made up of four units:

Each unit contains two areas of study.

Unit 1: Food origins

This unit focuses on food from historical and cultural perspectives. Students investigate the origins and roles of food through time and across the world. Students explore how humanity has historically sourced its food, examining the general progression from hunter-gatherer to rural-based agriculture, to today's urban living global trade in food. Students also investigate Australian indigenous food prior to European settlement and how food patterns have changed over time.

Unit 2: Food makers

In this unit students investigate food systems in contemporary Australia, exploring both commercial food production industries and food production in small-scale domestic settings. Students produce foods and consider a range of evaluation measures to compare their foods to commercial products.

Unit 3: Food in daily life

This unit investigates the many roles and everyday influences of food. Students explore the science of food – they consider the physiology of eating, the microbiology of digestion and appreciating food. Students also investigate how communities, families and individuals change their eating patterns over time and how our food values and behaviours develop within social environments.

Unit 4: Food issues, challenges and futures

In this unit students examine debates about global and Australian food systems. Students also investigate individual responses to food information and misinformation and the development of food knowledge, skills and habits to empower consumers to make discerning food choices. Students consider how to assess information and draw evidence-based conclusions, and apply this methodology to navigate contemporary food fads, trends and diets. Students' food production repertoire reflects the Australian Dietary Guidelines and the Australian Guide to Healthy Eating.



VCE Product Design & Technology (Textiles & Wood)

Design and Technology focuses on developing an understanding of the social, economic and environmental consequences of design choices and decision-making. Students develop skills to critically analyse the purpose, process and products associated with design and technological innovation and activity. They develop the ability to understand, communicate and develop creative solutions while using tools, resources and human capabilities to complete a task for a given context.

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. Students consider how a redeveloped product should attempt to solve a problem related to 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. 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.

Unit 3 - Applying the Product Design Processes:

In this unit, students are engaged in the design and development of a product that addresses a personal, local, or global problem, or meets the needs and wants of a potential end-user/s. Design and product development and manufacture occur in a range of settings. An industrial setting provides a marked contrast to that one-off situation in a small cottage industry or school setting.

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.



VCE Systems Engineering

Systems Engineering is concerned with designing solutions to practical problems by integrating knowledge of science, electronics, mechanics and mathematics with technical and practical application. Systems Engineering also involves the use of advanced testing and measurement to ensure that products perform as expected. It aims to help you to create, use and control a variety of electro-technological systems such as: a power supply, alarm, remote control and robotic arm.

Unit 1 - Mechanical Systems:

The theoretical focus of Unit 1 is on mechanical fundamentals: force, energy, inclined planes, gears and levers. The practical focus is to design, plan, manufacture, test performance, diagnose faults and evaluate a functional system. In their investigation, students will focus on the impact of technological systems on the society and environment in which they operate.

Unit 2 - Electro-technological Systems:

The focus of Unit 2 in theory is on electro-technological engineering fundamentals such as: components functions and symbols, designing printed circuit boards, measuring and testing methods and tools, elementary fault finding, repair and maintenance in design and production, and the maintenance techniques in the production activities. In the investigation report students need to explain how new and emerging technologies, such as new materials, processes and methods of manufacture, alternative fuels and alternative energy sources provide advancement in technological systems such as microelectronics, nanotechnology, fuel cells, hybrid technology and new applications for materials. The future developments of new and emerging technology and likely effects on the design and function of a technological system will be also investigated.

Unit 3 & 4 - Integrated and Controlled Systems Engineering:

Units 3 and 4 focus on integrated and controlled systems. Students will be designing and producing an integrated technological system of their choice such as: a remote-controlled vehicle, an alarm system, a robotic arm or an automated green house. The diagnostic practices are related to the student's production work. The knowledge and skills of project management techniques, risk assessment and risk management, folio presentation is also required. The focus of Units 3 and 4 research is on the analysis and comparison of the environmental benefits and implications of using different energy sources and how specific energy sources affect the design, performance and use of technological systems.



Certificate II in Engineering (VET)

This TAFE Certificate II in Engineering covers 14 modules over the two years of VCE. All modules are completed at school, and a certificate will be granted on completion by Education Living. The Engineering Certificate will provide four units in the VCE Certificate and will be used in calculating the ATAR Score for tertiary selection. In addition to supporting TAFE and University applications, the certificate improves student access to Engineering and Manufacturing Apprenticeships as well as equipment assembly and sales positions. Some aspects of the course require on-the-job training, so students will have an optional two week work placement each year. This will occur in a two week block – the last week of a school term followed by the first week of school holidays. This VET program is an entry level training program for students wishing to pursue a range of occupations associated with the Engineering and Manufacturing Industries. It covers the four main areas of engineering - Mechanical, Fabrication, Electrical / Electronics, and Production - with an emphasis on Fabrication.

Year 11 Unit 1 & 2:

Modules

- Apply principals of Occupational Health & Safety in the work environment
- Use hand tools
- Select and interpret drawings and prepare three dimensional (3D) sketches and drawings
- Apply basic fabrication techniques
- Use power tools/hand held operations • Perform basic machining processes
- Report on a range of sectors in the manufacturing, engineering and related industries
- Perform metal machining operations

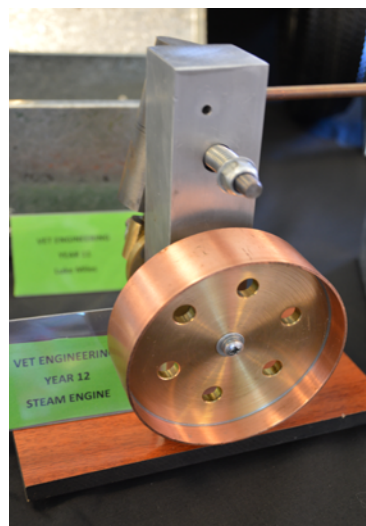
Additional VCE units may help deliver parts of the modules. eg: General Maths 1 and 2.

Year 12 Unit 3 & 4:

Modules

- Undertake a basic engineering project
- Perform intermediate engineering computations
- Produce basic engineering components & products using fabrication & machining operations
- Perform metal machining operations

Please note: Students who wish to study Engineering in Year 12, this subject covers one module of mathematics.



Certificate II in Hospitality (Kitchen Operations) (VET)

This TAFE Certificate II in Hospitality (Kitchen Operations) covers 14 modules of competence. The program aims to provide participants with knowledge and skills to achieve competencies that will enhance their employment prospects within a broad range of hospitality settings. All modules are delivered at the College. Inner Melbourne VET Cluster issues the certificate on completion. The course will provide four units on the VCE Certificate and can be used in the best four VCE studies for calculating the ATAR score for tertiary entrance. In addition to supporting TAFE and university applications, the Certificate improves student access to apprenticeships, traineeships and employment in restaurants, reception centres, sport and entertainment venues, hotels etc.

Year 11 Unit 1 & 2:

Modules

- Work effectively with others
- Prepare simple dishes
- Sources and use information on the hospitality industry
- Use hygienic practices for food safety
- Maintain the quality of perishable items
- Participate in safe work practices
- Use food preparation equipment
- Produce dishes using basic methods of cookery
- Clean kitchen premises and equipment

** Students are recommended to do one week of Work Placement as part of the course.

Year 12 Unit 3 & 4:

Modules

- Produce appetisers and salads
- Produce stocks, sauces and soups
- Produce vegetable, fruit, egg and farinaceous dishes
- Use cookery skills effectively
- Purchase goods

** Students are required to complete a minimum of 50 hours Work Placement in the College operated Restaurant “Stringybark” in Terms 2 & 3.



Certificate II in Salon Assistant (VET) Certificate II in Retail Cosmetics (VET)

Certificate II in Salon Assistant is only offered to Year 11 students and Year 10 students who are accelerating. All modules are delivered at school and after school hours to be completed during the course work. This course is designed to provide students with ability and knowledge to work in a Hairdressing salon or beauty industry. The opportunity to seek further information directly from the provider of this course can be organised during term 3. Please note as part of the course students are required to remain at school for **Salon Assistant or Retail Cosmetics classes until 5.00 pm once a week.**

Acquired knowledge:

The breadth, depth and complexity of knowledge and skills within these courses would prepare a person to perform in a range of varied activities. An individual achieving these levels of competencies would be able to:

- Demonstrate basic operational knowledge in a moderate range of areas
- Apply a defined range of skills
- Apply known solutions to a limited range of predictable problems
- Perform a range of tasks where choice between a limited range of options is required
- Assess and record information from varied sources
- Take limited responsibility for one's own output in work and training

Year 11 Unit 1 & 2 offered:

Some **modules** that will be covered:

- Contribute to health and safety of self and others
- Maintain and organise tools, equipment and work areas
- Design and apply make-up
- Greet and prepare clients for salon services
- Research and use hairdressing industry information



Certificate II in Retail Cosmetics only is offered to Year 11 students and Year 10 students who are accelerating. All modules are delivered at school and after school hours to be completed during the course work. This course is designed to provide students with ability and knowledge to work in a Hairdressing salon or beauty industry. This course provides students with training and assessment in the beauty industry. The opportunity to seek further information directly from the provider of this course can be organised during Term 3. Please note as part of the course students are required to remain at school for Salon Assistant or Retail Cosmetics classes until 5.00 pm once per week.

Acquired knowledge:

The breadth, depth and complexity of knowledge and skills within these courses would prepare a person to perform in a range of varied activities. An individual achieving these levels of competencies would be able to:

- Demonstrate basic operational knowledge in a moderate range of areas
- Apply a defined range of skills
- Apply known solutions to a limited range of predictable problems
- Perform a range of tasks where choice between a limited range of options is required
- Assess and record information from varied sources
- Take limited responsibility for one’s own output in work and training

Year 11 Unit 1 & 2 offered only:

Some modules that will be covered:

- Contribute to health and safety of self and others
- Communicate as part of a salon team
- Design and apply make-up
- Advise on beauty products and services
- Design and apply make-up for photography

