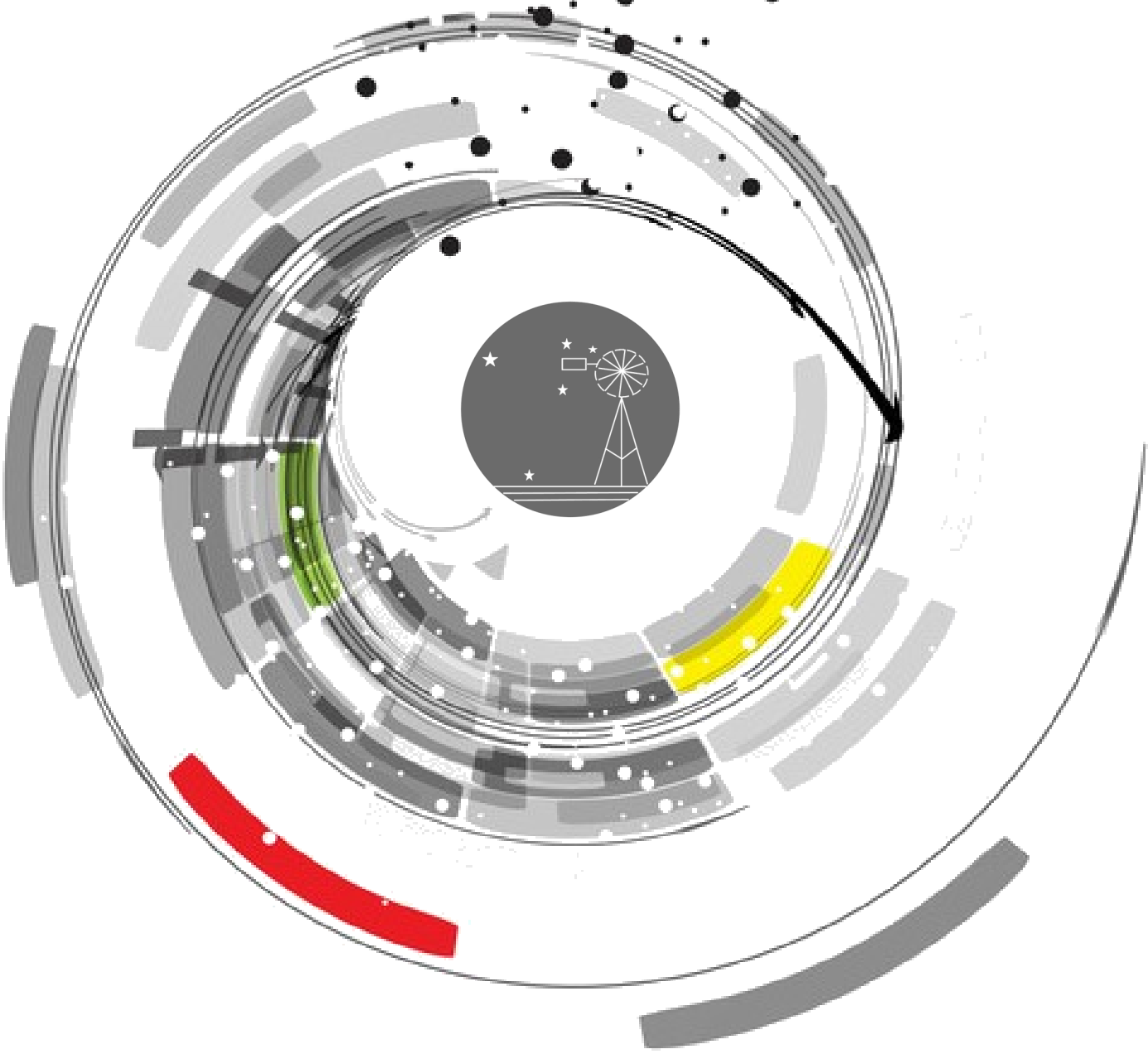
MURRAYVILLE COMMUNITY COLLEGE

2023 SENIOR HANDBOOK



About this Senior Course Subject Information Handbook

Your Subject Information Handbook is designed to provide you with information about the VCE, VET and VCE VM units being offered at Murrayville Community College. As students move into higher year levels in the College they have greater say over the program they study, and are asked to make more decisions which impact on their future. In addition, the subjects students are asked to select from are becoming more specific and specialized. While the College staff will provide assistance and guidelines, the responsibility for subject selection is increasingly with the students. This Handbook should be seen as part of the information gathering process for you and should be considered by you in conjunction with the Career Aptitude Testing and conversations with your parents, staff and others in higher education and industry. This Subject Information Booklet is divided into a number of sections to assist students in selecting the most appropriate course of study for them for their final years of schooling.

Section1: Selecting your VCE Subjects at Murrayville Community College.

Section 2:

A. What do students need to get their VCE certificate, and an ATAR?
B. What do students need to get their VET certificate?
C. What do students need to do to get their VCE Vocational Major?

Section 3: Possible career paths from specific subjects.

Section 4: Overview of VCE Studies offered at Murrayville Community College.
The description of units in this section of the Handbook provide you with a limited overview of the subject and a brief introduction to the content.

Section 5: Explanation of the content of VCE subjects.
The unit descriptions in this section of the Handbook provides you with a general description as well as lists of Assessment Tasks. Considerations for career paths and skills required are also included.

Section 1: Selecting your VCE Subjects at Murrayville Community College.

Some suggestions for subject selection:

- Select subjects you are interested in, have demonstrated some abilities in, and are related to a particular career pathway.
- If you are unsure of your career path select subjects you are interested in, and subjects which will keep your options open for you.
- If you are unsure of your career possibilities, refer to the Career Aptitude Test you have completed. Retake the test if you like and discuss the results with College staff, your parents, careers advisors, people in industries or the University / TAFE 'Office of Prospective Students."

  Remember it is always good to work towards a target, however, it is ok to keep your options open while you are investigating the possibilities;
- Don't select subjects because of friends;
- Don't select subjects on perceptions of who the teacher will be;
- Do select subjects you are good at, or that you enjoy;
- If you are unsure, do ask questions.

This is a time for you to accept more responsibility for your program of studies.

If you do not know, ask.

There is no such thing as a silly question.

Section 2:

A. What do students need to get their VCE certificate, and an ATAR?

The Victorian Curriculum and Assessment Authority (VCAA) set out certain types of units you must complete to attain the VCE certificate. **To obtain your VCE**, you must satisfactorily complete 16 units of study. This is the minimum. Eight of these 16 units may be from the VCE VET Studies. With regard to **the number of units studied**, at Murrayville Community College the following applies:

- Year 11 students are required to undertake a minimum of 10 units. That is 5 units of study in Semester 1 and 5 units of study in Semester 2. This may consist of VCE Units or VET Units;
- Year 12 students are required to undertake a minimum of 10 units. That is 5 sequences of Units 3 & 4.

In addition to the number of units studied there are a number of **other requirements** for students to complete their VCE Certificate.

- Students need to complete an approved combination involving at least 3 units of **English**. This may include:
- English Units 1-4;
- English Literature Units 1-4.
- Students must satisfactorily complete a **sequence of Units 3 & 4** in three studies in addition to the Units 3 & 4 sequence in English. These may be in VET studies at the appropriate level.

B. What do students need to get their VET certificate?

VET (Vocational Education & Training) is 'job ready training' designed for people whose focus is obtaining skills for the workforce.

Students value the VET in the VCE program because it:

- Allows students to combine general and vocational studies which, for many, provides a practical focus;
- Allows students to gain additional 'credit' on University ATAR scores and TAFE entry;
- Gives students direct experience of business and industry, which employers value in selection.

Employers value the VET in the VCE program because it:

- Contributes to the development of industry and work related skills for students;
- Provides students with a practical and focused introduction to workplace requirements;
- Enables employers to use the program for selection purposes;
- Enables industry to influence educational programs in schools;
- Provides useful training and supervisory experience for existing employees.

Successful completion of a VET in the VCE program provides students with:

- Two qualifications: a Victorian Certificate of Education (VCE) or Vocational Major (VCE VM) issued by the Victorian Curriculum and Assessment Authority and a VET Certificate issued by a Registered Training Organisation (RTO);
- Two Statements of Results issued by the Victorian Curriculum and Assessment Authority giving details of units completed in the VCE and modules/units of competence completed in the VET qualification;
- Can improve the student's Year 12 score and enable improved access to further education;
- The ability to articulate into further vocational education and training courses;
- Workplace experience, including structured workplace training.

Delivery of a VET program is undertaken by a Registered Training Organisation (RTO). These include TAFE institutes, private providers or schools.

VET is accessible to all students, undertaking the Victorian Certificate of Education (**VCE**), however, VET is a requirement for students undertaking the VCE Vocational Major (**VCE VM**).

VET involves an increased amount of practical work, and a structured work placement. VET Agriculture is described as **non-scored.** This means that, rather than complete an examination, students are to demonstrate achievement in a series of competencies. If the certificate is completed students are awarded additional points towards their ATAR based on 10% of their best four graded (or scored) subjects (including English).

Summary of VET in the VCE:

Area of Study	Level of Study	Scored / Non-Scored Assessment
Agriculture	Certificate II	Non-Scored

All workplaces are by negotiation with local employers, and MUST be in a local area or accessible to College staff as Work Place Assessors.

Time Commitment

Because of the time commitment of VET, it is College policy to provide students with early access to VET.

It is strongly recommended that VCE students have completed all VET before commencing Year 12. VET can be completed by VCE Vocational Major students in Year 12.
Parents and students should be aware that a VET program may involve a commitment out of normal school hours for work placement and to complete short training modules.

The school will provide student information and induction to each student on enrolment for a course. This will include:

- *student selection, enrolment and induction/orientation procedures*
- *course information, including content and vocational outcomes*
- *provision for language, literacy and numeracy assistance*
- *student support, welfare and guidance services*
- *flexible learning and assessment procedures*
- *appeals and complaints procedures*
- *disciplinary procedures*
- *staff responsibilities for access and equity*
- *recognition of prior learning (RPL) arrangements*
- *recognition of AQF qualifications and statements of attainment issued by other RTOs.*

VCE Vocational Major

Applied learning teaches skills and knowledge in the context of 'real life' experiences. Students apply what they have learnt by doing, experiencing and relating acquired skills to the real-world. It enables flexible, personalised learning where teachers work with students to recognise their personal strengths, interest, goals, and experiences.

This is a shift from the traditional focus on discrete curriculum to a more integrated and contextualised approach to learning. Students learn and apply the skills and knowledge required to solve problems, implement projects or participate in structured workplace learning.

To be eligible to receive the VCE VM, students must satisfactorily complete a minimum of 16 units, including:

- 3 VCE VM Literacy or VCE English units (including a Unit 3–4 sequence)
- 2 VCE VM Numeracy or VCE Mathematics units
- 2 VCE VM Work Related Skills units
- 2 VCE VM Personal Development Skills units, and
- 2 VET credits at Certificate II level or above (180 nominal hours)

Students must complete a minimum of three other Unit 3–4 sequences as part of their program. Units 3 and 4 of VM studies may be undertaken together over the duration of the academic year to enable these to be integrated.

The VCE VM can be tailored to the needs and interests of the student, to keep them engaged while developing their skills and knowledge. Students can also include other VCE studies and VET, and can receive structured workplace learning recognition.

Most students will undertake between 16-20 units over the two years.

Section 4 : Overview of VCE Studies offered at Murrayville Community College

Compulsory Subject for ALL VCE students

English (or equivalent)
is the study of texts including novels, plays, short stories, poetry, film and media texts. Students respond orally and in writing to a range of issues.

VCE Subjects - 2023

Agricultural and Horticultural Studies allows students to develop and apply theoretical knowledge and skills to real world business and practices. They apply their acquired knowledge and skills to design, develop and manage an agricultural or a horticultural project. It complements the skills focus of competency training available through Vocational Education and Training agriculture and horticulture certificates.

Art Making and Exhibiting
Students investigate the methods used to make artworks, and how artworks are presented and exhibited.
Unit 1: Explore, expand and investigate
Unit 2: Understand, develop and resolve
Unit 3: Collect, extend and connect
Unit 4: Consolidate, present and conserve

Biology is the study of living organisms and their interaction with their environment.
Unit 1 examines cells and organisms and how they function.
Unit 2 focuses on how organisms adapt to and interact with their environment.
Unit 3 examines the activities occurring within cells, and how organisms protect themselves against disease and infection.
Unit 4 focuses on genetics and evolution.

Business Management explores the key processes involved with managing businesses effectively and efficiently.
Unit 1 : Planning a business
Unit 2 : Establishing a business
Unit 3 : Managing a business
Unit 4 : Transforming a business

Chemistry is the study of chemical, chemical processes and chemical reactions.
Unit 1 focuses on the periodic table and properties of materials.
Unit 2 focuses on environmental chemistry related to water and the atmosphere.
Units 3 and 4 examine large-scale industrial production of some chemicals and the work of chemists, and the use of energy in non-living and living systems, and the properties of elements in the periodic table.

