Dear Students,

The learning journey is a lifelong one, but a very significant part of it occurs in your final years of secondary schooling. During these years it is most important that you maximise your opportunities.

At this point of time some of you can see clearly ahead, know the path you wish to tread and the subjects and course of study you wish to follow.

If the road ahead is not clear, be assured you are not alone, as many students make career decisions during and after VCE. Ensure you choose as broad a range of subjects as possible. Ensure you base your decisions upon what you enjoy, your interests, what you are good at and any prerequisite subjects required with the guides of picking up subjects you enjoy, are interested in and good at, taking into account subject prerequisites. Consider carefully your study preference, but also choose one or two other subjects for balance.

Before you sign off on your course of study, check carefully with the School’s Career Counsellor and your House Dean. It is wise to keep other options open in case you change your mind and future direction.

Deciding upon a course of study that is best for you can at times be like encountering a fork in the road and being unsure of which road to take. It is critical, however, in your senior school years to be the one in the driver’s seat, the person in control and making the decisions. I recommend you listen to the advice of family and friends, but ultimately listen to your own voice within. Growing up and becoming independent means becoming responsible for your own decisions and life’s path.

At Kilvington we strongly believe in an education of the whole person – the academic, emotional, physical and spiritual – and producing young people of character. So I strongly encourage you to continue to involve yourself in as many aspects of school life as possible. Participate in sport, the fitness club, debating, public speaking, House Arts, the school production, the Madrigals, choirs, musical groups, community service and other activities. Participation in these programs will add balance to your life, develop your character and significantly enhance your learning.

Over the next years you are in for quite a ride and your learning journey will be full of many exhilarating and enriching experiences. I look forward to sharing this journey with you.

Jon Charlton
Principal
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Curriculum

Kilvington Year 10 to 12 Program
The VCE program at Kilvington is designed to provide breadth of study through Units 1 and 2 and depth of study through Units 3 and 4. The usual program is for students to take at least 24 units of study consisting of:

- One VCE Unit 1 or 2 in Year 10 per Semester
- 6 VCE units per Semester at Unit 1 and 2, or 6 VCE units per Semester, including one Unit 3 and 4 sequence, in Year 11, and
- 5 VCE units per Semester in Year 12

The Victorian Certificate of Education (VCE)
Students in Senior School follow a program of study, which leads to the award of the Victorian Certificate of Education. The rules relating to the VCE are set by the Victorian Curriculum and Assessment Authority.

Each study in the VCE consists of four semester length units:
- Units 1 and 2 may in some studies be taken separately. Units 1 and 2 are assessed internally
- Units 3 and 4 must be taken as a sequence. Units 3 and 4 are assessed internally and externally

Satisfactory Completion of the VCE
To be awarded the VCE, students must satisfactorily complete at least 16 units of study. The 16 units of study must include:

- An approved combination of three units from the group of English studies
- Three sequences of units 3 and 4 in studies other than English

As there is a distinction between the requirements for the award of the VCE and what a student requires for tertiary entrance, the Kilvington program ensures that the students are well prepared for future study.

Planning Your Studies at VCE
Planning a VCE program is important and in order to provide breadth of study in Units 1 and 2, it is possible to take individual units in some study areas.

Exceptions to the commencement of study in unit 2 are:
- LOTE: French and Japanese
- Mathematical Methods
- General Mathematics (without any Mathematics studies in Unit 1)

English Studies
At Kilvington, students must complete Units 1 and 2 English and Units 3 and 4 English. To satisfy the English studies requirement for the award of the VCE, students must have satisfactorily completed three of these units. To gain entry to tertiary studies, students must have satisfactorily completed both Unit 3 and Unit 4 of their chosen English study. In exceptional circumstances, and if given permission from the English department, a student may choose to do Literature Units 3 and 4 rather than English Units 3 and 4.
### Unit 1 - 4 Studies On Offer in 2015 for Students in Years 11 and 12

<table>
<thead>
<tr>
<th>Units 1 and 2</th>
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<td>Food and Technology</td>
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<td>Geography</td>
<td>English</td>
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<td>Health and Human Development</td>
<td>EAL (English as an Additional Language)</td>
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<td>History (Twentieth Century)</td>
<td>Food and Technology</td>
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<tr>
<td>Information Technology</td>
<td>Geography</td>
</tr>
<tr>
<td>Legal Studies</td>
<td>Health and Human Development</td>
</tr>
<tr>
<td>LOTE: French</td>
<td>History (Revolutions)</td>
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<td>LOTE: Japanese</td>
<td>Information Technology: IT Applications</td>
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<tr>
<td>Literature</td>
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<td>General Mathematics (Further)</td>
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<td>Media</td>
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<td>Studio Arts</td>
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<td>Theatre Studies</td>
<td>Psychology</td>
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<tr>
<td>Visual Communication Design</td>
<td>Studio Arts</td>
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<td></td>
<td>Visual Communication Design</td>
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</table>

### Unit 3 and 4 Studies in Year 11

Students in Year 11, whose academic performance in Year 10 indicates that they have developed sufficient skills and understanding, may wish to enrol in a Unit 3 and 4 subject.

The VCE Coordinator will oversee acceptance of enrolment in any program involving Unit 3 and 4 studies in Year 11. This will involve consultation with House Deans and relevant Academic Deans. It is recommended that these students speak with the appropriate Academic Dean and subject teacher to gain an indication of the advisability of their Unit 3 and 4 choices.

While we endeavour to meet students’ preferences, this may not always be possible due to limitation of class size and timetables.
VET in the VCE (Vocational Education and Training in Schools)
All VET in the VCE programs have full VCE study status, and contribute as units towards the satisfactory completion of the VCE. Up to eight of the units required to satisfactorily complete the VCE may be VET in the VCE units obtained across two VET programs. On successful completion of study, students are awarded their VCE as well as the VET in the VCE Certificate.

VET in the VCE provides additional breadth to the VCE and gives students a nationally recognised training credential endorsed by industry. Some of the programs studied in the past by students are:

- Hospitality
- Multimedia

The qualifications are comprised of units of competence. Each of the units of competence is expressed in terms of elements and their associated performance criteria. Demonstration of each of these is required for satisfactory completion of the Certificate. In order to gain the award, students must achieve all the elements in each unit of competence in accordance with the prescribed assessment requirements. Please see the VCE Coordinator for further details about the Certificates.

LOTE: External Studies
Students may study a LOTE not offered by the School as an external study. A LOTE study contains four units, with Units 3 and 4 taken as a sequence.

Students may study the LOTE through the Victorian School of Languages. It is the students’ responsibility to enrol at the relevant location. They will attend classes at another location, however Kilvington is responsible for registration of the study for the Victorian Curriculum and Assessment Authority records. Should a student wish to study an external LOTE, they must indicate this intention on the VCE Subject Planner. This will then be discussed with the VCE Coordinator as part of the overall planning for subject selection.

University Extension Studies
High achieving Year 12 students who have completed a Unit 3 and 4 sequence in Year 11 may be eligible for enrolment in a University extension study. This enables a student to undertake a first year university subject, whilst completing VCE. Credit can be gained towards a first year degree course. Completion of a first year university subject contributes as an increment to the ATAR (Australian Tertiary Admission Rank). Very able Year 10 students may wish to bear this in mind when planning a total program of study for Years 11 and 12.

Further Opportunities
Senior School students are required to participate in the Kilvington Senior School general education program which includes:

- Pastoral Care
- Physical Education
- House Activities
- Careers Education
- Senior School Camps
Assessment and Reporting

Satisfactory Completion of VCE Units
Each VCE unit includes a set of two to four outcomes. These outcomes must be achieved for satisfactory completion of the unit.

In accordance with Victorian Curriculum and Assessment Authority requirements, the subject teacher determines satisfactory completion of a unit. At Kilvington it is expected students attend all timetabled classes for the satisfactory completion of the unit.

Assessment of Units 1 and 2
VCE Units 1 and 2 offered at Kilvington will be assessed in two ways:

• Each Learning Outcome in a unit will be assessed as Satisfactory (S) or Not Satisfactory (N). For a unit as a whole to be satisfactorily completed, all the Learning Outcomes must receive an S.
• Marks indicating the level of achievement/performance reached in aspects of each study are reported in COR. These are internal grades and are not reported to the Victorian Curriculum and Assessment Authority.

Assessment of Units 3 and 4
Each Learning Outcome in a unit will be assessed as Satisfactory (S) or Not Satisfactory (N). For a unit as a whole to be satisfactorily completed, all the Learning Outcomes must receive an S.

The Victorian Curriculum and Assessment Authority assess all students undertaking Units 3 and 4.

Units 3 and 4 have three assessment components: either one school assessment and two examinations or two school assessments and one examination. Each assessment is reported as grades A+ to E; UG (ungraded). Examination grades and school assessment grades are reported separately.

Reporting
There will be scheduled parent/teacher interviews during the year and assessment feedback and progress information regularly entered via Continuous Online Reporting into the Parent Portal.

At the end of each Semester students in Year 10 and 11 will receive a written report summary. Students in Year 12 will receive a written report summary at the end of Semester 1.

Study Scores
Students’ overall achievements for each study at Unit 3 and 4 are calculated and reported as a study score (relative position) on a scale of 0 to 50. In order to qualify for a study score, a student must have satisfactorily completed both Units 3 and 4 in that study.

On completion of the VCE, Year 12 students receive the following from the Victorian Curriculum and Assessment Authority:

• A cumulative Statement of Results listing all VCE units undertaken over any year level. Study Scores for Unit 3 and 4 sequences are listed.
• A Summary Statement of Grades giving the grades obtained in Assessment Components for Units 3 and 4
• The Victorian Certificate of Education
• General Achievement Test (GAT) statement
The minimum requirement for all tertiary institutions is the satisfactory completion of the VCE, however each university or TAFE course has individual requirements that must be met for tertiary entrance. These may include a particular ATAR score, or having an interview, or submitting a folio of work. It may also involve doing particular VCE subjects. These are known as prerequisite subjects. **It is important that prerequisite studies be considered by students when choosing their VCE studies.**

VTAC (Victorian Tertiary Admissions Centre) is the body responsible for coordinating students’ requests for tertiary entrance and their offers. VTAC offers a comprehensive website, that all students should use before choosing VCE subjects. The site has a number of important functions and services that should be explored.

These are:

- **The VICTER** – It is designed for Year 11 and 10 students who are considering a VCE study and need to check requirements for tertiary entrance. Please be aware that as the VICTER is published three years ahead of the year the students start tertiary studies there are often changes to what universities and TAFEs offer and the requirement that they insist upon.

- **The VTAC Guide** - this is distributed in Term 3, in hard copy, to all students in Year 12. This document is designed for the current Year 12 students.

- **Course search** – this is an online program designed to facilitate students finding tertiary courses that suit their interests. It is linked into their VCE program and is accessed using the first four digits in their birth date and their VCAA candidate number.

- **Course ATARs (Australian Tertiary Admission Rank) from the previous year.**

- **Subject scaling for the previous year.** Scaling is the process that adjusts raw study scores to allow for differences in the difficulties of the various VCE studies. This process is mathematically determined by comparing the results of raw scores from various studies. Some subjects therefore end up with a higher scaled study score and others have a lower scaled study score. Most subjects have very little change if any.
### Key Assessment Tasks: Unit 1 and 2

The following tables outline the assessment tasks for VCE units studied from year 10-12. Procedures for the assessment of levels of achievement in Units 1 and 2 are the responsibility of VCE teachers. Assessment tasks are selected from a range of options as stated in the Study Design for each VCE subject.

**All Unit 1 and 2 studies have an examination at the end of each semester.**

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<td>Accounting</td>
<td>• Tests</td>
<td>• Tests</td>
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<td></td>
<td>• ICT Report</td>
<td>• ICT Report</td>
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<td></td>
<td>• Research Project</td>
<td>• Assignment</td>
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<td>Biology</td>
<td>• Practical Reports</td>
<td>• Practical Reports</td>
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<td></td>
<td>• Research Report</td>
<td>• Field Trip Report</td>
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<td></td>
<td>• Tests</td>
<td>• Tests</td>
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<tr>
<td>Chemistry</td>
<td>• Practical Reports</td>
<td>• Practical Reports</td>
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<td>• Research Assignment</td>
<td>• Research Assignment</td>
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<td>• Tests</td>
<td>• Tests</td>
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<tr>
<td>English/EAL</td>
<td>• Reading and Responding Essays</td>
<td>• Reading and Responding Essays</td>
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<td>• Creating and Presenting Essays</td>
<td>• Creating and Presenting Essays</td>
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<td>• Using Language to Persuade - Oral</td>
<td>• Using Language to Persuade - Essay</td>
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<td>• Planning/Production Records</td>
<td>• Planning/Production Records</td>
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<td>• Production Work</td>
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<td>• Tests: Practical and Written</td>
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<td>• Analysis and application tasks</td>
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<td>General Mathematics (Specialist)</td>
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<td>• Topic tests</td>
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<td></td>
<td>• Analysis and application tasks</td>
<td>• Analysis and application tasks</td>
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<tr>
<td>Geography</td>
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<td>• Field Work</td>
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<td>• Research Report</td>
<td>• Research Report</td>
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<td>• Data Processing Analysis</td>
<td>• Data Processing Analysis</td>
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<td>• Outcome Tests</td>
<td>• Outcome Tests</td>
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<td></td>
<td>• Written Reports</td>
<td>• Written Reports</td>
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<td></td>
<td>• Data Analysis</td>
<td>• Case Studies</td>
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<td>History (Twentieth Century)</td>
<td>• Research Report</td>
<td>• Research Report</td>
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<td>• Document Analysis</td>
<td>• Film Study</td>
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<td></td>
<td>• Essay</td>
<td>• Document Analysis</td>
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<td></td>
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<td>• Essay</td>
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<td>• Tests</td>
<td>• Tests</td>
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<td></td>
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<td>• Programming Solutions</td>
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<td>Legal Studies</td>
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<td>• Topic Test</td>
<td>• Topic Tests</td>
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<td>LOTE: French</td>
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<td>• Listening Task</td>
<td>• Listening Task</td>
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<td></td>
<td>• Writing Task</td>
<td>• Writing Task</td>
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<tr>
<td></td>
<td>• Reading Task</td>
<td>• Reading Task</td>
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<td>• Grammar Test</td>
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<td>LOTE: Japanese</td>
<td>• Informal Conversation&lt;br&gt;• Writing Piece&lt;br&gt;• Aural Comprehension Tasks&lt;br&gt;• Written Comprehension Tasks</td>
<td>• Role-Plays&lt;br&gt;• Journal Writing&lt;br&gt;• Aural Comprehension Tasks&lt;br&gt;• Written Comprehension Tasks</td>
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<td>Literature</td>
<td>• Oral Reviews&lt;br&gt;• Essays&lt;br&gt;• Film Analyses</td>
<td>• Written Reviews&lt;br&gt;• Essays&lt;br&gt;• Creative Responses</td>
</tr>
<tr>
<td>Mathematical Methods</td>
<td>• Topic tests&lt;br&gt;• Analysis and application tasks</td>
<td>• Topic tests&lt;br&gt;• Analysis and application tasks</td>
</tr>
<tr>
<td>Media</td>
<td>• Media Folio&lt;br&gt;• Tests&lt;br&gt;• Written Responses&lt;br&gt;• Oral Reports</td>
<td>• Media Folio&lt;br&gt;• Tests&lt;br&gt;• Written Responses&lt;br&gt;• Oral Reports</td>
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<tr>
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<td>• Performance&lt;br&gt;• Presentations&lt;br&gt;• Practical Work</td>
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<td>• Tests&lt;br&gt;• Laboratory Reports&lt;br&gt;• Oral Presentations&lt;br&gt;• Report Writing</td>
</tr>
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<td>• Practical Investigation&lt;br&gt;• Short Tests&lt;br&gt;• Multimedia Presentation</td>
<td>• Folio of practical activities&lt;br&gt;• Short Tests&lt;br&gt;• Data analysis</td>
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<td>Psychology</td>
<td>• Practical Investigation&lt;br&gt;• Tests&lt;br&gt;• Presentations</td>
<td>• Practical Investigation&lt;br&gt;• Tests&lt;br&gt;• Presentations</td>
</tr>
<tr>
<td>Studio Arts</td>
<td>• Written Reports&lt;br&gt;• Oral Reports&lt;br&gt;• Visual Communication</td>
<td>• Written Reports&lt;br&gt;• Oral Reports&lt;br&gt;• Visual Communication</td>
</tr>
<tr>
<td>Theatre Studies</td>
<td>• Coursework 40%&lt;br&gt;• Written exam (1 ½ hrs) 25%&lt;br&gt;• Performance Exam 7 minutes 35%</td>
<td>• Coursework 40%&lt;br&gt;• Written exam (1 ½ hrs) 25%&lt;br&gt;• Performance Exam 7 minutes 35%</td>
</tr>
<tr>
<td>Visual Communication and Design</td>
<td>• Presentations&lt;br&gt;• Practical Work&lt;br&gt;• Tests</td>
<td>• Folios&lt;br&gt;• Written Report and Presentation&lt;br&gt;• Tests</td>
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### Assessment Structure for VCE Studies: Unit 3 and 4

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<td>Accounting</td>
<td>Units 3&amp;4 Coursework</td>
<td>Written Examination: Jun (1.5 hours) Nov (1.5 hours) 33%</td>
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<td>Biology</td>
<td>Unit 3 &amp; 4 Coursework</td>
<td>Written Examination: Nov (2.5 hours) 60%</td>
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<td>Business Management</td>
<td>Unit 3 Coursework Unit 4 Coursework</td>
<td>Written Examination: Nov (2 hours) 50%</td>
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<td>Chemistry</td>
<td>Unit 3&amp;4 Coursework</td>
<td>Written Examination: Nov (2.5 hours) 60%</td>
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<tr>
<td>Drama</td>
<td>Unit Coursework 3 Unit Coursework 4</td>
<td>Written Examination: Nov (1.5 hours) 25%</td>
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Unit 1
Establishing and Operating a Service Business

Unit Description
This unit focuses on the establishment of a small business and the accounting and financial management of the business. Students are introduced to the processes of gathering, recording, reporting and analysing financial data and information used by internal and external users. Recording and reporting is restricted to the cash basis.

Students examine the role of accounting in the decision-making process using single entry recording of financial data and information for the owner of a service business. Where appropriate, the accounting procedures developed in each area of study should incorporate the application of accounting principles and the qualitative characteristics of accounting information.

Areas of Study
1. Going into business

A potential small business owner needs to make many decisions before commencing the operations of the business. Students will investigate:

- Forms of business ownership, including sole trader, partnership and companies
- Reasons for establishing a small business
- Factors that lead to the success or failure of a small business
- The role of professionals, such as accountants, business advisors and professional organisations in providing advice to achieve business success
- Internal and external sources of finance including features, advantages and disadvantages
- Resources needed to establish a small business

2. Recording and reporting accounting data and information

In this area of study students investigate the role of accounting in the generation of financial data and information for the owner of a service business. The focus is on the recording and reporting of financial data and information using a single entry recording system. Students are required to use both manual and ICT methods in the recording and reporting process.

This knowledge includes:

- Accounting principles and qualitative characteristics of accounting information
- Definition of the accounting elements: assets, liabilities, owner’s equity, revenue and expenses
- The accounting equation
- Classification of current and non-current items in the balance sheet
- The two-fold effect of transactions on the balance sheet
- Source and business documents for a service business: cash receipts, cheque butts, memos, bank statements, invoices
- Techniques for the recording of cash receipts and payments from source documents, including the recording of the Goods and Services Tax (GST) where the amount of the GST is identified
- Special journals: cash receipts and cash payments
- Internal control procedures, including cash control and the bank reconciliation process
- Accounting reports
Unit 1
Establishing and Operating a Service Business continued....... 

- Cash budgeting

Outcome 1
On completion of this unit the student should be able to describe the resources and explain and apply the knowledge and skills necessary to set up a small business.

Outcome 2
On completion of this unit the student should be able to identify, record, report and explain the financial data and information for the owner of a service business, using a combination of manual and ICT methods.
Unit 2
Accounting for a Trading Business

Unit Description
This unit focuses on accounting for a single activity sole trader. Using the accrual approach, students use a single entry recording system for the recording and reporting of cash and credit transactions stock. They use financial and non-financial information to evaluate the performance of a business. Using these evaluations, students suggest strategies to the owner on how to improve the performance of the business.

Where appropriate, the accounting procedures developed in each area of study should incorporate the application of accounting principles and the qualitative characteristics of accounting information.

Areas of Study
In Unit 2 there are 3 Areas of Study:

1. Recording Financial Data and Reporting Financial Information
2. ICT in Accounting
3. Evaluation of Business Performance

Outcome 1
On completion of this unit the student should be able to:

• Record and report financial data and information for a sole trader

Outcome 2
On completion of this unit the student should be able to:

• Record and report financial data and information using an accounting software package for a single activity sole trader
• Explain and evaluate the role of ICT in the accounting process

Outcome 3
On completion of this unit the student should be able to:

• Select and use financial and non-financial information to evaluate a business
• Suggest strategies that will improve business performance
Unit 3
Recording and Reporting for a Trading Business

Units 3 and 4 are designed to be taken as a sequence.

Unit 3 focuses on financial accounting for a single activity trading business as operated by a sole trader and emphasises the role of accounting as an information system. Students are introduced to the double entry system of recording using the accrual basis of accounting. The perpetual method of stock recording with the First In, First Out (FIFO) method is used.

Where appropriate, the accounting procedures developed in each area of study should incorporate the application of accounting principles and the qualitative characteristics of accounting information.

Areas of Study
In Unit 3 there are 2 Areas of Study:

1. Recording Financial Data.
2. Balance - day Adjustments and reporting and interpreting accounting information.

Outcome 1
On completion of this unit students should be able to:

- Record financial data into appropriate accounting records using a double entry accrual-based system for a single activity sole trader
- Explain related aspects of the double entry accrual-based accounting system

Outcome 2
On completion of this unit students should be able to:

- Record balance day adjustments
- Prepare financial reports
- Explain related aspects of the accounting system
Unit 4
Control and Analysis of Business Performance

Unit Description
This unit provides an extension of the recording and reporting processes from Unit 3 and the use of financial and non-financial information in assisting management in the decision-making process.

Unit 4 covers the accrual recording and reporting system for a single activity trading business using the perpetual inventory recording system.

Students learn about the role and importance of budgeting for the business and undertake the practical completion of budgets for cash, financial performance and financial position. In this unit students evaluate the information prepared and analyse the results in order to suggest strategies to the owner.

Where appropriate, the accounting procedures developed in each area of study should incorporate the application of accounting principles and the qualitative characteristics of accounting information.

Areas of Study
In Unit 4 there are 2 Areas of Study:

1. Extension of Reporting and Recording
2. Financial planning and decision-making

Outcome 1
On completion of this unit students should be able to:

• Record and report financial data and information using a double entry accrual-based system for a single activity sole trader
• Explain related aspects of this accounting system

Outcome 2
On completion of this unit students should be able to:

• Prepare and analyse budgets
• Evaluate a business using financial and non-financial information
• Suggest strategies to improve the profitability and liquidity of the business
Unit Description
This unit examines cells as structural and functional units of the whole organism. Students investigate the needs of individual cells, how specialized structures carry out cellular activities and how the survival of cells depends on their ability to maintain a dynamic balance between their internal and external environments. Students explore the diversity of organisms and look for patterns of similarities and differences. They investigate how the structure and functioning of independent systems in living things assist and maintain their environment. They consider the development of ideas that have contributed to our knowledge and understanding of life forms and cell biology. They come to understand the dynamic nature of science. They investigate technological applications and implications of bio scientific knowledge.

Areas of Study
1. Cells in action:
   - Cell structure
   - Cell functioning
   - Composition of cells
   - Internal and external environment of cells
   - Cell replication

2. Functioning organisms:
   - Common requirements of living things:
     - obtaining nutrients
     - obtaining energy
     - processing nutrients
     - distributing materials
     - removing wastes
     - exchanging gases
   - Reproduction: sexual and asexual
   - Classifying organisms: purposes, principles, hierarchy of biological classification

Unit Outcomes
On completion of this unit the student should be able to:

- Design, conduct and report on a practical investigation related to cellular structure organisation and process.
- Describe and explain the relationship between features and requirements of functioning organisms and how these are used to construct taxonomic systems.
Unit 2
Organisms and Their Environment

Unit Description
Students investigate particular sets of biotic and abiotic factors that operate in different places in the biosphere and how these factors influence the organisms that live there. They also investigate how features possessed by organisms affect their fitness and reproductive success in relation to their habitats. They consider how species are affected by changes in environmental conditions whether natural or human induced. Students also investigate what changes have taken place in selected ecosystems, how ecological principles can be applied to conserve natural ecosystems, to restore damaged ones and ensure sustainability of the biosphere.

Areas of Study
1. Adaptation of organisms:
   • Environmental factors
   • Structural adaptations
   • Physiological adaptations:
     ∼ Tolerance to a range of environmental conditions
     ∼ Nerve control in complex multicellular organisms
     ∼ Hormonal control in complex multicellular organisms
     ∼ Regulating water balance and controlling temperature
   • Plant tropisms
   • Behaviour adaptations
   • Reproductive adaptations
   • Techniques used to monitor environmental change and species distribution

2. Dynamic ecosystems:
   • Components of ecosystems
   • Relationships between organisms
   • Flow of energy
   • Cycling of matter
   • Population dynamics
   • Change to ecosystems over time:
     ∼ Scope and intensity of regular and irregular change
     ∼ Human activity and sustainability of ecosystems
     ∼ Historical practices of indigenous peoples and settlers
   • Techniques for monitoring and maintaining ecosystems

Unit Outcomes
On completion of this unit students should be able to:

• Explain and analyse the relationship between environmental factors, and adaptations and distribution of living things.
• Conduct and report on a field investigation related to the interaction between living things and their environment, and explain how ecosystems change over time.
Unit 3
Signatures of Life

Unit Description
In this unit students consider the molecules and biochemical processes that are indicators of life. They investigate the synthesis of biomolecules and biochemical processes that are common to autotrophic and heterotrophic life forms. Students consider the universality of DNA and investigate its structure; the genes of an organism, functions of DNA and the code for the reproduction of a diverse range of proteins in an organism.

Areas of Study
1. Molecules of life:
   • The chemical nature of cells:
     ~ Synthesis of biomacromolecules. Identify monomers and polymers
     ~ Structure and function of lipids
     ~ Structure and function of DNA and RNA
     ~ Structure and functional diversity of proteins
   • The role of organelles including nuclear, ribosomes, endoplasmic reticulum, golgi apparatus and vesicles packaging and transport, import and export of biomolecules
   • The role of the plasma membrane
   • The nature of biochemical processes:
     ~ Enzymes as organic catalysts; catabolic and anabolic reactions
     ~ Energy requirements of cells
     ~ Energy transformation – photosynthesis and respiration

2. Detecting and Responding:
   • Co-ordination and regulation:
     ~ Roles of nervous and endocrine systems
     ~ Signal transduction and stimulus – response model
     ~ Signalling molecules
   • Detecting self and non self molecules, antigens and their sources
   • Physical and chemical barriers to infection in plants and animals
   • Immune response:
     ~ Structure and overall function of the lymphatic system
     ~ Non-specific, inflammatory response, phagocytosis, blood clotting
     ~ Specific immune response (cell mediated and humoral immunity)
   • Disorders of immune response
   • Acquired immunity, natural and artificial, vaccines and vaccinations

Unit Outcomes
On completion of this unit the students should be able to:

• Analyse and evaluate evidence from practical investigations related to biochemical processes.
• Describe and explain coordination and regulation of an organism's immune responses to antigens at the molecular level.
Biology

Unit 4
Continuity and Change

Unit Description
In this unit students examine evidence for evolution of life forms over time. Students explore hypotheses that explain how changes to species have come about. In addition to observable similarities and differences between organisms, students explore the universality of DNA and conservation of genes as evidence for ancestral lines of life that have given rise to the present biodiversity of our planet.

Areas of Study
1. Heredity:
   • Molecular genetics
   • Tools and techniques
   • Transmission of heritable characteristics
   • Cell reproduction and DNA
   • Variation and Mutations
   • Patterns of inheritance

2. Change over time:
   • Change in populations, gene pool and genetic drift
   • Natural selection as a mechanism of evolution
   • Evidence of evolution
   • Patterns of evolution
   • The development of evolutionary theory
   • Evolutionary relationship
   • Hominin evolution: characteristics and trends
   • Human intervention in evolutionary processes:
     ∼ Selective breeding
     ∼ Application of biotechnology

Unit Outcomes
On completion of this unit students should be able to:

• Analyse the evidence for the molecular basis of heredity and patterns of inheritance.
• Analyse and evaluate evidence of evolutionary change and evolutionary relationships, and describe mechanisms for change including the effect of human intervention on evolutionary processes.
Business Management

Unit 3
Corporate Management

Unit Description
In this unit students investigate how large-scale organisations operate. Students examine the context in which they conduct their business, focus on aspects of their internal environment and then look at the operations management function. Students develop and understanding of the complexity and challenge of managing large organisations and have the opportunity to compare theoretical perspectives with practical applications.

Areas of Study
1. Large-scale organisations in context:
   Large-scale organisations are important for the Australian economy in creating employment, wealth and income. Every large-scale organisation operates within a unique context, characterised by its internal and external environment. In this area of study, students examine the importance of large-scale organisations to the Australian economy. They identify and apply a range of performance indicators to evaluate the performance of a large-scale organisation. A wide range of stakeholders exist for large-scale organisations. Students consider the organisation's impact on stakeholder interests, possible conflicts that may arise between different stakeholder interests and related issues of ethical and social responsibility.

2. Internal environments of large-scale organisations:
   Large-scale organisations, whether for-profit or not-for-profit, exist to achieve specific objectives. The success in achieving these objectives will be strongly influenced by the successful management of the internal business environment. Students investigate key elements of the internal environment such as different management structures, corporate culture, management roles and policy development. Students apply management styles and skills to business situations and then evaluate them. They discuss the implications of ethical and socially responsible management for the internal environment of large-scale organisations.

3. The operations management function:
   Operations management combines the roles of management in order to transform inputs into outputs. The production of the product or service is the core objective of the large-scale organisation. The study of operations management enables students to consider the best and most responsible use of all the available resources for the production of a quality final good or service in a competitive, global environment.

Unit Outcomes
On completion of this unit, a student should be able to:

- Discuss and analyse the context in which large-scale organisations operate.
- Discuss and analyse major aspects of the internal environment of large-scale organisations.
- Discuss and analyse strategies related to operations management.
Unit Description
This unit continues the examination of corporate management. It commences with a focus on the human resource management function. Students learn about key aspects of this function and strategies used to most effectively manage human resources. This unit concludes with analysis of the management of change. Students learn about key change management processes and strategies and are provided with the opportunity to apply these to a contemporary issue of significance.

Areas of Study
1. The human resource management function:
   In this area of study, students examine the practices and process of human resource management in large scale organisations in Australia. A general introduction to human resources is followed by an investigation of the two key aspects of human resource management: the employment cycle and employee relations. Students apply the principals of human resource management to a practical or simulated situation.

2. The management of change:
   In this area of study, students examine the importance of change management in large-scale organisations. They consider ways in which change can be managed effectively in both theoretical and practical contexts. Students evaluate various strategies to effectively manage change. This knowledge is then applied to one significant change issue for large-scale organisations. Teachers can select from a range of issues such as social responsibility, business ethics, globalisation, mergers and acquisitions, technological development, legislative compliance, privatisation or any other significant issue.

Unit Outcomes
On completion of this unit, a student should be able to:

- Analyse and evaluate practices and processes related to human resource management.
- Analyse and evaluate the management of change in a large-scale organisation, and evaluate the impact of change on the internal environment of a large-scale organisation.
Unit 1

Unit Description
This unit examines a range of chemical processes and activities beginning with a study of the Periodic Table. The chemical nature of materials is explored through an investigation of their properties. All areas of study in this unit involve the performance of experiments, including the generation, collection and evaluation of experimental data.

Areas of Study
1. The Periodic Table:
   - Historical development of the Periodic Table
   - Trends and patterns within the Periodic Table
   - Historical development of the model of atomic theory
   - Limitations of the model of atomic theory
   - Relationships between the Periodic Table and atomic theory
   - Mass number, isotopes, calculation of relative atomic mass, electronic configuration including subshells
   - The mole concept including empirical and molecular formulas, percentage composition and Avagadro’s constant
   - Interpretation of data from mass spectrometry

2. Materials:
   - Models of bonding to explain observed properties of materials
   - Metals
   - Ionic compounds
   - Covalent substances including molecular, network lattices and layer lattices
   - Limitations of the bonding model
   - Properties and systematic naming of alkanes and alkenes
   - Structural isomers
   - Behaviour of surfaces and the application of surface chemistry in nanotechnology
   - Addition polymerisation

Unit Outcomes
On completion of this unit, a student should be able to:

- Explain how evidence is used to develop or refine chemical ideas and knowledge.
- Use models of structure and bonding to explain the properties and applications of materials.
Unit 2

Unit Description
This unit investigates how chemistry is used to respond to the effects of human activities on our environment. A wide range of chemical reactions are studied with an emphasis on writing chemical equations and performing calculations. Students continue to use and develop the language of chemistry to explain observations and data collected from experiments.

Areas of Study
1. Water:
   - The role of water in maintaining life in the environment
   - Unique properties of water
   - Ways in which substances behave in water
   - Maintaining water quality
   - Desalination, including the principles of distillation
   - Acids and bases
   - Calculations including mass-mass stoichiometry and concentration of volume of solutions
   - pH
   - Redox reactions in aqueous solutions including writing balanced equations for oxidation and reduction reactions
   - Applications of the principles of green chemistry

2. The Atmosphere:
   - The role of the atmosphere in maintaining life in the environment
   - Effects of human activities on the atmosphere
   - Chemical reactions and processes of acid rain
   - Qualitative effects of ozone depletion and photochemical smog
   - Role of the carbon and nitrogen cycles in maintaining life on earth
   - The laboratory and industrial preparation of a gas of significance to the quality of the atmosphere
   - The major contributing gases to the enhanced greenhouse effect
   - Kinetic molecular theory and its use in explaining properties of gases
   - Calculations including those involving gas laws, molar volume and stoichiometry of gaseous reactions

Unit Outcomes
On completion of this unit, a student should be able to:

- Write balanced chemical equations and apply these to qualitative and quantitative investigations of reactions involving acids and bases, the formation of precipitates and gases and oxidants and reductants.
- Explain how chemical reactions and processes occurring in the atmosphere help to sustain life.
Unit 3

Unit Description
In this unit students investigate the scope of techniques available to the analytical chemist and gain an understanding of the chemical principles behind a variety of analytical techniques. Students also investigate organic reaction pathways and the chemistry of particular organic molecules. An awareness of the application of principles of green chemistry to chemical processes is an ongoing part of this course.

Areas of Study
1. Chemical Analysis
   • Volumetric analysis
   • Gravimetric analysis
   • Calculations including amount of solids, liquids and gases; concentration; volume, pressure and temperature of gases
   • Use of oxidation numbers to write redox equations
   • Principles and applications of chromatographic techniques and interpretation of qualitative and quantitative data from various methods of chromatography
   • Principles and applications of various spectroscopic techniques
   • Matching analytical techniques to a particular task

2. Organic Chemical Pathways
   • Structure and systematic nomenclature of some organic compounds
   • Common reactions of organic compounds
   • Organic reaction pathways
   • Structure of proteins
   • Biochemical fuels
   • The structure and bonding of DNA
   • Function of organic molecules in the design and synthesis of medicines

Unit Outcomes
On completion of this unit a student should be able to:

• Evaluate the suitability of techniques and instruments used in chemical analysis
• Identify and explain the role of functional groups in organic reactions and construct reaction pathways using organic molecules
Unit 4

Unit Description
In this unit students investigate the industrial production of chemicals and the energy changes associated with chemical reactions. The range of energy sources available to society, both renewable and non-renewable, is investigated from a chemical perspective. Students continue to learn about the applications of principles of green chemistry to chemical processes.

Areas of Study
1. Industrial Chemistry
   - rates of chemical reactions
   - energy profile diagrams
   - reversible reactions and chemical equilibria
   - pH as a measure of the strength of an acid or base
   - principles of waste management in the chemical industry
   - the industrial production of one chemical selected from ammonia, sulfuric acid and nitric acid.

2. Supplying and Using Energy
   - Comparison of the renewability of different energy sources including coal, natural gas, nuclear fuels and biochemical fuels
   - Applications of calorimetry to measure energy changes in chemical reactions
   - Use of the electrochemical series to predict the products of reactions
   - Simple galvanic, primary and secondary cells
   - Fuel cells including advantages and disadvantages
   - Simple electrolytic cells
   - Application of Faraday’s laws in electrochemistry

Unit Outcomes
On completion of this unit a student should be able to:

- Analyse the factors that affect the extent and rate of chemical reactions and apply this analysis to evaluate the optimum conditions used in the industrial production of the selected chemical.
- Analyse chemical and energy transformations occurring in chemical reactions.
Drama

Unit 3

Unit Description

The study of Drama focuses on the creation and performance of characters, narratives and stories. Students draw on a range of content and use role and expressive skills to create, embody and present dramatic works. They analyse the development of their performance and explore the actor-audience relationship. Students develop an understanding of dramatic elements, stagecraft and theatrical conventions appropriate to performances by professional and other dramatic practitioners.

Areas Of Study

1. Devising and presenting non-naturalistic performance
2. Responding to devised ensemble performances
3. Analysing non-naturalistic performance

Key skills and knowledge applicable to all areas of study:

- develop an understanding of the origins, forms and purpose of performance from a variety of cultures
- develop an understanding of the processes of developing role and character
- use dramatic elements, theatrical conventions and stagecraft in creating, developing, evaluating and performing ensemble and solo performances
- develop and refine expressive and performance skills

Unit Outcomes

Develop and present characters within a non-naturalistic performance:
- create a folio, journal or log-book throughout the developmental process recording all documentation, notes, resources, brainstorming ideas, articles, images and any other stimuli
- research material and resources to develop characters, themes and a narrative
- explore and use a range of play-making and construction techniques to give dramatic form
- demonstrate understanding of performance styles and techniques used by drama practitioners
- demonstrate effective use of dramatic elements, including climax, conflict, contrast, focus, language, mood, rhythm, sound, space, symbol, timing and tension in ensemble performance
- explore and use expressive skills to communicate characters within an ensemble performance and manipulate the relationship between performer and audience
- explore, select and manipulate theatrical conventions

Analyse play-making and construction techniques utilised in the development and performance of class exercises and the ensemble performance created for Outcome 1.
- describe, analyse and evaluate stages of construction and the developmental phases of an ensemble performance referring to research, improvisation, scripting, editing, rehearsing and refining work
- describe, analyse and evaluate the performance/s of the ensemble work
- describe and discuss ways theatrical conventions, performance styles, dramatic elements, stagecraft, play-making and construction techniques and expressive skills can be used in the creation, development and presentation of ensemble performances
- use language of drama confidently and appropriately

Analyse and evaluate a non-naturalistic performance selected from the prescribed play-list.
- analyse ways in which performance styles in a professional performance of a play
- analyse ways in which characters in the play are represented in performance through the actors’ use of expressive skills including: voice, movement, facial expressions and gesture
- analyse and evaluate ways in which dramatic elements, theatrical conventions and stagecraft are manipulated to enhance the professional performance of the play
Drama

Unit 4

Unit Description
Solo Performance

Areas Of Study
1. Working with stimulus material
2. Devising a non-naturalistic solo performance
3. Analysing devised non-naturalistic performance

Unit Outcomes
Create, and present a short solo performance based on stimulus material and describe and analyse processes used at different stages to create the performance.
- develop skills in using a range of creative processes such as improvisation, scripting, editing, rehearsing, refining and reflection to prepare and present a short solo performance
- develop a working script to guide the performance
- document and evaluate processes used to create and present a solo performance

Performance Exam
Create, develop and perform characters within a solo performance in response to a prescribed structure.
- use stimulus material to create a solo performance in response to a prescribed structure document, using a folio, a journal or log-book the developmental process including all resources, brainstorm ideas, drafts of scripts images, feedback, etc.
- use a range of play-making and construction techniques apply non-naturalistic performance styles
- use performance styles and theatrical conventions from a range of historical, cultural and social traditions use dramatic elements as required in response to a prescribed structure
- explore and manipulate stagecraft to define and enhance a non-naturalistic solo performance
- use expressive skills to communicate non-naturalistic characters
- present a solo performance to an audience
- establish and maintain an effective actor-audience relationship

Describe, analyse and evaluate the creation, development and presentation of a solo performance.
- reflect upon the use of stimulus material to develop and create the solo performance
- describe processes used to research, prepare and realise characters
- describe, analyse and evaluate the creative processes used to develop the performance including:
  - use of construction techniques
  - manipulation of performance styles, theatrical conventions, dramatic and stagecraft elements
  - use of expressive skills to communicate and embody the characters
- evaluate the interpretation of characters presented

End-of-year performance examination:
The end-of-year performance examination will contribute 35% to the study score.
Drama

Unit 4 continued....

Description:
Students will present a solo performance based on the prescribed structure set by the VCAA. The solo performance will draw on knowledge and skills from Unit 4 Outcome.

Assessment criteria
1. Requirements of the prescribed structure
2. