

## **SUBJECTS OFFERED TO YEAR 12 STUDENTS IN 2019**

# AGRICULTURE & HORTICULTURE STUDIES

## UNIT 3:                    Technology, Innovation and Business Practices

In this unit technology refers to the equipment, management techniques and processes that can be used to maintain and/or enhance efficiency and effectiveness of agricultural and horticultural systems in order to achieve socially, economically and environmentally sustainable agricultural and horticultural systems. Students develop an understanding of the range of available equipment and processes that may be used in agricultural and horticultural businesses, including the current commonly used technologies and innovative technologies.

### **Areas of study**

#### **Current management techniques**

In this area of study students focus on technology and practices commonly used in agriculture and/or horticulture. Using a case study approach, students explore the technologies and management techniques used by one or two fully commercial agricultural and/or horticultural business/es.

#### **New or emerging technology**

In this area of study, students focus on new or emerging technology that has been adopted by only a small number of agricultural and/or horticultural businesses. New technology is defined as having been readily available for fewer than five years preceding the year of study; emerging technology is still in the development stages and not commercially available. Students source recent publications and search the Internet to assist in their research.

#### **Business design**

In this area of study each student designs a small business project including aspects of production, marketing and financial planning, for a small commercial agricultural and/or horticultural business that involves the management of living plants and/or animals. Students consider production strategies for local, national and global markets, including value adding within the supply chain. They analyse and plan for financial, environmental and occupational health and safety risks, taking into account the quality standards related to the business.

## **UNIT 4:            Sustainable Management**

- This unit focuses on the management of agricultural and horticultural systems within the context of economic, social and environmental sustainability. The unit takes a holistic ecological approach to issues associated with land, plant and animal management. Students apply the principles and concepts of such an approach across a range of agricultural and horticultural situations.

### **Areas of study**

#### **Sustainability in agriculture and horticulture**

In this area of study students focus on concepts of environmental sustainability and how they relate to productivity. Agricultural and horticultural practices have the potential to cause environmental degradation. Students learn that the ability to identify, rectify and prevent environmental degradation is intrinsic to sustainable practice, and involves an understanding of how ecological and production management practices work together to create sustainable businesses. Students consider the effects of climate change and the need to adapt management techniques in response to these effects.

#### **Resource management and maintenance**

In this area of study students consider sustainable resource management practices within agricultural and/ or horticultural systems. Students examine case studies that explore economic, social and environmental resources, concepts and strategies that apply to agricultural and/or horticultural business.

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In this area of study students consider sustainable resource management practices within agricultural and/ or horticultural systems. Students examine case studies that explore economic, social and environmental resources, concepts and strategies that apply to agricultural and/or horticultural businesses. Students learn about the development of a property management plan. Resources may include but are not limited to government and non-government agencies that assist sustainable operations. Students use a scientific approach to aid in environmental management.

#### **Business plan implementation and evaluation**

In this area of study students continue to operate the small business project they commenced in Unit 3 Outcome 3. Students continue to monitor progress, modify operations as required, and record the production skills used in management of the small business. Students evaluate the performance of the business against its business plan and make recommendations to improve the sustainability of the business.

### **Assessment**

School-assessed Coursework for Unit 3 and 4 will contribute 33 per cent.

The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination, which will contribute 34 per cent.

# **BIOLOGY UNITS 3 & 4 2017 - 2021**

## **Rationale**

VCE Biology enables students to investigate the processes involved in sustaining life at cellular, system, species and ecosystem levels. Students examine how life has evolved over time and understand that in the dynamic and interconnected system of life all change has a consequence that may affect an individual, a species or the collective biodiversity of earth.

Students develop a range of inquiry skills involving practical experimentation and research, analytical skills including critical and creative thinking, and communication skills.

VCE Biology provides for continuing study pathways which lead to a range of careers including botany, genetics, immunology, microbiology, pharmacology and zoology. Biology is also applied in many fields including biotechnology, dentistry, ecology, education, food service, forestry, health care, horticulture, medicine, optometry, physiotherapy and veterinary science. Biologists also work in cross-disciplinary areas such as bushfire research, environmental management and conservation, forensic science, geology, medical research and sports science.

## **UNIT 3: How do cells maintain life?**

**Outcomes** - On completion of this unit the student should be able to -

1. Explain the dynamic nature of the cell in terms of key cellular processes including regulation, photosynthesis and cellular respiration, and analyse factors that affect the rate of biochemical reactions.
2. Apply a stimulus-response model to explain how cells communicate with each other, outline immune responses to invading pathogens, distinguish between the different ways that immunity may be acquired, and explain how malfunctions of the immune system cause disease.

## **UNIT 4: How does life change and respond to challenges over time?**

**Outcomes** - On completion of this unit the student should be able to -

1. Analyse evidence for evolutionary change, explain how relatedness between species is determined, and elaborate on the consequences of biological change in human evolution.
2. Describe how tools and techniques can be used to manipulate DNA, explain how biological knowledge is applied to biotechnical applications, and analyse the interrelationship between scientific knowledge and its applications in society.
3. Complete a student designed or adapted practical investigation related to cellular processes and/or biological change and continuity over time is undertaken and presented in a scientific poster format.

## **Entry**

There are no prerequisites for entry to Units 1, 2 and 3.

## **Assessment Tasks**

School-assessed coursework and an end-of-year examination.

- Unit 3 School-assessed coursework: 16%
- Unit 4 School-assessed coursework: 24%
- Unit 3 and 4 examination: 60%

Student assessment coursework will consist of tests, laboratory reports, log book entry, individual practical investigation, case study/data analysis, final exam.

## Chemistry 3&4

### Unit 3: How can chemical processes be designed to optimise efficiency?

The global demand for energy and materials is increasing with world population growth. In this unit students explore energy options and the chemical production of materials with reference to efficiencies, renewability and the minimisation of their impact on the environment. Students will compare and evaluate different chemical energy sources along with manufacturing processes.

#### Outcome 1

Compare fuels quantitatively with reference to combustion products and energy outputs, apply knowledge of the electrochemical series to design, construct and test galvanic cells, and evaluate energy resources based on energy efficiency, renewability and environmental impact.

#### Outcome 2

Apply rate and equilibrium principles to predict how the rate and extent of reactions can be optimised, and explain how electrolysis is involved in the production of chemicals and in the recharging of batteries.

### Unit 4: How are organic compounds categorised, analysed and used?

The carbon atom has unique characteristics that explain the diversity and number of organic compounds that not only constitute living tissues but are also found in the fuels, medicines and many of the materials we use in everyday life. In this unit students investigate the structural features, bonding, typical reactions and uses of the major families or organic compounds including those found in food.

#### Outcome 1

Compare the general structures and reactions of the major organic families of compounds, deduce structures of organic compounds using instrumental analysis data, and design reaction pathways for the synthesis of organic molecules.

#### Outcome 2

Distinguish between the chemical structures of key food molecules, analyse the chemical reactions involved in the metabolism of the major components of food including the role of enzymes, and calculate the energy content of food using calorimetry.

### Assessment

**SACs (practical investigation and written tasks) 40%**

**Examination 60%**

**Practical investigation** - Students design or adapt a practical investigation related to energy and/or food. The investigation requires the student to identify an aim, develop a question, formulate a hypothesis and plan a course of action to answer the question and that complies with safety and ethical requirements. The student then undertakes an experiment that involves the collection of primary qualitative and/or quantitative data, analyses and evaluates the data, identifies limitations of data and methods, links experimental results to science ideas, reaches a conclusion in response to the question and suggests further investigations which may be undertaken.

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## VCE PRODUCT DESIGN AND TECHNOLOGY, UNITS 3 AND 4.

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### **Unit 3: Applying the product design process.**

In this unit students are engaged in the design and development of a product that addresses a personal, local, or global problem (such as humanitarian issues), or that meets the needs and wants of a potential end-user/s. The product is developed through a design process and is influenced by a range of factors including the purpose, function and context of the product; user-centred design; innovation and creativity; design elements and principles; sustainability concerns; economic limitations; legal responsibilities; material characteristics and properties; and technology. Design and product development and manufacture occur in a range of settings. An industrial setting provides a marked contrast to that of a one-off situation in a small cottage industry or a school setting. Students identify methods, which could be used in a low-volume or mass/high-volume production setting to manufacture a similar product to their design. In the initial stage of the product design process a design brief is prepared, outlining the context or situation around the design problem and describing the needs and requirements in the form of constraints or considerations.

**In Area of Study 1**, students examine how a design brief addresses particular product design factors and how evaluation criteria are developed from the constraints and considerations in the brief. They develop an understanding of techniques in using the design brief as a springboard to direct research and design activities.

**In Area of Study 2**, students examine how a range of factors, including new and emerging digital technologies, influence the design and development of products within industrial manufacturing settings. They consider issues associated with obsolescence and sustainability models.

**In Area of Study 3**, students commence the application of the product design process for a product design for an end-user/s, including writing an individual design brief and criteria that will be used to evaluate the product in Unit 4.

### **Unit 4: Product development and evaluation.**

In this unit students engage with an end-user/s to gain feedback throughout the process of production. Students make comparisons between similar products to help evaluate the success of a product in relation to a range of product design factors. The environmental, economic and social impact of products throughout their life cycle can be analysed and evaluated with reference to the product design factors.

**In Area of Study 1**, students use comparative analysis and evaluation methods to make judgments about commercial product design and development.

**In Area of Study 2**, students continue to develop and safely manufacture the product designed in **Unit 3, Outcome 3**, using materials, tools, equipment and machines, and record and monitor the production processes and modifications to the production plan and product.

**In Area of Study 3**, students evaluate the quality of their product with reference to criteria and end-user/s' feedback. Students make judgments about possible improvements. They produce relevant user instructions or care labels that highlight the product's features for an end-user/s.

## Unit 3 English

Unit 3 English focuses on Reading and Creating and Argument and Persuasive Language. For Unit 3 Area of Study 1, students must read and study two selected texts *The Lieutenant* (novel) and *Measure for Measure* (play).

In this unit students read and respond to the two texts analytically and creatively. They analyse arguments and the use of persuasive language in texts.

### Assessment Tasks:

#### Outcome 1 - Reading & Creating

Creative Analytical Writing Task + Written Explanation (30 marks)

Analytical Text Response Essay (30 marks)

#### Outcome 2 - Analysing Argument

Analysis SAC (40 marks)

Regular homework and classwork must be submitted in order to satisfy the unit outcomes. These assessment tasks will contribute 25% of your total grade for Unit 3&4 English.

## Unit 4 English

For Unit 4 Area of Study 1, students must read and study **one pair of texts** (that is, two texts) to compare and contrast ideas, issues and themes in these texts, and how they're presented to their audiences.

Texts: *Made in Dagenham* (film) and *I am Malala: The girl who stood up for education and was shot by the Taliban* (memoir)

### Assessment Tasks:

#### Outcome 1 - Reading & Comparing Texts

Comparative Analysis Essay (60 marks)

#### Outcome 2 - Presenting Argument

Oral Presentation 4-6 minute speech (30 marks)

Statement of Intention (10 marks)

Regular homework and classwork must be submitted in order to satisfy the unit outcomes. These assessment tasks will contribute 25% of your total grade for Unit 3&4 English.

### Exam

The end of year exam will be three hours with 15 minutes Reading Time

This consists of three sections, totalling 60 marks, which will contribute 50% of your grade for Units 3&4 English

Section A	Text Response on ONE of Unit 3 texts	20 marks
Section B	Comparative Analytical Essay on Unit 4 pair of texts	20 marks
Section C	Language Analysis	20 marks

# Health and Human Development

## Info

VCE Health and Human Development provides students with broad understandings of health and wellbeing that reach far beyond the individual. Students learn how important health and wellbeing is to themselves and to families, communities, nations and global society. Students explore the complex interplay of biological, sociocultural and environmental factors that support and improve health and wellbeing and those that put it at risk. VCE Health and Human Development offers students a range of pathways including further formal study in areas such as health promotion, community health research and policy development, humanitarian aid work, allied health practices, education, and the health profession **Students do NOT need to do Year 11 HHD before beginning Year 12 HHD.**

### 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). They use this knowledge as background to their analysis and evaluation of variations in the health status of Australians. Area of Study 2 focuses on health promotion and improvements in population health over time. Students look at various public health approaches and the interdependence of different models as they research health improvements and evaluate successful programs. While the emphasis is on the Australian health system, the progression of change in public health approaches should be seen within a global context.

### Unit 4 – Health and Human Development in a Global Context

This unit examines health and wellbeing, and human development in a global context. Students use data to investigate health status and burden of disease in different countries, exploring factors that contribute to health inequalities between and within countries, including the physical, social and economic conditions in which people live. Students build their understanding of health in a global context through examining changes in burden of disease over time and studying the key concepts of sustainability and human development. They consider the health implications of increased globalisation and worldwide trends relating to climate change, digital technologies, world trade and the mass movement of people. Area of Study 2 looks 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). Students also investigate the role of non-government organisations and Australia’s overseas aid program. Students evaluate the effectiveness of health initiatives and programs in a global context and reflect on their capacity to take action.

## Units 3 and 4: Australian History

### Unit 3: Transformations: Colonial society to nation

#### Area of Study 1 The reshaping of Port Phillip District/Victoria, 1834–1860

- How did Aboriginal and British arrivals' understanding of land management and land ownership differ in the Port Phillip District/Victoria?
- What were the demographic and political consequences of the gold rushes?
- What were the responses of and outcomes for Aboriginal people following the arrival of the pastoral and gold rush colonists?

#### Area of Study 2 Making a people and a nation 1890–1920

- What visions drove the formation of the Australian nation?
- What measures were introduced between Federation and 1914 to implement this vision?
- How did participation in World War One affect Australians' visions for the new nation?

### Unit 4: Transformations: Old certainties and new visions

#### Area of Study 1 Crises that tested the nation 1929–1945

- How did Australia become involved in external crises between 1929 and 1945?
- What social, economic and political consequences did these crises have on the nation?
- How did crisis affect the cohesion of the nation?

#### Area of Study 2 Voices for change 1965–2000

- What changes were sought in Australian society 1965–2000 and why?
- What debates were generated about change?
- To what extent was significant change achieved?

### Assessment

#### Unit 3

Outcome 1	50%
Outcome 2	50%

#### Unit 4

Outcome 1	50%
Outcome 2	50%

Each of the following four assessment tasks must be completed over Units 3 and 4:

- a historical inquiry
- an analysis of primary sources
- an analysis of historical interpretations
- an essay

**External assessment-** The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination, which will contribute 50 per cent.

## Legal Studies unit 3 and 4

### Unit 3: Rights and justice

In this unit students examine the methods and institutions in the justice system and consider their appropriateness in determining criminal cases and resolving civil disputes. Students consider the Magistrates' Court, County Court and Supreme Court within the Victorian court hierarchy, as well as other Victorian legal institutions and bodies available to assist with cases. Students explore matters such as the rights available to an accused and to victims in the criminal justice system, and the parties, and the ability of sanctions and remedies to achieve their purposes. Students investigate the extent to which the principles of justice are upheld in the justice system. They discuss recent reforms from the past four years and recommended reforms to enhance the ability of the justice system to achieve the principles of justice. Throughout this unit, students apply legal reasoning and information to actual and/or hypothetical scenarios.

**Area of Study 1 The Victorian criminal justice system**

**Area of Study 2 The Victorian civil justice system**

### Unit 4: The people and the law

The study of Australia's laws and legal system involves an understanding of institutions that make and reform our laws, and the relationship between the Australian people, the Australian Constitution and law-making bodies. In this unit, students explore how the Australian Constitution establishes the law-making powers of the Commonwealth and state parliaments, and protects the Australian people through structures that act as a check on parliament in law-making. Students develop an understanding of the significance of the High Court in protecting and interpreting the Australian Constitution. They investigate parliament and the courts, and the relationship between the two in law-making, and consider the roles of the individual, the media and law reform bodies in influencing law reform. Throughout this unit, students apply legal reasoning and information to actual scenarios.

**Area of Study 1 The people and the Australian Constitution**

**Area of Study 2 The people, the parliament and the courts**

**Assessment**

#### Unit 3

Outcome 1 50%

Outcome 2 50%

#### Unit 4

Outcome 1 40%

Outcome 2 60%

Assessment tasks could include the following:

- a case study
- structured questions
- a report in written format
- a folio of exercises.

**External assessment - The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination, which will contribute 50 per cent.**

## Further Mathematics Units 3 and 4

Further Mathematics consists of two areas of study, a compulsory Core area of study to be completed in Unit 3 and an Applications area of study to be completed in Unit 4.

The Core comprises 'Data analysis' and 'Recursion and financial modelling'. The Applications comprises two modules, from a selection of four possible modules: 'Matrices', 'Networks and decision mathematics', 'Geometry and measurement' and 'Graphs and relations'.

'Data analysis' comprises 40 per cent of the content to be covered, 'Recursion and financial modelling' comprises 20 per cent of the content to be covered, and each selected module comprises 20 per cent of the content to be covered.

Assumed knowledge and skills for the Core are contained in the General Mathematics Units 1 and 2 topics: 'Computation and practical arithmetic', 'Investigating and comparing data distributions', 'Investigating relationships between two numerical variables', 'Linear graphs and modelling', 'Linear relations and equations', and 'Number patterns and recursion'.

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

1. On completion of this unit the student should be able to define and explain key concepts and apply related mathematical techniques and models in routine contexts.
2. On completion of this unit the student should be able to select and apply the mathematical concepts, models and techniques in a range of contexts of increasing complexity.
3. On completion of this unit the student should be able to select and appropriately use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.

### Assessment Tasks

The student's level of achievement for Units 3 and 4 will be determined by School-assessed Coursework. They must be completed mainly in class and within a limited timeframe. School-assessed Coursework for Unit 3 and Unit 4 will contribute 20 and 14 per cent respectively to the study score.

The level of achievement for Units 3 and 4 will also be assessed by two end-of-year examinations. The examinations will each contribute 33 per cent. All of the content from the areas of study and the key knowledge and key skills that underpin the outcomes in Units 3 and 4 are examinable.

**Examination 1** - This examination comprises multiple-choice questions. The examination will be of one and a half hours duration. One bound reference may be brought into the examination.

**Examination 2** - This examination comprises written response questions. The examination will be designed to assess students' ability to select and apply mathematical facts, concepts, models and techniques to solve extended application problems in a range of contexts. The examination will be of one and a half hours duration. One bound reference may be brought into the examination.

***Students must hire a TI-Nspire CAS calculator and purchase both 'Nelson VCE Further Mathematics Unit 3' and 'Nelson VCE Further Mathematics Unit 4' textbooks to successfully complete this subject.***

## **Unit 3 & 4 Mathematical Methods**

Unit 1& 2 Methods are prerequisites for completing Unit 3&4. These units build on skills and knowledge which are assumed from Year 11.

**Unit 3&4 Methods have four Areas of Study covered across the year and built on from one unit to the next, including:**

**AOS 1 – Functions and Graphs**

**AOS 2 – Algebra**

**AOS 3 – Calculus**

**AOS 4 – Probability and Statistics**

**Assessments:**

### **Outcome 1 – Skills & Procedures**

On completion of each unit the student should be able to define and explain key concepts as specified in the content from the areas of study, and apply a range of related mathematical routines and procedures. To achieve this outcome the student will draw on knowledge and skills outlined in all the areas of study.

### **Outcome 2 – Modelling & Applications**

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, including situations requiring problem-solving, modelling or investigative techniques or approaches, and analyse and discuss these applications of mathematics. To achieve this outcome the student will draw on knowledge and skills outlined in one or more areas of study.

### **Outcome 3 – Use of CAS Technology**

On completion of each unit the student should be able to select and appropriately use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches. To achieve this outcome the student will draw on knowledge and related skills outlined in all the areas of study.

These Outcomes will be met through the following assessment tasks:

### **Unit 3**

**APPLICATION TASK** – an investigation of 4-6 hours duration over 1-2 weeks on Functions & Calculus (50 marks)

### **Unit 4**

**Modelling & Problem Solving Task 1** – Circular Functions & Algebra (25 marks)

**Modelling & Problem Solving Task 2** – Probability & Statistics (25 marks)

Regular homework and classwork must be submitted in order to satisfy the unit outcomes.

These assessment tasks will contribute 17% of your total grade for Unit 3 Methods and 17% for Unit 4 Methods.

Students must rent or purchase a CAS Calculator for use during the course, in order to meet Outcome 3. TI-Nspire CX CAS Calculators are available for rent through the school.

# PHYSICAL EDUCATION 2018 - 2021

## Rationale

Through engagement in physical activities, VCE Physical Education enables students to develop the knowledge and skills required to critically evaluate influences that affect their own and others' performance and participation in physical activity. The study also prepares students for employment and/or further study at the tertiary level or in vocational education and training settings in fields such as exercise and sport science, health science, education, recreation, sport development and coaching, health promotion and related careers

## **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.

### Outcomes

3. On completion of this unit the student should be able to collect and analyse information from, and participate in, a variety of physical activities to develop and refine movement skills from a coaching perspective, through the application of biomechanical and skill acquisition principles.
4. On completion of this unit the student should be able to use data collected in practical activities to analyse how the major body and energy systems work together to enable movements to occur, and explain the factors causing fatigue and suitable recovery strategies.

## **UNIT 4: Training to improve performance**

In this unit students analyse movement skills from a physiological, psychological and sociocultural perspective, and apply relevant training principles and methods to improve performance within physical activity at an individual, club and elite level.

### Outcomes

4. On completion of this unit, the student should be able to analyse data from an activity analysis and fitness tests to determine and assess the fitness components and energy system requirements of the activity.
5. On completion of this unit the student should be able to participate in a variety of training methods, and design and evaluate training programs to enhance specific fitness components

### Entry

There are no prerequisites for entry to Units 1, 2 and 3.

### Assessment Tasks

School-assessed coursework and an end-of-year examination.

- Unit 3 School-assessed coursework: 25%
- Unit 4 School-assessed coursework: 25%
- Unit 3 and 4 examination: 50%

Student assessment coursework will consist of tests, laboratory reports, presentations, case study/data analysis, final exam.

# Physics

## Info

Physics is both a practical and theoretical science, which contributes to our understanding of the physical universe from the tiny building blocks of matter to the broad expanses of the Universe. This understanding has significance for the way we understand our place in the Universe. **Ideally students will have done Year 10 Chem/Phys before Year 11 Physics. And ideally they will have done Year 11 Physics before Year 12 Physics.**

### **Unit 3 – How do fields explain motion and electricity?**

In this unit, students explore the importance of energy in explaining and describing the physical world. They examine the production of electricity and its delivery to homes. Students consider the field model as a construct that has enabled an understanding of why objects move when they are not apparently in contact with other objects. They explore the interactions, effects and applications of gravitational, electric and magnetic fields including the design and operation of particle accelerators. Students use Newton's laws and Einstein's theories to investigate and describe motion. Students design and undertake investigations involving at least two independent variables, with at least one of the independent variables being continuous. A student-designed practical investigation related to motion is undertaken either in Unit 3.

### **Unit 4: How can two contradictory models explain both light and matter?**

Light and matter – which initially seem to be quite different – have been observed as having similar properties. In this unit, students explore the use of wave and particle theories to model the properties of light and matter. They examine how the concept of the wave is used to explain the nature of light and analyse its limitations in describing light behaviour. Students further investigate light by using a particle model to explain its behaviour. A wave model is also used to explain the behaviour of matter which enables students to consider the relationship between light and matter. Students are challenged to think beyond the concepts experienced in everyday life to study the physical world from a new perspective. Students design and undertake investigations involving at least two continuous independent variables.

## Unit 3 and 4 Psychology

### Unit 3: How does experience affect behaviour and mental processes?

In this unit, students investigate the nervous system, stress, memory and classical and contemporary research.

#### Area of Study 1 - How does the nervous system enable psychological functioning?

**Outcome 1:** Explain how the structure and function of the human nervous system enables a person to interact with the external world and analyse the different ways in which stress can affect nervous system functioning.

#### Area of Study 2 - How do people learn and remember?

**Outcome 1:** Apply biological and psychological explanations for how new information can be learnt and stored in memory, and provide biological, psychological and social explanations of a person's inability to remember information.

### Unit 4: How is wellbeing developed and maintained?

In this unit, students study the effect of consciousness and sleep on the mind, brain and behaviour. They explore mental health and the biopsychosocial approach to analyse it.

#### Area of Study 1 - How do levels of consciousness affect mental processes and behaviour?

**Outcome 1:** Explain consciousness as a continuum, compare theories about the purpose and nature of sleep, and elaborate on the effects of sleep disruption on a person's functioning.

#### Area of Study 2 - What influences mental wellbeing?

**Outcome 2:** Explain the concepts of mental health and mental illness including influences of risk and protective factors, apply a biopsychosocial approach to explain the development and management of specific phobia, and explain the psychological basis of strategies that contribute to mental wellbeing.

#### Area of Study 3 - Practical investigation

**Outcome 3:** Design and undertake a practical investigation related to mental processes and psychological functioning, and present methodologies, findings and conclusions in a scientific poster.

### Possible assessment tasks:

- annotations of practical activities
- a report of a student investigation
- analysis of data including generalisations and conclusions
- a response to a set of structured questions
- A structured scientific poster according to the VCAA template
- End of year exam

# Visual Design and Communication (VCD)

## Unit 3

In this unit students gain an understanding of the process designers employ to structure their thinking and communicate ideas with clients, target audiences, other designers and specialists. Through practical investigation and analysis of existing visual communications, students gain insight into how the selection of methods, media and materials, and the application of design elements and design principles, can create effective visual communications for specific audiences and purposes. They investigate and experiment with the use of manual and digital methods, media and materials to make informed decisions when selecting suitable approaches for the development of their own design ideas and concepts.

Students use their research and analyse of the process of visual communication designers to support the development of their own designs. They establish a brief for a client and apply design thinking through the design process. They identify and describe a client, two distinctly different needs of that client, and the purpose, target audience, context and constraints relevant to each need.

### Outcome 1

On completion of this unit the student should be able to create visual communications for specific contexts, purposes and audiences that are informed by their analysis of existing visual communications in the three design fields.

### Outcome 2

On completion of this unit the student should be able to discuss the practices of a contemporary designer from each of the design fields and explain factors that influence these practices.

### Outcome 3

On completion of this unit the student should be able to apply design thinking in preparing a brief with two communication needs for a client, undertaking research and generating a range of ideas relevant to the brief.

### Assessment tasks

1. In response to given stimulus material, create three visual communications designs for different contexts, purposes and audiences. These visual communications will include evidence of:
  - two- or three-dimensional presentation drawing
  - use of manual and digital methods.

An analysis of the connections between the three visual communications and the stimulus material using one of the following forms:

- annotated visual communications
  - written or oral report supported by visual evidence.
2. Any one or a combination of the following tasks:
    - a written report
    - short and extended responses
    - structured questions
    - an annotated visual report.

3. A brief that identifies the contexts, constraints, client's needs and target audience, and a folio generating ideas relevant to the brief. The development folio for each need will include evidence of:
  - use of design process and design thinking strategies
  - annotated research for information and inspiration
  - observational and visualisation drawings
  - generation of a wide range of design ideas.

## **Unit 4**

The focus of Unit 4 is on the development of design concepts and two final presentations of visual communications to meet the requirements of the brief. This involves applying the design process twice to meet each of the stated communication needs.

Having completed their brief and generated ideas in Unit 3, students continue the design process by developing and refining concepts for each communication need stated in the brief. They utilise a range of digital and manual two- and three-dimensional methods, media and materials. They investigate how the application of design elements and design principles creates different communication messages and conveys ideas to the target audience.

### **Outcome 1**

On completion of this unit the student should be able to develop distinctly different concepts for each communication need and devise a pitch to present concepts to an audience, evaluating the extent to which these concepts meet the requirements of the brief.

### **Outcome 2**

On completion of this unit the student should be able to produce a final visual communication presentation for each communication need that satisfies the requirements of the brief.

### **Assessment tasks:**

1. A folio of conceptual developments for each need. The conceptual development folio for each need will include evidence of:
  - use of design process and design thinking strategies
  - application of manual and digital methods, media, materials, design elements, design principles, presentation formats
  - development and refinement of concepts
  - construction and presentation of a pitch to an audience
  - reasons for selection of preferred concepts for each need.
2. Two distinct final presentations in two separate presentation formats that fulfil the communication needs of the client as detailed in the brief developed in Unit 3. Evaluate how each presentation satisfies the requirements of the brief and evaluate the design process used to produce final visual communications.

# Senior VCAL

## VCAL Literacy

A total of 12 learning outcomes need to be completed satisfactorily to earn credits to the VCAL certificate.

The purpose of the VCAL Literacy Skills units is to develop literacy skills and knowledge that allow effective participation in the four main social contexts in which we function in Australian society:

- family and social life
- workplace and institutional settings
- education and training contexts
- community and civic life.

Literacy (reading, writing, speaking and listening) occurs in all these contexts and different domains or areas of literacy practice correspond with these social contexts.

The 4 main domains are Literacy for self-expression, Literacy for practical purposes, Literacy for knowledge and Literacy for public debate.

Reading Skills – 4 outcomes

Writing Skills - 4 outcomes

Oral Skills - 4 outcomes

## VCAL Personal Development

A total of 5 learning outcomes need to be completed satisfactorily to earn credits to the VCAL certificate.

The purpose of the Personal Development Skills (PDS) strand is to develop knowledge, skills and attributes that lead towards:

- the development of self
- social responsibility
- building community
- civic and civil responsibility, e.g. through volunteering and working for the benefit of others
- improved self-confidence and self-esteem
- valuing civic participation in a democratic society.

In Unit 1 the content of learning programs link to one of the following curriculum contexts:

- personal development (self)
- health and wellbeing
- education
- family

## VCAL Numeracy

The purpose of this unit is to enable students to develop the confidence and skills to perform simple and familiar numeracy tasks and to develop the ability to make sense of mathematics in their daily personal lives.

The mathematical skills involved include:

- Numerical Skills and Processes:
  - Perform a range of calculations of whole numbers, fractions and decimals with the four operations.
  - apply the measures of central tendency (mean, median and mode)
  - measure length, mass, capacity/volume, time and temperature
- Financial Literacy:
  - Perform calculations involving money
  - Calculate the interest payable on a transaction using a credit card from a range of financial institutions
  - Demonstrate a detailed personal budget
- Planning and Organising:
  - Converting between digital and analogue time and calculating elapsed time
  - Use and create maps
  - Determine distances and speeds involving time
- Measurement, Representation and Design
  - Name and represent common two-dimensional shapes and three-dimensional objects
  - Create detailed plans and diagrams
  - Estimate lengths, areas and volumes
  - Apply scale techniques using ratios to enlarge/reduce plans representing real-life

These skills will be demonstrated in a Numeracy-based Industry Project which will:

- Apply Numerical Skills in an industry context
- Use appropriate Software Tools and Devices to Represent Data
- Communicate the Results of the Project

## **VET subjects**

The following subjects may be offered next year to allow students to complete certificates commenced in 2018. Students are asked to indicate if they wish to continue with these VET subjects.

Certificate II in Automotive Studies

Ouyen

Certificate II in Information, Digital, Media and Technology

Mildura

Information on each of these courses can be obtained from Mrs O'Connor.

**If the course indicates Mildura then students will need to commit to attending classes from 9 to 3pm every Friday during the school term in Mildura.**

**If you are a VCE/VCAL student it will be your responsibility to catch up on any work that may be missed while attending classes in Mildura.**

**There may also be some additional costs involved to complete these certificates.**