Computing is the study of either Data Analytics or Software Development.
Units 1 & 2 : Applied Computing focuses on creating digital solutions to meet specific needs.
Units 3 & 4 Data Analytics examines how data is stored, retrieved, used, displayed and secured.
Units 3 & 4 : Software Development allows students to develop software using programming language to meet the needs of individuals and organisations.

Food Studies enables students to:
- develop as informed, discerning and capable food citizens
- build practical food skills in the planning, preparation, evaluation and enjoyment of food, including the principles and practices that ensure the safety of food
- apply principles of nutrition, food science and sensory evaluation to food planning and preparation
- extend understanding of food origins, cultures, customs and behaviours

Geography is the study of places and the ways natural and human forces produce change.
Unit 1 investigates hazards and disasters.
Unit 2 tourism.
Unit 3 changing the land,.
Unit 4 human population.

Health and Human Development is the study of factors which contribute to the wellbeing of individuals, families and communities.
Units 1 & 2 will focus on Adolescence and Families.
Units 3 & 4 look at nutrition within Australia's health and an international perspective on personal development and health.

History is the study of people, events and places over time.
Within **Units 1 & 2** students examine Twentieth Century History before and after 1945.
In Units **3 & 4** students can study either Australian History, or Revolutions.

Industry and Enterprise
Unit 1 : Prepares students for effective workplace participation with a focus on work-related skills.
Unit 2: Explores the development of enterprising behaviour, leadership and innovation in workplace settings.
Unit 3: Explores the four significant issues that act as forces for change within Australian industries: the management of quality, workplace flexibility, technology, and training and workplace learning.
Unit 4: Students investigate innovation and evaluate its importance for a selected Australian industry.

Mathematics -
Foundation Mathematics is the study of practical contexts in maths relating to everyday life, recreation, work and study.
Further Mathematics is the study of Mathematics with the focus on Statistics and Data (Core), Trigonometry, Graphs and Relationships, and Business Mathematics. Only available at Units 3 and 4.
General Mathematics provides a general study of Maths intended to accommodate a range of student abilities and interests. Topics include, Statistics, Arithmetic, Functions and Graphs, Algebra, Geometry, Trigonometry.
Mathematical Methods is the study of probability, calculus and trigonometry with the aim of giving students the background for further studies in Science and Mathematics. This can be studied as Units 1-4.
Specialist Mathematics is the study of Mathematics which aims to extend the students and materials beyond that of General or Further Mathematics. This is a high level of Mathematical study.

Outdoor and Environmental Studies is the study of how humans understand and relate to nature in the context of outdoor environments.
Units 1 & 2 focus on historical and recent issues relating to human participation in the natural environment.
Units 3 & 4 include a study of conservation within the natural environment.

Physical Education study is designed to enable students to understand the social, environmental and biological factors that influence participation in physical activity; analyse the processes associated with skill development in the performance of physical activity; examine the relationships between social, environmental and biological influences on participation in physical activity; develop a critical perspective on physical activity; use practical activity to enhance the theoretical understanding of physical performance; use correct terminology when explaining theoretical and practical concepts.
Unit 1 looks at learning and improving skill.
Unit 2 examines the active body.
Unit 3 studies physiological and participatory perspective of physical activity.
Unit 4 is on enhancing physical performance.

Physics is the science of working with the interaction and properties of matter and energy.
Unit 1 looks at light, heating and cooling, radioactivity and nuclear energy.
Unit 2 examines movement and electricity.
Unit 3 looks at sound, power and electronic systems.
Unit 4 focuses on motion, gravity and structures.

Product, Design and Technology - students assume the role of a designer-maker and develop knowledge and skills to produce effective and creative responses to design challenges.
Unit 1 is on design modification and production.
Unit 2 studies collaborative design.
Unit 3 focuses on design, technological innovation and manufacture.
Unit 4 focuses on product development, evaluation and promotion.

Psychology is the scientific study of thoughts, feelings and behaviour.
Unit 1 explores the behaviour of people in groups.
Unit 2 examines the behaviour of individuals while studying the major regions of the brain and their function.
Unit 3 students study the nervous system, in particular the brain and the spinal chord, exploring visual sensation and perception.
In **Unit 4** students study memory and look at how we remember and why we forget.

Systems Engineering promotes innovative systems thinking and problem-solving skills through the application of the systems engineering process. It is based on integrated mechanical and electrotechnological engineered systems, and provides opportunities for students to learn about and engage with systems from a practical and purposeful perspective.

Visual Communications and Design is the study of the vocabulary and grammar of visual communication, which includes an understanding of, and application of, drawing and drawing conventions, design elements, principles and design process in visual communication.
Unit 1 focuses on visual communication.
Unit 2 focuses on communication in context.
Unit 3 focuses on visual communication practices.
Unit 4 focuses on designing to a brief.

SAMPLE VCE PATHWAYS

ARTS/HUMANITIES PATHWAY

Compulsory Units	Suggested units	Other Units
English 1 or EAL 1 and/ or Literature 1	Select from: 20th Century History 1-2 Australian History 3-4 History Revolutions 3-4 Geography 1- 4 Business Management 1-4 Politics 1- 4 Legal Studies 1-4 Sociology 1-4	Examples: Other units which interest you such as Food Studies, Studio Arts and Psychology.
English 2 or EAL 2 and/ or Literature 2		
English 3 or EAL 3 and/ or Literature 3	Units from Maths Units from the Sciences Selecting other units Units from the Arts & Technology (Design Tech/Studio Art)	Selecting other units may depend on which direction you wish to take after completing VCE.
English 4 or EAL 4 and/ or Literature 4		

THIS PATHWAY MAY LEAD TO:

Employment	University	TAFE	Careers Manager
Limited opportunities for students seeking employment directly from VCE	**Bachelor degrees in:** Arts, Humanities VCE Social Science, Family Studies, Social Work, Public Relations, Teaching, Education Arts/Media You can major in Philosophy, Politics Humanities & Social Science Professional Writing Journalism History & Geography	**Diplomas & Certificates in:** Social & Community Services	Tertiary Entry Needs Prerequisites Recommended Units Any special requirements

MATHS/SCIENCE/ENGINEERING PATHWAY

Compulsory Units	Suggested units			
English 1 or EAL 1 and/ or Literature 1	Physics 1	Methods 1	General Maths 1	Chemistry 1
English 2 or EAL 2 and/ or Literature 2	Physics 2	Methods 2	General Maths 2	Chemistry 2
English 3 or EAL 3 and/ or Literature 3	Physics 3	Methods 3	Specialist Maths 3 or Further Maths 3	Chemistry 3
English 4 or EAL 4 and/ or Literature 4	Physics 4	Methods 4	Specialist Maths 4 or Further Maths 4	Chemistry 4

THIS PATHWAY MAY LEAD TO:

Employment	University	TAFE	Careers Manager
Limited opportunities for students seeking employment directly from VCE Some traineeships are available- Lab Tech	**Bachelor degrees in:** Architecture, Engineering, Science (Applied, Physical, Chemical, Biological), Education, Manufacturing Project Management	**Diplomas & Certificates in:** Engineering Applied Science	Tertiary Entry Needs Prerequisites Recommended Units Any special requirements

HEALTH SCIENCES PATHWAY

Compulsory Units	Suggested units			Other Units
English 1 or EAL 1 and /or Literature 1	Chemistry 1 and/or Biology 1	Health & Human Dev 1 and/or Psychology 1	General Maths 1	Selecting other units may depend on which direction you wish to take after completing VCE.
English 1 or EAL 2 and /or Literature 2	Chemistry 2 and/or Biology 2	Health & Human Dev 2 and/or Psychology 2	General Maths 2	
English 1 or EAL 3 and /or Literature 3	Chemistry 3 and/or Biology 3	Health & Human Dev 3 and/or Psychology 3	Further Maths 3	
English 4 or EAL 4 and /or Literature 4	Chemistry 4 and/or Biology 4	Health & Human Dev 4 and/or Psychology 4	Further Maths 4	

THIS PATHWAY MAY LEAD TO:

Employment	University	TAFE	Careers Manager
Limited opportunities for students seeking employment directly from VCE Some traineeships are available	**Bachelor degrees in:** Advanced Certificates Child Care, Chiropractic, Nursing, Physical Education Teaching, Paramedics, Occupational Therapy Public Health Human Movement	**Associate Diplomas, Certificates in:** Childcare Occupational Studies Hospitality Studies Tourism Events Management Social & Community Services Health Sciences	Tertiary Entry Needs Prerequisites Recommended Units Any special requirements

Sample Vocational Major (VM) Program Started at Year 10					
Year 10	AusVELS at Yr 10 English, Maths, Science, Humanities, and electives			Careers Education & Completion of Unit 1&2 Work Related Skills	Commence VCE/VET studies in Agriculture or Retail Cert II
Year 11	VM English or VCE English Units 1&2	VM Numeracy or VCE Mathematics Units 1&2	VCE elective subject Eg. Tech, Ag, Art or any other subject	VM Personal Development Units 3&4	VCE/VET Ag or Retail / Commence School Based Apprenticeship 1 day per week
Year 12	VM English or VCE English Units 3&4	VM Numeracy or VCE Mathematics Units 3&4 Or a VCE / VM Elective	VCE/VM elective subject Eg. Tech, Ag, Art or any other subject	School Based Apprenticeship 2 days per week	

Sample Vocational Major (VM) Program Started at Year 11					
Year 11	VM English or VCE English Units 1&2	VM Numeracy or VCE Mathematics Units 1&2	VCE elective subject Eg. Tech, Ag, Art or any other subject	VM Personal Development Units 3&4	VCE/VET Ag or Retail / Commence School Based Apprenticeship 1 day per week
Year 12	VM English or VCE English Units 3&4	VM Work Related Skills Units 3&4	VCE/VM elective sub-ject / Units 3&4 Eg. Tech, Ag, Art or any other subject	School Based Apprenticeship 2 days per week	

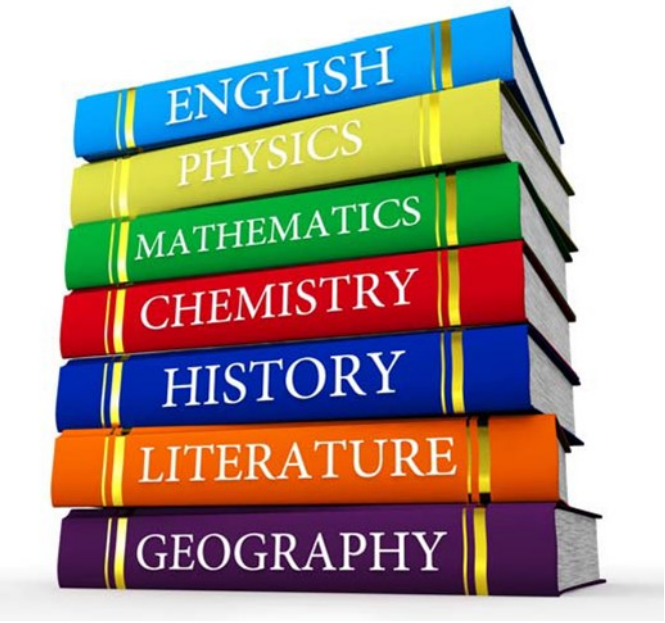
VCE Subjects – 2023

Compulsory Units

English (or equivalent)

Elective VCE Subjects – 2023

Agricultural & Horticultural Studies
Art Making and Exhibiting (Studio Art)
Biology
Business Management
Chemistry
Computing
Geography
Food Studies
Health and Human Development
History
Industry and Enterprise
Mathematics - Foundation Mathematics
Mathematics - Further Mathematics
Mathematics - General
Mathematics - Methods
Mathematics - Specialist
Outdoor and Environmental Studies
Physical Education
Physics
Product, Design and Technology
Psychology
Systems Engineering
Visual Communications and Design



GLOSSARY OF TERMS

Acronyms

ATAR	Australian Tertiary Admission Rank
DECV	Distance Education Centre of Victoria
ESL	English as a Second Language
GA	General Assessment
GAT	General Achievement Test
LOTE	Language(s) Other Than English
NA	Not Assessed
RTO	Registered Training Organisation
SAC	School-assessed Coursework
SAT	School-assessed Task
SATAC	South Australian Tertiary Admissions Centre
TAFE	Technical and Further Education
UG	Ungraded
VASS	Victorian Assessment Software System
VCAA	Victorian Curriculum and Assessment Authority
VCE	Victorian Certificate of Education
VCE VET	Approved VET program providing credit in the VCE
VET	Vocational Education and Training
VM	Vocational Major
VTAC	Victorian Tertiary Admissions Centre

Glossary

ACCREDITATION PERIOD – the period during which a study is accredited as a VCE study.

ASSESSING SCHOOL– the school responsible for providing the assessment (through VASS) for one or more units for a student. The assessing school is usually, but not always, the home school. A student may have one or more assessing schools.

ASSESSMENT PLAN - a set of tasks relating to the assessment of units of competence/modules undertaken in the Unit 3 and 4 sequence of a scored VCE VET program.

AUSTRALIAN TERTIARY ADMISSION RANK (ATAR) - the overall ranking on a scale of zero to 100 that a student receives, based on his or her *Study Scores.* The ATAR is calculated by VTAC and used by universities and TAFE institutes to select students for courses. Formerly known as Equivalent National Tertiary Entrance Rank (ENTER).

AUTHENTICATION - the process of ensuring that the work submitted by students for assessment is their own.

COURSEWORK AUDIT - as part of an ongoing monitoring and quality assurance program by the VCAA, samples of School-assessed Coursework material are collected from schools each semester. The work collected is used to monitor schools' administration of School-assessed Coursework.

EXAMINATIONS - external assessments set and marked by the VCAA. All studies have at least one examination. Most written examinations are held in November, with a small number in June. Performance examinations and examinations: oral component are held in October and November.

GENERAL ACHIEVEMENT TEST (GAT) - a test of knowledge and skills in writing, mathematics, science and technology, humanities and social sciences and the arts. It is done by all students doing a Unit 3 and 4 sequence and used by the VCAA to check that schools are marking School-assessed Tasks to the same standard, as part of the statistical moderation of School-assessed Coursework and as a quality assurance check on the VCAA's marking of examinations and School-assessed Tasks. It does not count towards students' VCE graduation, but students' GAT results are reported to them with their *Statement of Results.*

GRADED ASSESSMENT - all VCE studies have three Graded Assessments for each Unit 3 and 4 sequence except for scored VCE VET programs, which have two.

MODULE - a distinct component of the vocational training curriculum, comprising specified learning outcomes, assessment criteria and other information to support the delivery of training and conduct of assessment.

NOMINAL HOURS - the proposed hours required for the delivery and assessment of vocational training as determined by the Office of Training and Tertiary Education.

OUTCOMES - what a student must know, or be able to do, in order to satisfactorily complete a unit as specified in the study design.

GLOSSARY OF TERMS (continued)

PRINCIPAL - refers to principals, college principals of multi-campus schools, headmasters, headmistresses and directors.

REGISTERED TRAINING ORGANISATION (RTO) - an organization which is registered and approved to deliver Vocational Education and Training (VET) programs within a defined Scope of Registration.

SATISFACTORY COMPLETION - the school decision that a student has demonstrated achievement of the *outcomes* for a unit. Students receive an 'S' for the satisfactory completion of a unit. If they do not satisfactorily complete a unit, they receive an 'N' for it. Students qualify for the VCE when they satisfy units which meet the program requirements set out in Section 5.

SCHOOL-ASSESSED COURSEWORK - a school-based assessment which is reported as a grade for either a Unit 3 and 4 sequence or Unit 3 and Unit 4 individually. School-assessed Coursework consists of a set of assessment tasks that assess students' achievement of Units 3 and 4 outcomes.

SCHOOL-ASSESSED TASK - a school-based assessment for a Unit 3 and 4 sequence and reported as a grade. A school-assessed Task is set by the VCAA and assessed by teachers in accordance with published criteria. Tasks are subject to review by a panel appointed by the VCAA.

SEMESTER - one half of the academic year. Most units are completed in one semester.

SEQUENCE - units 3 and 4 are designed to be taken as a sequence at Year 12 level.

SPECIAL PROVISION - arrangements that are made to allow students who are experiencing significant hardship the maximum opportunity to demonstrate both what they know and what they can do.

STATEMENT OF MARKS - for each examination including the GAT, students can apply for a statement showing the marks they obtained for each question/criteria and the maximum mark available. A fee is charged for each statement.

STATEMENT OF MARKS – STUDY SCORE - the document(s) issued by the VCAA showing the results a student achieved in the VCE, and whether he/she has graduated. See also *VCE Certificate.*

STATISTICAL MODERATION - the process used to ensure that schools' assessments are comparable throughout the State. It involves adjusting each school's School-assessed Coursework scores for each study to match the level and spread of the external reference scores for the students in that school doing that study.

STUDENT NUMBER - the number assigned to each student enrolled in VCE, VCE VET and VM.

STUDIES - the subjects available in the VCE.

STUDY DESIGN - a study design for each VCE study is published by the VCAA. It specifies the content for the study and how students' work is to be assessed. School and other VCE providers must adhere to the study designs.

STUDY SCORE - a score from zero to 50 which shows how a student performed in a study, relative to all other students doing that same study. It is based on the student's results in school assessments and examinations.

UNITS - the components of a study. There are usually four units in a study, numbered 1, 2, 3 and 4.

VICTORIAN ASSESSMENT SOFTWARE SYSTEM (VASS) - the Internet-based system used by schools to enter VCE enrolments and results directly onto the VCAA central database.

VASS ADMINISTRATOR - school-based users of VASS who have system control for their school.

VCE CERTIFICATE - the certificate awarded to students who meet the requirements for graduation of the VCE. See also *Statement of Results.*

VCE PROVIDER - a school or other institution authorized to offer VCE units.

VCE VOCATIONAL MAJOR (VM)- applied learning that teaches skills/knowledge in the context of 'real life' experiences and can be tailored to the student's needs/interests.

VCE VOCATIONAL EDUCATION AND TRAINING (VCE VET) - nationally recognized vocational certificates integrated within the VCE.

VTAC - Victorian Tertiary Admissions Centre, which acts on behalf of universities, TAFEs and other providers facilitating and coordinating the joint selection system. It calculates and distributes the *Australian Tertiary Admission Rank (ATAR).*

RECORD OF SUBJECT SELECTION FOR 2023

Name : .....

I will be returning to Murrayville Community College. Definitely / Maybe / No *(Circle one)*

Career area(s) of interest - fill in at least one.

1. .....
2. .....
3. .....

The subjects I have to do in order to access my chosen career pathway are:

…… …… …… ……

The institutes where suitable courses are available are (to be confirmed with Careers Teacher) :

…… …… …… ……

Unit 1 & 2 choices - list in priority order, from 1st to 7th. Remember, you may only be doing 5 units, but name 6.
If a Year 11 student in 2022, fill in the units you did / are doing.

Year 11 : Semester 1

1. ENGLISH (or equivalent)
2. .....
3. .....
4. .....
5. .....
6. .....

Year 11 : Semester 2

1. ENGLISH (or equivalent)
2. .....
3. .....
4. .....
5. .....
6. .....

Year 12

1. ENGLISH (or equivalent)
2. .....
3. .....
4. .....
5. .....

AGRICULTURAL AND HORTICULTURAL STUDIES

Unit 1 : Food and Fibre Industries
Students develop their understanding of Australia's agricultural and horticultural industries and research the opportunities and practical realities of working in the sector. They consider sources of food and fibre indigenous to Victoria prior to European settlement, and current and past perceptions of Australian agricultural and horticultural industries. Students explore contemporary career pathways and professional roles, with a focus on innovation and creative problem solving in the face of change and challenge. Students seek to understand socio-cultural influenceson food and fibre practices, and best practice in agriculture and horticulture in terms of climate zones, soil quality, plant and animal selection, workplace health and safety, and the collection and analysis of quality-assurance data.

Unit 2: Plant and Animal Production
Students research plant and animal nutrition, growth and reproduction. They develop an understanding of the conditions in which plants and animals grow and reproduce, and of related issues and challenges. They evaluate the effectiveness and sustainability of agricultural or horticultural practices. Students investigate the structure, function, nutrition and growth of plants. They explore animal nutrition and digestion, and growth and development, and make comparisons between production methods. Students research reproductive processes andtechnologies for both plants and animals within the contexts of food and fibre production. They undertake practical tasks relating to the growth and management of plants and animals.

Unit 3: Technology, Innovation and Business Design
In this area of study students focus on the dynamic and innovative nature of Australia's food and fibre production industries. They reflect on the rate of change, the rise of new challenges, and the sector's ever-increasing engagement with innovation and technology. Students inquire into the broad role of innovation and technology infood and fibre production, and consider the impacts of new and emerging tools and applications, as well as innovative research projects. Students reflect on past initiatives, contemporary responses to consumer concerns and ways to evaluate the effectiveness of particular innovations in agricultural and horticultural practices.

Unit 4: Sustainable Food and Fibre Production
In this unit students examine sustainability in terms of land management, as well as its role in food and fibre industries. Sustainability is a holistic concept with environmental, economic and social dimensions. Students research the effects of climate change on food and fibre production through case studies of effective responses tothis and other environmental challenges. Students investigate environmental degradation and approaches to sustainable land management and rehabilitation. They study ecosystems, the importance of biodiversity and the applicability of environmental modification techniques. In particular, students consider the constant monitoring ofenvironmental indicators. Within the context of agricultural and/or horticultural practices, sustainability is viewed as both a challenge and an opportunity, with students extending their thinking across the entire production chain from resource suppliers through to consumers. They research strategies for securing sustainable markets, for adding value to primary produce, and for ensuring and promoting the high quality of Australian-grown products.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

WHY STUDY AGRICULTURAL & HORTICULTURAL STUDIES?
If you have an interest in working in the industry and like being out-doors.

CAREER OPTIONS ARE:
- Farming
- Horticulturist
- Landscaper
- Fisheries Officer
- Environmental Scientist
- Agricultural Scientist
- Botanist

Managing an Ag/Hort business, from a variety of choices including:
- fisheries
- poultry
- sheep
- viticulture
- gardening
- seeding/flower production
- hydroponics
- cropping, etc.

ART MAKING AND EXHIBITING (previously Studio Arts)

Unit 1 : Explore, expand and investigate

In this unit students explore materials, techniques and processes in a range of art forms. They expand their knowledge and understanding of the characteristics, properties and application of materials used in art making. They explore selected materials to understand how they relate to specific art forms and how they can be used in the making of artworks. Students also explore the historical development of specific art forms and investigate how the characteristics, properties and use of materials and techniques have changed over time. Throughout their investigation students become aware of and understand the safe handling of materials they use.

Visual Arts journal - Students record and document art making in the Visual Arts journal.
Finished artworks - Students develop at least one finished artwork from the experimental works information for an exhibition - Students present information about three Australian artists, including at least one Aboriginal or Torres Strait Islander artist, and at least one artwork by each artist

Unit 2 : Understand, develop and resolve

In Unit 2 students continue to research how artworks are made by investigating how artists use aesthetic qualities to represent ideas in artworks. They broaden their investigation to understand how artworks are displayed to audiences, and how ideas are represented to communicate meaning. They respond to a set theme and progressively develop their own ideas. The planning and development of at least one finished artwork are documented in their Visual Arts journal. Students investigate how artists use art elements and art principles to develop aesthetic qualities and style in an artwork. for exhibitions. They also investigate the roles associated with the planning of exhibitions.

Thematic exhibition - Students design and curate a thematic exhibition of six artworks.
Experimental artworks and documentation - Students explore aesthetic qualities and the use of materials, techniques and processes in artworks and produce a series of experimental artworks.
Finished artworks - Students present at least one finished artwork, with accompanying documentation of the development and refinement of art making, in their Visual Arts journal.

Unit 3: Collect, extend and connect

Students are actively engaged in art making using materials, techniques and processes. They explore contexts, subject matter and ideas to develop artworks in imaginative and creative ways. They also investigate how artists use visual language to represent ideas and meaning in artworks. The materials, techniques and processes of the art form the students work with are fundamental to the artworks they make.

Unit 4: Consolidate, present and conserve

Students make connections to the artworks they have made in Unit 3, consolidating and extending their ideas and art making to further refine and resolve artworks in specific art forms. The progressive resolution of these artworks is documented in the student's Visual Arts journal, demonstrating their developing technical skills in a specific art form as well as their refinement and resolution of subject matter, ideas, visual language, aesthetic qualities and style. Students also reflect on their selected finished artworks and evaluate the materials, techniques and processes used to make them.

ASSESSMENT - School-Assessed Coursework, School Assessed Tasks (Units 3 & 4); end of year exam.

WHY STUDY ART MAKING AND EXHIBITING?

It's a creative form of communication that not only allows you to explore your own ideas and emotions, but also develops your skills. It teaches you different ways of viewing the world and assists your ability to creatively solve problems. It can lead to a range of interesting careers.

CAREER OPTIONS ARE:

- Architect
- Artist
- Graphic Artist
- Interior Designer
- Photographer
- Art Conservation
- Advertising
- Fashion Designer
- Animator
- Teacher
- Illustrator
- Industrial Designer
- Museum Curator
- Arts Administrator
- Art Historian
- Art Gallery Director
- Occupational Therapist
- Art Critic

BIOLOGY

Unit 1 : How do organisms regulate their functions?
In this unit students examine the cell as the structural and functional unit of life, from the single celled to the multicellular organism, including the requirements for sustaining cellular processes. Students focus on cell growth, replacement and death and the role of stem cells in differentiation, specialisation and renewal of cells. They explore how systems function through cell specialisation in vascular plants and animals, and consider the role homeostatic mechanisms play in maintaining an animal's internal environment.

Unit 2 : How does inheritance impact on diversity?
In this unit students explore reproduction and the transmission of biological information from generation to generation and the impact this has on species diversity. They apply their understanding of chromosomes to explain the process of meiosis. Students consider how the relationship between genes, and the environment and epigenetic factors influence phenotypic expression. They explain the inheritance of characteristics, analyse patterns of inheritance, interpret pedigree charts and predict outcomes of genetic crosses.

ASSESSMENT TASKS FOR UNITS 1 and 2 – may include:
a report of a fieldwork activity; annotations of a practical work folio; a bioinformatics exercise; media response; data analysis; problem solving. A student-directed investigation into, and communication of, an issue related to the Unit is to be undertaken in Area of Study 3 in both Units.

Unit 3 : How do cells maintain life?
In this unit students investigate the workings of the cell from several perspectives. They explore the relationship between nucleic acids and proteins as key molecules in cellular processes. Students analyse the structure and function of nucleic acids as information molecules, gene structure and expression in prokaryotic and eukaryotic cells and proteins as a diverse group of functional molecules. They examine the biological consequences of manipulating the DNA molecule and applying biotechnologies.

Unit 4 : How does life change and respond to challenges?
In this unit students consider the continual change and challenges to which life on Earth has been, and continues to be, subjected to. They study the human immune system and the interactions between its components to provide immunity to a specific pathogen. Students consider how the application of biological knowledge can be used to respond to bioethical issues and challenges related to disease.

A student practical investigation related to cellular processes and/or biological change and continuity over time is undertaken in either Unit 3 or Unit 4, or across both Units 3 and 4, and is assessed in Unit 4, Outcome 3.

ASSESSMENT – School-assessed coursework including practical investigation (Units 3 & 4) 50%; end of year exam 50%.

WHY STUDY BIOLOGY?
Biology is about what makes living things tick, how they reproduce and the genetic manipulation of living things. If it has a life, you can study it in Biology.

CAREER OPTIONS ARE:
- Forensic Scientist
- Environmental Scientist
- Biomedical Scientist
- Biologist
- Geneticist
- Zoologist/Botanist
- Dietician
- Medical Doctor / Physiotherapist

BUSINESS MANAGEMENT

Unit 1: Planning a business
Businesses of all sizes are major contributors to the economic and social wellbeing of a nation. Therefore how businesses are formed and the fostering of conditions under which new business ideas can emerge are vital for a nation's wellbeing. Taking a business idea and planning how to make it a reality are the cornerstones of economic and social development. In this unit students explore the factors affecting business ideas and the internal and external environments within which businesses operate, and the effect of these on planning a business.

Unit 2: Establishing a business
This unit focuses on the establishment phase of a business's life. Establishing a business involves complying with legal requirements as well as making decisions about how best to establish a system of financial record keeping, staff the business and establish a customer base. In this unit students examine the legal requirements that must be satisfied to establish a business. They investigate the essential features of effective marketing and consider the best way to meet the needs of the business in terms of staffing and financial record keeping. Students analyse various management practices in this area by applying this knowledge to contemporary business case studies from the past four years.

Unit 3: Managing a business
In this unit students explore the key processes and issues concerned with managing a business efficiently and effectively to achieve the business objectives. Students examine the different types of businesses and their respective objectives. They consider corporate culture, management styles, management skills and the relationship between each of these. Students investigate strategies to manage both staff and business operations to meet objectives. Students develop an understanding of the complexity and challenge of managing businesses and through the use of contemporary business case studies from the past four years have the opportunity to compare theoretical perspectives with current practice.

Unit 4: Transforming a business
Businesses are under constant pressure to adapt and change to meet their objectives. In this unit students consider the importance of reviewing key performance indicators to determine current performance and the strategic management necessary to position a business for the future. Students study a theoretical model to undertake change, and consider a variety of strategies to manage change in the most efficient and effective way to improve business performance. They investigate the importance of leadership in change management. Using a contemporary business case study from the past four years, students evaluate business practice against theory.

ASSESSMENT – School-assessed coursework (Units 3&4); end of year exam

WHY STUDY BUSINESS MANAGEMENT?
This subject is for students who:
- are interested in the business world
- enjoy developing and implementing your own ideas
- are thinking about starting your own business in the future
- are already running your own small business or are working in a business
- would like to work in business in some capacity in the future
- would like to know more about how to run a business successfully

CAREER OPTIONS ARE:
- Business Manager
- Accountancy
- Run your own business
- Human Resource Management
- Marketing
- Economics

CHEMISTRY

Unit 1 : How can the diversity of materials be explained?
The development and use of materials for specific purposes is an important human endeavour. In this unit students investigate the chemical structures and properties of a range of materials, including covalent compounds, metals, ionic compounds and polymers. They are introduced to ways that chemical quantities are measured. They consider how manufacturing innovations lead to more sustainable products being produced for society through the use of renewable raw materials and a transition from a linear economy towards a circular economy.

Unit 2 : How do chemical reactions shape the natural world?
Society is dependent on the work of chemists to analyse the materials and products in everyday use. In this unit students analyse and compare different substances dissolved in water and the gases that may be produced in chemical reactions. They explore applications of acid-base and redox reactions in society.
Students conduct practical investigations involving the specific heat capacity of water, acid-base and redox reactions, solubility, molar volume of a gas, volumetric analysis, and the use of a calibration curve.

ASSESSMENT TASKS FOR UNIT 1 AND UNIT 2 - may include:
a report of a practical activity; annotations of a practical work folio; a modelling activity; media response; data analysis; problem solving; reflective learning journal/blog; test. A research investigation in Unit 1 and practical investigation into an aspect of water quality in Unit 2 is undertaken in Area of Study 3.

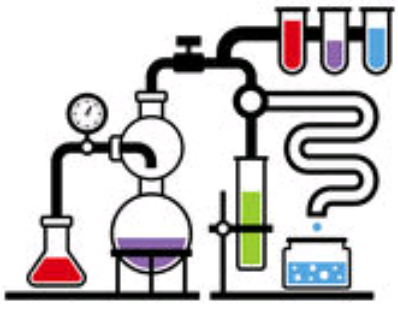
Unit 3 : How can design and innovation help to optimise chemical processes?
Students analyse and compare different fuels as energy sources for society, with reference to the energy transformations and chemical reactions involved, energy efficiencies, environmental impacts and potential applications. They explore food in the context of supplying energy in living systems. The purpose, design and operating principles of galvanic cells, fuel cells, rechargeable cells and electrolytic cells are considered when evaluating their suitability for supplying society's needs for energy and materials. They evaluate chemical processes with reference to factors that influence their reaction rates and extent. They investigate how the rate of a reaction can be controlled so that it occurs at the optimum rate while avoiding unwanted side reactions and by-products.
Students conduct practical investigations involving thermochemistry, redox reactions, electrochemical cells, reaction rates and equilibrium systems.

Unit 4 : How are organic compounds categorised, analysed and used?
Carbon is the basis not only of the structure of living tissues but is also found in fuels, foods, medicines, polymers and many other materials that we use in everyday life. In this unit students investigate the structures and reactions of carbon-based organic compounds, including considering how green chemistry principles are applied in the production of synthetic organic compounds. They study the metabolism of food and the action of medicines in the body. They explore how laboratory analysis and various instrumentation techniques can be applied to analyse organic compounds in order to identify them and to ensure product purity. Students conduct practical investigations related to the synthesis and analysis of organic compounds, involving reaction pathways, organic synthesis, identification of functional groups, direct redox titrations, solvent extraction and distillations.

ASSESSMENT – School-assessed coursework including practical investigation (Units 3 & 4) 40%;
end of year exam 60%.

WHY STUDY CHEMISTRY?
Great experiments.
Interesting.
Relates to real life situations.
Use technology.
Building blocks of why reactions and everything occurs around us.
Create …… !!

CAREER OPTIONS ARE:
- Pharmacy
- Engineering
- Teaching
- Veterinary Nurse
- Forensic Science
- Analytical Chemist
- Winemaker
- Nanotechnologist



COMPUTING

VCE Applied Computing focuses on the strategies and techniques for creating digital solutions to meet specific needs and to manage the threats to data, information and software security. The study examines the attributes of each component of an information system including people, processes, data and digital systems (hardware, software, networks), and how their interrelationships affect the types and quality of digital solutions.
VCE Applied Computing is underpinned by four key concepts: digital systems, data and information, approachesto problem solving, and interactions and impact.

Unit 1: Applied Computing
In this unit students are introduced to the stages of the problem-solving methodology. Students focus on how data can be used within software tools such as databases and spreadsheets to create data visualisations, and the use of programming languages to develop working software solutions.
ASSESSMENT TASKS - Assignments involving the use of digital solutions.

Unit 2: Applied Computing
In this unit students focus on developing innovative solutions to needs or opportunities that they have identified, and propose strategies for reducing security risks to data and information in a networked environment.
ASSESSMENT TASKS - Group assignment, as well as individual assignments including a case study

An assignment for both Units 1 & 2 will be to design a large scale project tailored around a student's interest. This will be an area where the student can practise and develop their skills, and centres around any digital solution they find interesting and further develop relevant skills.

For Units 3 & 4, there are two options that students can select between:
Students may elect to undertake one or both of these Units 3 and 4 sequences.
Each unit deals with specific content contained in areas of study and is designed to enable students to achieve a set of outcomes for that unit. Each outcome is described in terms of key knowledge and key skills.

Unit 3: Data Analytics
In this unit students apply the problem-solving methodology to identify and extract data through the use of software tools such as database, spreadsheet and data visualisation software to create data visualisations or infographics. Students develop an understanding of the analysis, design and development stages of the problem-solving methodology.

Unit 4: Data Analytics
In this unit students focus on determining the findings of a research question by developing infographics or dynamic data visualisations based on large complex data sets and on the security strategies used by an organisation to protect data and information from threats.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

Unit 3: Software Development
In this unit students apply the problem-solving methodology to develop working software modules using a programming language. Students develop an understanding of the analysis, design and development stages of the problem-solving methodology.

Unit 4: Software Development
In this unit students focus on how the information needs of individuals and organisations are met through the creation of software solutions. They consider the risks to software and data during the software developmentprocess, as well as throughout the use of the software solution by an organisation.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

WHY STUDY COMPUTING?
In our world where technology is constantly advancing, there is a greater need for an understanding of how this technology oper-atesthan ever before. A study of Computing will equip students with a strong foundation in howcomputers communicate, as well as how to solve problems using a digital solution.

CAREER OPTIONS INCLUDE:
- Software development
- Database administration
- Computer Hardware Engineering
- Computer Systems Analysis,
- Computer Network Architecture
- Web Development
- Cyber Security, etc

ENGLISH

The study of English helps students develop skills that are required in all professional fields of work, including: Engineering, ICT, Management, Finance, Teaching and Law. As a result, the study of English, or an equivalent, is a compulsory component of your VCE certificate. There are three main Areas of Study in Units 1-4 English. Below are the suggested course outlines for Units 1-4.

Area of Study	1: Reading & Responding to Texts	2: Creating Texts
UNIT 1	Students read and respond to a set text analytically. Students develop their skills in creating written, spoken and multimodal texts. *Text selection to be confirmed in Term 4 - limit of one multimodal; one must be Australian.	Students analyse arguments and the use of persuasive language in texts. They create their own texts intended to position audiences. Students develop their skills in creating written, spoken and multimodal texts.
ASSESSMENT Total of 100 marks for Unit 1	**1 assessment tasks, totalling 40 marks** 1 x analytical text response (800-1000 words)	**3 assessment tasks, totalling 60 marks** 2 x written texts constructed in consideration of audience, purpose and context in relation to mentor texts. 1 x commentary reflecting on writing processes.
UNIT 2	Students read and respond to a set text analytically. Students develop their skills in creating written, spoken and multimodal texts. *Text selection to be confirmed in Term 4 - limit of one multimodal; one must be Australian.	**2: Exploring Argument** Students explore, analyse and create persuasive texts, including the ways argument and persuasive language position an audience. Students develop their skills in creating written, spoken and multimodal texts.
ASSESSMENT Total of 100 marks for Unit 2	**1 assessment task, totalling 40 marks** 1 x analytical text response to a text (800 – 1000 words)	**2 assessment tasks, totalling 60 marks** 1 x argument analysis (40 marks) 1 x point of view oral presentation (20 marks)
In addition to the above tasks, both areas of study to be assessed in a mid-year (2 hour) and end-of-year (3 hour) exam.		

Area of Study	1: Reading & Creating Texts	2: Analysing & Presenting Arguments
UNIT 3	Students read and respond to two texts analytically and creatively. They justify their authorial decisions in a written explanation for the creative response. *Text selection to be confirmed in Term 4 - must be selected from the VCAA approved text list.	Students compare arguments and analyse the use of persuasive language in two or three current media texts, published since 1st September in the previous year.
ASSESSMENT (SACs) Total of 100 marks for Unit 3	**2 SACs, totalling 60 marks** 1 x text response 30 marks 1 x creative response with explanation 30 marks The suggested word length is 800-1000 words for each task.	**1 SAC, totalling 40 marks** Written analysis of argument and persuasive language used in media texts on a current issue. The suggested word length is 800-1000 words for this task.
UNIT 4	Students compare the presentation of ideas, issues and themes in two texts. Students develop their skills in creating written, spoken and multimodal texts.	Students present a point of view in oral form, based on a current issue within the media. They produce a written statement of intention on how they used arguments and persuasive language to position an audience.
ASSESSMENT SACs Total of 100 marks for Unit 4	**1 SAC, totalling 60 marks** 1 x comparative response The suggested word length is 1000-1200 words for this task.	**1 SAC, totalling 40 marks** Statement of Intention 10 marks Point of view oral 30 marks The suggested word length is 1000-1200 words for this task.
The above SACs make up 50% of your overall mark for the year, (25% each semester). The end-of-year exam makes up the other 50%. The three hour exam contains a task based on each of the areas of study.		

ALL STUDENTS OF UNITS 1-4 ENGLISH

There is an expectation that students will read their set texts and complete an array of writing tasks during the Christmas holiday period before commencing the school year. Texts are generally supplied by the school, but you are welcome to purchase your own if you would like to annotate them.

CAREER OPTIONS ARE:
The study of English can lead to jobs in journalism, publishing, media, acting, teaching, marketing, and is a component of all professional degrees.

FOOD STUDIES

Unit 1 : Food origins

In this unit students focus on food from historical and cultural perspectives, and investigate the origins and roles of food through time and across the world. In Area of Study 1 students explore how humans have historically sourced their food, examining the general progression from hunter-gatherer to rural-based agriculture, to today's urban living and global trade in food. Students consider the origins and significance of food through inquiry into one particular food-producing region of the world. In Area of Study 2 students focus on Australia. They look at Australian indigenous food prior to European settlement and how food patterns have changed since, particularly through the influence of food production, processing and manufacturing industries and immigration. Students investigate cuisines that are part of Australia's culinary identity today and reflect on the concept of an Australian cuisine..

Unit 2: Food makers

In this unit students investigate food systems in contemporary Australia. Area of Study 1 focuses on commercial food production industries, while Area of Study 2 looks at food production in domestic and small-scale settings, as both a comparison and complement to commercial production. Students gain insight into the significance of food industries to the Australian economy and investigate the capacity of industry to provide safe, high-quality food that meets the needs of consumers. Students use practical skills and knowledge to produce foods and consider a range of evaluation measures to compare their foods to commercial products. They consider the effective provision and preparation of food in the home, and analyse the benefits and challenges of developing and using practical food skills in daily life. In demonstrating their practical skills, students design new food products and adapt recipes to suit particular needs and circumstances. They consider the possible extension of their role as small-scale food producers by exploring potential entrepreneurial opportunities.

Unit 3: Food industries

This unit investigates the many roles and everyday influences of food. Area of Study 1 explores the science of food: our physical need for it and how it nourishes and sometimes harms our bodies. Students investigate the physiology of eating and appreciating food, and the microbiology of digestion. They also investigate the functional properties of food and the changes that occur during food preparation and cooking. They analyse the scientific rationale behind the Australian Dietary Guidelines and the Australian Guide to Healthy Eating (see www.eatforhealth.gov.au) and develop their understanding of diverse nutrient requirements. Area of Study 2 focuses on influences on food choice: how communities, families and individuals change their eating patterns over time and how our food values and behaviours develop within social environments. Students inquire into the role of food in shaping and expressing identity and connectedness and the ways in which food information can be filtered and manipulated. They investigate behavioural principles that assist in the establishment of lifelong, healthy dietary patterns.

Unit 4: Food issues, challenges and futures

In this unit students examine debates about global and Australian food systems. Area of Study 1 focuses on issues about the environment, ecology, ethics, farming practices, the development and application of technologies, and the challenges of food security, food safety, food wastage, and the use and management of water and land. Students research a selected topic, seeking clarity on current situations and points of view, considering solutions and analysing work undertaken to solve problems and support sustainable futures. Area of Study 2 focuses on 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. They apply this methodology to navigate contemporary food fads, trends and diets. They practise and improve their food selection skills by interpreting food labels and analysing the marketing terms used on food packaging.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

WHY UNDERTAKE FOOD STUDIES?

Food Studies tackles the challenges of contemporary food systems. Students will understand how our food supply is controlled and kept safe and how to offer healthy options to consumers.

CAREER OPTIONS ARE:

- Dietitian
- Nutritionist
- Chef/Cook
- Food Scientist
- Hospitality
- Tourism

FOOD STUDIES

GEOGRAPHY

Unit 1 : Hazards and Disasters
This unit investigates how people have responded to specific types of hazards and disasters. Hazards represent the potential to cause harm to people and or the environment, whereas disasters are defined as serious disruptions of the functionality of a community at any scale, involving human, material, economic or environmental losses and impacts. Hazards include a wide range of situations including those within local areas, such as fast-moving traffic or the likelihood of coastal erosion, to regional and global hazards such as drought and infectious disease.

Unit 2 : Tourism: issues and challenges
In this unit students investigate the characteristics of tourism: where it has developed, its various forms, how it has changed and continues to change and its impact on people, places and environments, issues and challenges of ethical tourism. Students select contrasting examples of tourism from within Australia and elsewhere in the world to support their investigations.

ASSESSMENT TASKS – 2 Fieldwork Reports (1500-2000 words) - one for each unit, + one other assessment type per unit (either a test, case study, report or data analysis).

Unit 3 : Changing the Land
This unit focuses on two investigations of geographical change: change to land cover and change to land use. Students investigate two major processes that are changing land cover in many regions of the world: melting glaciers and ice sheets, and deforestation. They investigate the distribution and causes of the two processes. They select one location for each of the processes to develop a greater understanding of the changes to land cover produced by these processes, the impacts of these changes and responses to these changes at different scales. At a local scale students investigate land use change using appropriate fieldwork techniques and secondary sources. They investigate the processes of change, the reasons for change and the impacts of change. Students undertake fieldwork and produce a fieldwork report

Unit 4 : Human Population - trends and issues
Students investigate the geography of human populations. They explore the patterns of population change, movement and distribution, and how governments, organisations and individuals have responded to those changes in different parts of the world.
Students study population dynamics before undertaking an investigation into two significant population trends arising in different parts of the world. They examine the dynamics of populations and their environmental, economic, social, and cultural impacts on people and places.

ASSESSMENT - School-assessed coursework including fieldwork report (1500-2000 words), (Units 3 & 4) 50%; end of year exam 50%

To satisfy learning outcomes for Units 1, 2 & 3 some fieldwork is necessary. This may mean students are required to go on a camp which will require additional payment.

WHY STUDY GEOGRAPHY?
As the world is becoming smaller due to globalisation, Geography is an essential tool for giving students an understanding of their place in the world.
They gain an understanding of how decisions they make impact on other people and the environment, not only in their local region, but globally as well.

CAREER OPTIONS ARE:

- Land and Resource Managers
- Parks Rangers / Landcare Officers
- Town/Urban Planning
- Analytical and Advisory for Councils' Property Development
- Transportation/Logistics Management
- Marketing
- Real Estate
- Emergency Management
- GIS Specialist
- Teaching
- Climatologist
- Demographer

HEALTH & HUMAN DEVELOPMENT

Unit 1 - Understanding health & wellbeing
In this unit students identify personal perspectives and priorities relating to health and wellbeing, and enquire into factors that influence health attitudes, beliefs and practices, including among Aboriginal and Torres Strait Islanders. Students look at multiple dimensions of health and wellbeing, the complex interplay of influences on health and wellbeing and the indicators used to measure and evaluate health status. With a focus on youth, students consider their own health as individuals and as a cohort. They build health literacy through interpreting and using data, through investigating the role of food, and through extended inquiry into one youth health focus area.

Unit 2 - Managing health & development
Students enquire into the Australian healthcare system and extend their capacity to access and analyse health information. They investigate the challenges and opportunities presented by digital media and health technologies, and consider issues surrounding the use of health data and access to quality health care.

ASSESSMENT TASKS - Units 1 & 2 - Tasks for assessment may include: short written report, eg: media analysis, research inquiry, blog or case study analysis; oral presentation, eg: debate or podcast; visual presentation, eg: graphic organiser, concept/mind map, annotated poster, digital presentation; structured questions, including data analysis.

Unit 3 - Australia's health in a globalised world
This unit looks at health, wellbeing and illness as multidimensional, dynamic and subject to different interpretations and contexts. Students begin to explore health and wellbeing as a global concept and to take a broader approach to inquiry. As they consider the benefits of optimal health and wellbeing and its importance as an individual and a collective resource, their thinking extends to health as a universal right. Students look at the fundamental conditions required for health improvement, as stated by the World Health Organization (WHO).

Unit 4 - Health and human development in a global context
This unit examines health and wellbeing, and human development in a global context. Students investigate health status and burden of disease in different countries, exploring factors that contribute to health inequalities. They consider the health implications of increased globalisation and worldwide trends including climate change, world trade and the mass movement of people. Students look at global action to improve health and wellbeing and human development, focusing on the United Nations' (UN's) Sustainable Development Goals (SDGs) and the work of the World Health Organization (WHO).

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam worth 50%.

WHY STUDY HEALTH & HUMAN DEVELOPMENT?
It is a fascinating study of our health and development across the lifespan, and is very interesting because it is all about us and the people around us, from our close family through to our very poor neighbours in developing countries.

CAREER OPTIONS ARE:
- Dietitian/Nutritionist
- Naturopath
- Welfare/Youth/Social Worker
- Health Promotions Officer
- Teacher
- Nurse
- Consumer Advisor
- Nanny
- Child Care Worker
- Speech Therapist

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HISTORY

The study of VCE History assists students to understand themselves, others and their world, and broadens their perspective by examining people, groups, events, ideas and movements. Through studying VCE History, students develop social, political, economic and cultural understanding. They also explore continuity and change: the world is not as it has always been, and it will be subject to change in the future. In this sense, history is relevant to contemporary issues. It fosters an understanding of human agency and informs decision making in the present.

Units 1 and 2: Twentieth century History 1918 –1939

Unit 1: Students examine consequences of the peace treaties which ended World War One, and the impact of ideologies on nations and the events that led to World War Two. Students focus on the social life and cultural expression in the 1920s and 1930s and their relation to the technological, political and economic changes of the period.

Unit Two: Students explore the nature and impact of the Cold War and challenges and changes to existing political, economic and social arrangements in the second half of the twentieth century.

ASSESSMENT TASKS - over Units 1 and 2 include a historical inquiry, an analysis of primary sources, an analysis of historical interpretations and an essay.

Units 3 & 4 : Australian History

In VCE Australian History students explore four periods of time which span some of the transformative events and processes that developed and changed the nature of Australian society and created modern Australia. Study begins in the 1830s with the expansion of European control over much of southern Australia as squatters appropriated country inhabited by Aboriginal peoples. The remaining three time periods consider transformations undergone by the new Australian nation in the twentieth century.

Areas of Study:

Unit 3: Foundations: Colonial society to nation
The reshaping of Port Phillip District/Victoria, 1834 –1860
Making a people and a nation 1890 –1920

Unit 4: Transformations: Old certainties and new visions
Crises that tested the nation 1929 –1945
Voices for change 1965 –2000

Units 3 & 4 : Revolutions

Students investigate the significant historical causes and consequences of political revolution. Revolutions represent great ruptures in time and are a major turning point which brings about the collapse and destruction of an existing political order resulting in a pervasive change to society. Revolutions are caused by the interplay of ideas, events, individuals and popular movements. Their consequences have a profound effect on the political and social structures of the post-revolutionary society.

ASSESSMENT TASKS – over Units 3 and 4 include a historical inquiry, an analysis of primary sources, an analysis of historical interpretations and an essay.

WHY STUDY HISTORY?

History emphasizes the uniqueness of human experience, both individual and collective.
This develops critical thinking and analysis of our place in the world.

CAREER OPTIONS ARE:

- Tourism
- Writer
- Library or Museum Technician
- Researcher
- Political Scientist
- Solicitor
- Diplomat
- Foreign Affairs Officer
- Administration
- Photographer
- Journalist
- Teaching
- Barrister
- Criminologist
- Film / Stage / Television
- Philosophy

INDUSTRY & ENTERPRISE
(FOR STUDENTS DOING School Based Apprenticeships)

VCE Industry and Enterprise investigates work and its place in work settings, industries and society. The study explores the vocational, economic, social and cultural aspects of work and incorporates theoretical and practical investigations of these functions. Students examine trends and patterns in Australian workplaces and industries as well as significant issues affecting Australian industries and analyse industry responses to these issues.
A key feature of VCE Industry and Enterprise is the structured workplace learning (School Based Apprenticeship) that students are required to undertake. The range of personal, community and work settings which students experience, supports the development of work-related skills, which are integral to the study and seen as essential for entry-level employees and for life in general.

Units 1 and 2: Workplace Participation & Being Enterprising
Unit 1: This unit prepares students for effective workplace participation. An exploration of the importance of work-related skills is integral to this unit. Students develop work-related skills by actively exploring personal career goals and pathways. They observe industry and employment trends and analyse current and future work options. Students develop work-related skills that assist in dealing with issues commonly affecting participants in the workplace.

Unit Two: In this unit students explore the development of enterprising behaviour, leadership and innovation in different workplace settings and in the context of significant issues faced by industry.

Unit 3: Enterprise Culture
Students explore the role and impact of four significant issues that act as forces for change in developing an enterprise culture within an industry operating in Australia: the management of quality, workplace flexibility, technology, and training and workplace learning.

Unit 4: Industry Change and Innovation
Innovation is a key agent of change for Australian industries. Students investigate innovation and evaluate its importance for a selected Australian industry. They consider the role of government in supporting innovation within industry and examine the relationships between technology, training and innovation in developing an enterprise culture.
Areas of Study:
Unit 3:
Enterprise Culture
Creating an Enterprise Culture
Unit 4:
The need for Change
Innovation
ASSESSMENT TASKS – over Units 3 and 4 assessment tasks are closely related to the student's workplace. They include a workplace journal, and case study, they can also choose from a range of assessment items to demonstrate content knowledge. This subject has an end of year exam worth 50% of the study score.

WHY STUDY INDUSTRY AND ENTERPRISE?
Industry & Enterprise is a companion study for students who are already in workplace situation, through School Based Apprenticeships

CAREER OPTIONS ARE:
- Industry & Enterprise gives the students skills that are useful and applicable to any career or workplace

What is Mathematics all about?

Mathematics is the study of function and pattern in number, logic, space and structure, and of randomness, chance, variability, and uncertainty in data and events. It is both a framework for thinking and a means of symbolic communication that is powerful, logical, concise and precise. Mathematics also provides a means by which people can understand and manage human and natural aspects of the world and interrelationships between these. Essential mathematical activities include conjecturing, hypothesising and problem-posing; estimating, calculating, computing and constructing; abstracting, proving, refuting and inferring; applying, investigating, modelling and problem-solving.

STRUCTURE

The study is made up of the following units:

Foundation Mathematics Units 1–4
General Mathematics Units 1–4
Mathematical Methods Units 1–4
Specialist Mathematics Units 1–4

Each unit covers specific content contained in areas of study and is designed to enable students to achieve a set of outcomes for that unit. Each outcome is described in terms of key knowledge and key skills.
A glossary defining terms used across Units 1 to 4 in the *VCE Mathematics Study Design* is included in the Support materials.

The areas of study from which content is drawn as applicable to each unit are: Algebra, number and structure; Calculus; Data analysis, probability and statistics; Discrete Mathematics; Functions, relations and graphs; and Space and measurement.

Units 1–4 have been developed as a sequence, with Units 1 and 2 covering assumed key knowledge and key skills as preparation for Units 3 and 4.

COMMON COURSE PATHWAYS IN VCE MATHEMATICS

Units 1 and 2	Units 3 and 4
Foundation Mathematics	Foundation Mathematics
General Mathematics	General Mathematics or Foundation Mathematics
Mathematical Methods	Mathematical Methods or General Mathematics
General Mathematics and Mathematical Methods	General Mathematics and Mathematical Methods
Mathematical Methods and Specialist Mathematics	Mathematical Methods and Specialist Mathematics
Mathematical Methods and Specialist Mathematics	General Mathematics, Mathematical Methods and Specialist Mathematics

MATHEMATICS - FOUNDATION MATHS

Units 1 & 2

Foundation Mathematics Units 1 and 2 focus on providing students with the mathematical knowledge, skills, understanding and dispositions to solve problems in real contexts for a range of workplace, personal, further learning, and community settings relevant to contemporary society. They are also designed as preparation for Foundation Mathematics Units 3 and 4 and contain assumed knowledge and skills for these units.

In Foundation Mathematics there is a strong emphasis on using mathematics in practical contexts relating to everyday life, recreation, work and study. These units will be especially useful for students undertaking VET studies.

In undertaking these units, students are expected to be able to apply techniques, routines and processes involving integer, rational and real arithmetic, sets, lists and tables, contemporary data displays, diagrams, plans, geometric objects and constructions, algorithms, measures, equations and graphs, with and without the use of technology. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic, statistical and financial functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

Units 3 & 4

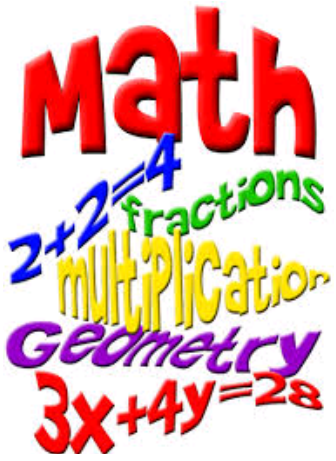
Foundation Mathematics Units 3 and 4 focus on providing students with the mathematical knowledge, skills and understanding to solve problems in real contexts for a range of workplace, personal, further learning, community and global settings relevant to contemporary society. The areas of study for Units 3 and 4 are 'Algebra, number and structure', 'Data analysis, probability and statistics', 'Discrete mathematics' and 'Space and measurement'. All four areas of study are to be completed over the two units, and content equivalent to two areas of study covered in each unit. The selected content for each unit should be developed using contexts present in students' other studies, work and personal or other familiar situations, and in national and international contexts, events and developments.

ASSESSMENT - Mathematical Investigation 1 (20%), Mathematical Investigation 2 (20%), Mathematical Investigation 3 (20%), End of Year Exam (40%)

WHY STUDY FOUNDATION MATHEMATICS?

Foundation Maths will provide students with a solid foundation for the maths they are likely to meet in everyday life.

The course provides students with skills in report writing, mathematical analysis of statistical data and confidence with standard calculations and interpretation methods.



CAREER OPTIONS ARE:

- Trade occupations

MATHEMATICS - GENERAL

Units 1 & 2

General Mathematics Units 1 and 2 cater for a range of student interests, provide preparation for the study of VCE General Mathematics at the Units 3 and 4 level and contain assumed knowledge and skills for these units. The areas of study for Unit 1 of General Mathematics are 'Data analysis, probability and statistics', 'Algebra, number and structure', 'Functions, relations and graphs' and 'Discrete mathematics'. The areas of study for Unit 2 of General Mathematics are 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs' and 'Space and measurement'.

General Mathematics is an important choice for students who will be going on to study Further Mathematics. A sequence of General Mathematics and Further Mathematics is adequate for most university and TAFE courses. Students intending to study science courses at tertiary level should, however, study Mathematics Methods.

ASSESSMENT TASKS -
Unit 1 : assignments, tests, solutions to sets of worked questions, summary notes or review notes, modelling tasks, problem-solving tasks, mathematical investigations.
Unit 2 : assignments, tests, solutions to sets of worked questions, summary notes or review notes, modelling tasks, problem-solving tasks, mathematical investigations.

MATHEMATICS - FURTHER

Units 3 & 4

General Mathematics Units 3 and 4 focus on real-life application of mathematics and consist of the areas of study 'Data analysis, probability and statistics' and 'Discrete mathematics'.
Unit 3 comprises Data analysis and Recursion and financial modelling, and Unit 4 comprises Matrices and Networks and decision mathematics.
Assumed knowledge and skills for General Mathematics Units 3 and 4 are contained in General Mathematics Units 1 and 2, and will be drawn on, as applicable, in the development of related content from the areas of study, and key knowledge and key skills for the outcomes of General Mathematics Units 3 and 4.
In undertaking these units, students are expected to be able to apply techniques, routines and processes involving rational and real arithmetic, sets, lists, tables and matrices, diagrams, networks, algorithms, algebraic manipulation, recurrence relations, equations and graphs. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic statistical and financial functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

ASSESSMENT - Application Task (16%), Modelling Task (8%), Modelling or Problems Solving Task (8%), Modelling or Problem Solving Task (8%), End of Year Exam 1 (30%), End of Year Exam 2 (30%)

WHY STUDY GENERAL & FURTHER MATHEMATICS?
General Maths followed by Further Maths provides basic maths skills required or desired by many tertiary courses, including TAFE.
The course provides students with skills in report writing, mathematical analysis of statistical data and confidence with standard calculations and interpretation methods.

CAREER OPTIONS ARE:
- Most diploma TAFE courses
- University Arts courses
- Social Science courses
- Specialised courses such as Nursing

MATHEMATICS - METHODS

Units 1 & 2
Mathematical Methods Units 1 and 2 provide an introductory study of simple elementary functions of a single real variable, algebra, calculus, probability and statistics and their applications in a variety of practical and theoretical contexts. The units are designed as preparation for Mathematical Methods Units 3 and 4 and contain assumed knowledge and skills for these units. The focus of Unit 1 is the study of simple algebraic functions, and the areas of study are 'Functions, relations and graphs', 'Algebra, number and structure', 'Calculus' and 'Data analysis, probability and statistics'. The focus of Unit 2 is the study of simple transcendental functions, the calculus of polynomial functions and related modelling applications.

Mathematics Methods is an important choice for students who will be going on to study Mathematics Methods at Unit 3 + 4. Students intending to study science courses at tertiary level should study Mathematics Methods.

ASSESSMENT TASKS -
Unit 1 : assignments, tests, solutions to sets of worked questions, summary notes or review notes.
Unit 2 : assignments, tests, solutions to sets of worked questions, summary notes or review notes, modelling tasks, problem-solving tasks, mathematical investigations.

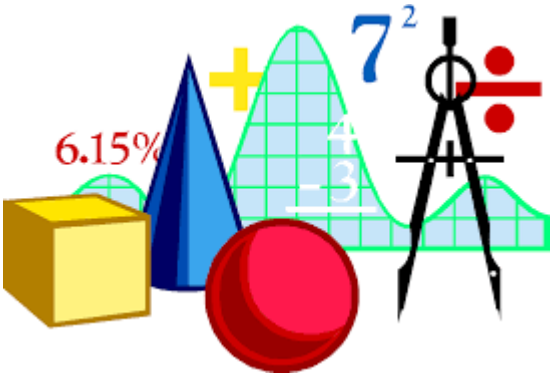
Units 3 & 4
Mathematical Methods Units 3 and 4 extend the introductory study of simple elementary functions of a single real variable, to include combinations of these functions, algebra, calculus, probability and statistics, and their applications in a variety of practical and theoretical contexts. Units 3 and 4 consist of the areas of study 'Algebra, number and structure', 'Data analysis, probability and statistics', 'Calculus', and 'Functions, relations and graphs', which must be covered in progression from Unit 3 to Unit 4, with an appropriate selection of content for each of Unit 3 and Unit 4. Assumed knowledge and skills for Mathematical Methods Units 3 and 4 are contained in Mathematical Methods Units 1 and 2, and will be drawn on, as applicable, in the development of related content from the areas of study, and key knowledge and key skills for the outcomes of Mathematical Methods Units 3 and 4.

ASSESSMENT - Application Task (20%), Modelling or Problems Solving Task 1 (10%), Modelling or Problem Solving Task 2 (10%), End of Year Exam 1 (20%), End of Year Exam 2 (40%)

CAREER OPTIONS ARE:

- Engineer
- Architect
- Geophysicist
- Teacher
- Robotics
- Lawyer
- Doctor
- Pilot
- Town Planner
- Croupier
- Survey Assistant
- Bank Officer
- Accountant
- Most Science related courses

WHY STUDY MATHEMATICS METHODS?
Leads to greater career opportunities.
Pre-requisite for many of the leading occupations.
Develops problem-solving skills.



MATHEMATICS - SPECIALIST MATHEMATICS

Units 1 & 2

Specialist Mathematics Units 1 and 2 provide a course of study for students who wish to undertake an in-depth study of mathematics, with an emphasis on concepts, skills and processes related to mathematical structure, modelling, problem-solving, reasoning and proof. This study has a focus on interest in the discipline of mathematics and investigation of a broad range of applications, as well as development of a sound background for further studies in mathematics and mathematics related fields.
The areas of study for Specialist Mathematics Units 1 and 2 are 'Algebra, number and structure', 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs' and 'Space and measurement'.

Specialist Mathematics gives opportunities for students who want to expand their mathematical learning into more complex and abstract thinking. It is vital that students undertake Units 1 + 2 if they wish to complete Units 3 + 4. However, Units 1 + 2 of Specialist Mathematics also enables students to better understand the topics covered in Units 3 + 4 of Mathematics Methods.

ASSESSMENT TASKS -
Unit 1 - assignments, tests, solutions to sets of worked questions, summary and review notes.
Unit 2 - assignments, tests, solutions to sets of worked questions, summary and review notes.

Unit 3 & 4

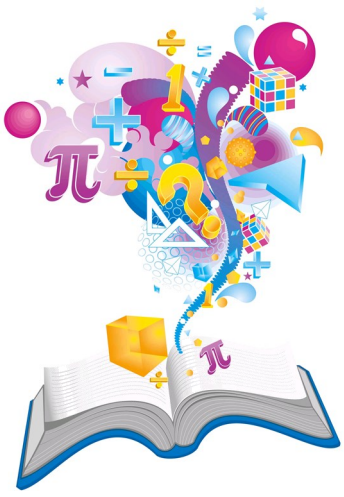
Specialist Mathematics Units 3 and 4 consist of the areas of study: 'Algebra, number and structure', 'Calculus', 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs', and 'Space and measurement'. The development of course content should highlight mathematical structure, reasoning and proof and applications across a range of modelling contexts with an appropriate selection of content for each of Unit 3 and Unit 4. The selection of content for Unit 3 and Unit 4 should be constructed so that there is a balanced and progressive development of knowledge and skills with connections among the areas of study being developed as appropriate across Unit 3 and Unit 4. Specialist Mathematics Units 3 and 4 assumes familiarity with the key knowledge and key skills from Mathematical Methods Units 1 and 2; the key knowledge and key skills from Specialist Mathematics Units 1 and 2; and concurrent study or previous completion of Mathematical Methods Units 3 and 4. Together these cover the assumed knowledge and skills for Specialist Mathematics Units 3 and 4, which are drawn on as applicable in the development of content from the areas of study and key knowledge and key skills for the outcomes.

ASSESSMENT - Application Task (20%) Modelling or Problem Solving Task 1 (10%), Modelling or Problem Solving Task 2 (10%), End of Year Exam 1 (20%), End of Year Exam 2 (40%)

WHY STUDY SPECIALIST MATHS?
A study of Specialist Mathematics provides students with suitable background knowledge to understand and analyse mathematical ideas and techniques, and to solve problems confidently and eloquently. Students will have confidence and skills to tackle all maths courses at tertiary level.

CAREER OPTIONS ARE:
Skills acquired from a study of Specialist Maths are desirable for tertiary studies in:

- Maths
- Engineering
- Science
- Social Sciences



OUTDOOR & ENVIRONMENTAL STUDIES

Unit 1 : Exploring outdoor experiences

This unit examines some of the ways in which humans understand and relate to nature through experiences of outdoor environments. The focuses is on individuals and their personal responses to and experiences of outdoor environments.

Students are provided with the opportunity to explore the many ways in which nature is under stood and perceived. Students develop a clear understanding of the range of motivations for interacting with outdoor environments and the factors that affect an individual's access to outdoor experiences and relationships with outdoor environments.

ASSESSMENT TASKS - demonstration of achievement is based on the student's performance on a selection of assessment tasks: oral presentations; practical reports in non-text format such as multimedia, annotated visual display; short reports of outdoor experiences; tests; written responses.

Unit 2 : Discovering outdoor environments

This unit focuses on the characteristics of outdoor environments and different ways of understanding them, as well as the human impacts on outdoor environments.

In this unit students study nature's impact on humans, as well as the ecological, social and economic implications of human impact on outdoor environments. Students develop a clear understanding of the impact of technologies and changing human lifestyles on outdoor environments.

ASSESSMENT TASKS - demonstration of achievement is based on the student's performance on a selection of assessment tasks: oral presentations; practical reports in non-text format such as multimedia, annotated visual display; short reports of outdoor experiences; tests; written responses.

Unit 3 : Relationships with outdoor environments

The focus of this unit is the ecological, historical and social contexts of relationships between humans and outdoor environments in Australia. Case studies of impacts on outdoor environments are examined in the context of the changing nature of human relationships with outdoor environments in Australia.

Students consider a number of factors that influence contemporary relationships with outdoor environments. They also examine the dynamic nature of relationships bet ween humans and their environment.

Unit 4 : Sustainable outdoor relationships

This unit focuses on the conservation and use of the natural environment. The maintenance of natural In this unit students explore the sustainable use and management of outdoor environments. They examine the contemporary state of environments in Australia, consider the importance of healthy outdoor environments, and examine the issues in relation to the capacity of outdoor environments to support the future needs of the Australian population.

Students examine the importance of developing a balance between human needs and the conservation of outdoor environments and consider the skills needed to be environmentally responsible citizens. They investigate current agreements and environmental legislation, as well as management strategies and policies for achieving and maintaining healthy and sustainable environments in contemporary Australian society.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

Through outdoor experiences, students develop practical skills and knowledge to help them live sustainably in outdoor environments. Students understand the links between practical experiences and theoretical investigations, gaining insight into a variety of responses to, and relationships with, nature.

WHY STUDY OUTDOOR & ENVIRONMENTAL STUDIES?

This subject will be of interest if you enjoy participating in activities in the outdoor environment and have an interest in the environment.

CAREER OPTIONS ARE:

- Tourism Industry
- Outdoor Education
- Environmental Science
- Park Ranger
- Recreation Officer
- Instructor
- Fisheries Officer

Note: Please consider that there are 2 compulsory outdoor camps which form the basis of study for Units 3 & 4. Approximate cost $300.

PHYSICAL EDUCATION

Unit 1 : The human body in motion

In this unit students explore how the musculoskeletal and cardiorespiratory systems work together to produce movement. Through practical activities students explore the relationships between the body systems and physical activity, sport and exercise, and how the systems adapt and adjust to the demands of the activity. Students investigate the role and function of the main structures in each system and how they respond to physical activity, sport and exercise. They explore how the capacity and functioning of each system acts as an enabler or barrier to movement and participation in physical activity. Using a contemporary approach, students evaluate the social, cultural and environmental influences on movement. They consider the implications of the use of legal and illegal practices to improve the performance of the musculoskeletal and cardiorespiratory systems, evaluating perceived benefits and describing potential harms. They also recommend and implement strategies to minimise the risk of illness or injury to each system.

Unit 2 : Physical activity, sport and society

This unit develops students' understanding of physical activity, sport and society from a participatory perspective. Students are introduced to types of physical activity and the role participation in physical activity and sedentary behaviour plays in their own health and wellbeing as well as in other people's lives in different population groups. Through a series of practical activities, students experience and explore different types of physical activity promoted in their own and different population groups. They gain an appreciation of the level of physical activity required for health benefits. Students investigate how participation in physical activity varies across the lifespan. They explore a range of factors that influence and facilitate participation in regular physical activity. They collect data to determine perceived enablers of and barriers to physical activity and the ways in which opportunities for participation in physical activity can be extended in various communities, social, cultural and environmental contexts. Students investigate individual and population-based consequences of physical inactivity and sedentary behaviour. They then create and participate in an activity plan that meets the physical activity and sedentary behaviour guidelines relevant to the particular population group being studied. Students apply various methods to assess physical activity and sedentary behaviour levels at the individual and population level, and analyse the data in relation to physical activity and sedentary behaviour guidelines. Students study and apply the social-ecological model and/or the Youth Physical Activity Promotion Model to critique a range of individual- and settings-based strategies that are effective in promoting participation in some form of regular physical activity.

ASSESSMENT - The main assessment for unit 1 & 2 is a reflective folio and written report, along with structured questions, case studies, data analysis, oral presentations, multimedia presentations and practical laboratory reports.

Unit 3 : Movement skills and energy for physical activity

This unit introduces students to the biomechanical and skill acquisition principles used to analyse human movement skills and energy production from a physiological perspective. Students use a variety of tools and techniques to analyse movement skills and apply biomechanical and skill acquisition principles to improve and refine movement in physical activity, sport and exercise. They use practical activities to demonstrate how correct application of these principles can lead to improved performance in physical activity and sport.

Students investigate the relative contribution and interplay of the three energy systems to performance in physical activity, sport and exercise. In particular, they investigate the characteristics of each system and the interplay of the systems during physical activity. Students explore the causes of fatigue and consider different strategies used to postpone fatigue and promote recovery.

Unit 4 : Training to improve performance

In this unit students analyse movement skills from a physiological, psychological and sociocultural erspective, and apply relevant training principles and methods to improve performance within physical activity at an individual, club and elite level. Improvements in performance, in particular fitness, depend on the ability of the individual and/ or coach to gain, apply and evaluate knowledge and understanding of training. Students analyse skill frequencies, movement patterns, heart rates and work to rest ratios to determine the requirements of an activity. Students consider the physiological, psychological and sociological requirements of training to design and evaluate an effective training program. Students participate in a variety of training sessions designed to improve or maintain fitness and evaluate the effectiveness of different training methods. Students critique the effectiveness of the implementation of training principles and methods to meet the needs of the individual, and evaluate the chronic adaptations to training from a theoretical perspective.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

WHY STUDY PHYSICAL EDUCATION?

If you want to know how the body works and have an interest in physical activity, you will enjoy this subject. A great subject to study with Biology, Psychology or Health and Human Development.

CAREER OPTIONS ARE:

- Fitness Leadership
- Human Movement
- Sports Administrator
- Nurse - Registered
- Health Promotion
- Physiotherapist
- Ambulance Officer
- Physical Education Teacher
- Massage Therapist

PHYSICS

Unit 1 : What ideas explain the physical world?
In this unit students examine some of the fundamental ideas and models used by physicists in an attempt to understand and explain energy. Models used to understand light, thermal energy, radioactivity, nuclear processes and electricity are explored. Students apply these physics ideas to contemporary societal issues: communication, climate change and global warming, medical treatment, electrical home safety and Australian energy needs.

Unit 2 : What do experiments reveal about the physical world?
In this unit students explore the power of experiments in developing models and theories. They investigate a variety of phenomena by making their own observations and generating questions, which in turn lead to experiments.
In Area of Study 1, students investigate the ways in which forces are involved both in moving objects and in keeping objects stationary and apply these concepts to a chosen case study of motion.
In Area of Study 2, students choose one of eighteen options related to climate science, nuclear energy, flight, structural engineering, biomechanics, medical physics, bioelectricity, optics, photography, music, sports science, electronics, astrophysics, astrobiology, Australian traditional artefacts and techniques, particle physics, cosmology and local physics research.

ASSESSMENT TASKS (Units 1 & 2) - folios; data analysis; multimedia presentations; responses to a media article; practical reports; written reports; tests.

Unit 3 : How do fields explain motion and electricity?
In this unit students use Newton's laws to investigate motion in one and two dimensions. They explore the concept of the field as a model used by physicists to explain observations of motion of objects not in apparent contact. Students compare and contrast three fundamental fields – gravitational, magnetic and electric – and how they relate to one another. They consider the importance of the field to the motion of particles within the field. Students examine the production of electricity and its delivery to homes. They explore fields in relation to the transmission of electricity over large distances and in the design and operation of particle accelerators.

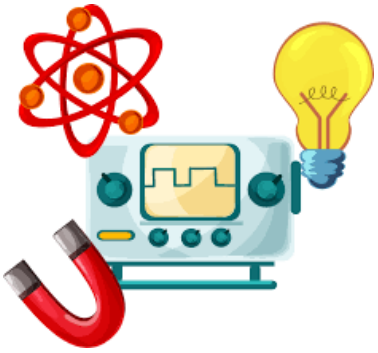
Unit 4 : How can two contradictory models explain both light and matter?
In this unit, students explore some monumental changes in thinking in Physics that have changed the course of how physicists understand and investigate the Universe. They examine the limitations of the wave model in describing light behaviour and use a particle model to better explain some observations of light. Matter, that was once explained using a particle model, is re-imagined using a wave model. Students are challenged to think beyond how they experience the physical world of their everyday lives to thinking from a new perspective, as they imagine the relativistic world of length contraction and time dilation when motion approaches the speed of light. They are invited to wonder about how Einstein's revolutionary thinking allowed the development of modern-day devices such as the GPS.

ASSESSMENT - school-assessed coursework (Units 3 & 4) 50%; end of year exam 50%.

WHY STUDY PHYSICS?
Physics will be of value If you enjoy finding out how things work. Physics is often the key to the basis of many other science disciplines; understanding physics puts you in a very advantageous position.

CAREER OPTIONS ARE:
Study of Physics leads to careers in:

- Electronics
- Engineering
- Physiotherapy
- Nuclear/ Particle physics
- Engineering
- Mining industry
- Digital electronics
- Science



PRODUCT, DESIGN & TECHNOLOGY

(Students can work with wood, metal or fabric)

Rationale : Designers play an important part in our daily lives. They determine the form and function of the products we use and wear. They transform ideas into drawings and plans for the creation and manufacture of useful products that fulfil human needs and wants. In recent history the use of resources to create an ever increasing array of products has given designers an increased responsibility to think sustainably.
Students develop an understanding of the consequences of product design choices. They develop the necessary skills to critically analyse existing products and to develop their own creative solutions.

Unit 1 : Sustainable product redevelopment
This unit focuses on the analysis, modification and redesign of a product design to improve its social, economic and/or environmental 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. Students will create a design brief design brief and folio to produce a solution to a problem.

Unit 2 : Collaborative design
In this unit each student works as a member of a team to design and develop a product range or contribute to the design and production of a group product. This mirrors professional design practice where designers often work within a multidisciplinary team to develop solutions to design problems.
The student works both individually and as a member of a small design team. This provides the student with the opportunity to work with others while taking responsibility for particular aspectsof the design and production processes.

ASSESSMENT TASKS (Units 1 & 2) – design folio and completed product; may also include written reports, oral presentations and/or case studies.

Unit 3 : Applying the product design process
Students are engaged in the design and development of a product that meets the needs and expectations of end-users which is influenced by a range of complex factors. These include client or community requirements, innovation, social and economic trends, availability of resources and technological developments in industry.
In this unit, students investigate a client or end user's needs, prepare a design brief, devise evaluation criteria, carry out research and propose a series of design options.
They justify the choice of a preferred design option and develop a work plan, and commence production of the product, which is completed and evaluated in Unit 4.

Unit 4 : Product development and evaluation
Students continue with the production of their designed solution, with consultation with the end user. Students record their progress in the production of their product. After completing their project, students evaluate their design in collaboration with the end user. They also make comparisons between similar products to evaluate their success in relation to product design factors. There is an increased focus on environmental, economic and social viability which impact on products throughout their life cycle.

ASSESSMENT- school-assessed coursework (Units 3 & 4); School-assessed task – Units 3 & 4; end of year exam.

Note: School Assessed Task – Units 3 & 4.
Students need to supply their own materials to design and make a product according to set criteria. Costs can range from $50-500 (for materials), depending on the style of the product. Students also need to present a folio for the written component of the School Assessed Task.

WHY STUDY DESIGN TECHNOLOGY?
To further develop students' understanding of the design process on industrial setting, and develop project management and problem-solving skills..

CAREER OPTIONS ARE:
Advancement into manufacturing trades and entry into manufacturing courses in both TAFE and university, including engineering and design orientated subjects.

PSYCHOLOGY

Unit 1 - How are behaviour and mental processes shaped?
In this unit students examine the complex nature of psychological development, including situations where psychological development may not occur as expected. Students examine the contribution that classical and contemporary knowledge from Western and non-Western societies, including Aboriginal and Torres Strait Islander peoples, has made to an understanding of psychological development and to the development of psychological models and theories used to predict and explain the development of thoughts, emotions and behaviours. They investigate the structure and functioning of the human brain and the role it plays in mental processes and behaviour and explore brain plasticity and the influence that brain damage may have on a person's psychological functioning.

Unit 2 - How do external factors influence behaviour and mental processes?
In this unit students evaluate the role social cognition plays in a person's attitudes, perception of themselves and relationships with others. Students explore a variety of factors and contexts that can influence the behaviour of individuals and groups, recognising that different cultural groups have different experiences and values. Students are encouraged to consider Aboriginal and Torres Strait Islander people's experiences within Australian society and how these experiences may affect psychological functioning. Students examine the contribution that classical and contemporary research has made to the understandings of human perception and why individuals and groups behave in specific ways. Students investigate how perception of stimuli enables a person to interact with the world around them and how their perception of stimuli can be distorted.

Unit 3 - How does experience affect behaviour and mental processes?
In this unit students investigate the contribution that classical and contemporary research has made to the understanding of the functioning of the nervous system and to the understanding of biological, psychological and social factors that influence learning and memory. Students investigate how the human nervous system enables a person to interact with the world around them. They explore how stress may affect a person's psychological functioning and consider stress as a psychobiological process, including emerging research into the relationship between the gut and the brain in psychological functioning. Students investigate how mechanisms of learning and memory lead to the acquisition of knowledge and the development of new and changed behaviours. They consider models to explain learning and memory as well as the interconnectedness of brain regions involved in memory. The use of mnemonics to improve memory is explored, including Aboriginal and Torres Strait Islander peoples' use of place as a repository of memory.

Unit 4 - How is wellbeing developed and maintained?
In this unit students explore the demand for sleep and the influences of sleep on mental wellbeing. They consider the biological mechanisms that regulate sleep and the relationship between rapid eye movement (REM) and non-rapid eye movement (NREM) sleep across the life span. They also study the impact that changes to a person's sleep-wake cycle and sleep hygiene have on a person's psychological functioning and consider the contribution that classical and contemporary research has made to the understanding of sleep. Students consider ways in which mental wellbeing may be defined and conceptualised, including social and emotional wellbeing (SEWB) as a multidimensional and holistic framework to wellbeing. They explore the concept of mental wellbeing as a continuum and apply a biopsychosocial approach, as a scientific model, to understand specific phobia. They explore how mental wellbeing can be supported by considering the importance of biopsychosocial protective factors and cultural determinants as integral to the wellbeing of Aboriginal and Torres Strait Islander peoples.

ASSESSMENT TASKS :
School-assessed coursework, selected from a choice of annotations, comparison, report of student investigation, analysis of data, media analysis, structured questions, reflective learning journal, test; PLUS a structured scientific poster, AND end-of-year exam.

WHY STUDY PSYCHOLOGY?
This subject looks at describing, predicting, controlling and explaining behaviour and mental process - a great subject for all VCE students! It is interesting to find out why people behave as they do, and to investigate subjects such as normality and intelligence.

CAREER OPTIONS:
- Psychologist (industry, health centres, schools, defence force, private practice)
- Welfare
- Youth Worker
- Nurse
- Occupational Therapist
- Social Worker
- Child Care Worker
- Teacher

SYSTEMS ENGINEERING

Rationale : VCE Systems Engineering promotes innovative systems thinking and problem-solving skills through the application of the systems engineering process. The study is based on integrated mechanical and electrotechnological engineered systems, and provides opportunities for students to learn about and engage with systems from a practical and purposeful perspective.
Students gain knowledge and understanding about technological systems and their applications. VCE Systems Engineering integrates aspects of designing, planning, producing, testing and evaluating in a project management process. It prepares students for careers in engineering, manufacturing and design through a university or TAFE vocational study pathway, employment, apprenticeships and traineeships.

Unit 1 : Mechanical systems
This unit focuses on engineering fundamentals as the basis of understanding concepts, principles and components that operate inmechanical systems. While this unit contains the fundamental physics and theoretical understanding of mechanical systems and how they work, the focus is on the creation of a system. The creation process draws heavily upon design and innovation processes.
Students create an operational system using the systems engineering process. Students are introduced to mechanical engineering principles including mechanical subsystems and devices, their motions, elementary applied physics, and related mathematical calculations that can beapplied to define and explain the physical characteristics of these systems.

Unit 2 : Electrotechnological systems
In this unit students study fundamental electrotechnological engineering principles. The term 'electrotechnological' encompasses systems that include electrical/electronic circuitry including microelectronic circuitry. Through the application of the systems engineering process, students create an operational system. Students study fundamental electrotechnological principles including applied electrical theory, standard representation of electronic components and devices, elementary applied physics in electrical circuits and mathematical processes that can be applied to define and explain the electrical characteristics of circuits.

ASSESSMENT TASKS (Units 1 & 2) – documentation of the systems engineering process using one or more of: a multimedia/simulation presentation / an electronic portfolio / a brochure / a poster / a written report / production work to create an electrotechnological system / practical demonstrations / an oral presentation.
Costs : $20-$150 per unit.

Unit 3 : Integrated and controlled systems
In this unit students study engineering principles used to explain physical properties of integrated systems and how they work.Students design and plan an operational, integrated and controlled mechanical and electrotechnological system using the systems engineering process. This production work has a strong emphasis on innovation, designing, producing, testing and evaluating. Students manage the project, taking into consideration the factors that will influence the creation and use of their integrated and controlled system.

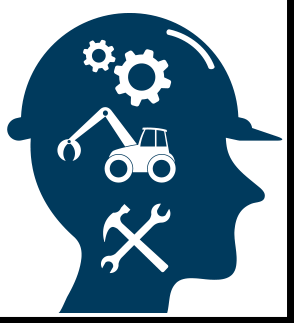
Unit 4 : Systems control
In this unit students investigate new and emerging technologies, consider reasons for their development and analyse their impacts. Students continue producing their integrated and controlled system from Unit 3 using the systems engineering process. They effectively document the use of project and risk management methods throughout the creation of the system. They use a range of materials, tools, equipment and components. Students test, diagnose and analyse the performance of the system. They evaluate their process and their integrated system.

ASSESSMENT - school-assessed coursework (Units 3 & 4); School-assessed task – Units 3 & 4; end of year exam.

WHY STUDY SYSTEMS ENGINEERING?
To further develop students' understanding of the systems engineering process and use this to solve technological problems, as well as an awareness of associated challenges.

CAREER OPTIONS ARE:
People with these skills, and the ability to apply systems engineering processes, are in increasing demand as participants in teams that are engaged with complex and multidisciplinary projects

Note: School Assessed Task – Units 3 & 4. Students need to supply their own materials to design and make a product according to set criteria. Costs can range from $50-500 (for materials), depending on the style of the product.
Students will also need an electronic folio for the written component of the School Assessed Task.



VISUAL COMMUNICATION & DESIGN

Unit 1

The main purpose of this unit is to enable students to develop an understanding of instrumental drawing methods and freehand drawing including drawing from direct observation. The unit involves the study of a range of drawing methods, including relevant Australian Standards conventions. Students develop practical skills in the application of appropriate drawing methods, design elements and principles, and information and communication technology. The unit also introduces students to the diversity of visual communication and the role of the design process in visual communication production.

ASSESSMENT TASKS - folio of instrumental drawings of objects; folio of drawings of objects that show one-point and two-point perspective drawing, rendering techniques, proportion, scale, relationship of objects, explanatory diagrams; folio of visual communications that use design elements and principles to satisfy stated purpose(s); written and/or oral report supported by visual material explaining the design process in the production of visual communications.

Unit 2

The main purpose of this unit is to enable students to develop and refine practical skills by generating images and developing them through freehand drawing, instrumental drawing and the use of information and communications technology. In the development of visual communications, this unit enables students to develop an awareness of how the design process facilitates exploration and experimentation and how information and ideas are communicated.

ASSESSMENT TASKS - folio of instrumental drawings of objects that include paraline drawing, scale, Australian Standard conventions in dimensioning, cross-sectioning and circular representations, conversion of two-dimensional orthogonal views into three-dimensional drawing systems and vice versa; folio of freehand drawings of objects that shows development of rendered three-dimensional images; a folio of visual communication solution(s) to set task(s); written response, supported by visual material, that describes and analyses contemporary and historical examples of visual communications or a Powerpoint presentation supported by visual material and speaker's notes.

Unit 3

The main purpose of this unit is to enable students to develop an understanding of visual communication production through the application of the design process to satisfy specific communication needs. Within the unit, students consider existing visual communication and analyse and evaluate examples. Students will also investigate the production of visual communications in a professional setting and examine the nature of professional practice in the design and production of visual communications.

Unit 4

The main purpose of this unit is to enable students to apply their knowledge of the components of the design process in the preparation of one design brief. Students apply their practical skills to the development and production of two distinct final visual communication presentations through application of the design process and based on the requirements of the brief.

ASSESSMENT - school-assessed coursework (Units 3 & 4); end of year exam.

WHY STUDY VISUAL COMMUNICATION & DESIGN?

To develop skills in drawing and design.
To learn a range of design based software applications.
It can lead to creative and interesting career options.

CAREER OPTIONS ARE:

- Architecture
- Industrial and Multi-media Design
- Advertising and Marketing
- Fashion
- Engineering
- Graphic Design
- Cartography

VOCATIONAL EDUCATION TRAINING (VET) : Agriculture

The VET programs are competency based so that at a particular point a student completes a task or they don't. Once they have demonstrated competency for a particular module they receive an S (satisfactory).
The following is an overview of a program of approximately two years duration.

All students must complete 200 hours of work placement, achieved through a combination of regular work placement, intensive blocks (like harvest) and weekend work.

Units that must be completed to gain the Certificate

Participate in WHS processes
Work effectively in the industry
Participate in environmentally sustainable work practices
Operate tractors
Apply chemicals under supervision
Muster and move livestock
Handle livestock using basic techniques
Pen sheep
Provide feed for livestock
Identify and mark livestock
Treat weeds
Care for health and welfare of livestock
Perform board duties
Monitor water supplies
Assist in preparing for shearing and crutching
Treat plant pests, diseases and disorders
Assist agricultural crop establishment
Provide first aid

* Certificates are awarded at the completion of Year 12 unless an early application for completion is received.

* Please note : Students are expected to keep accurate work records for this subject.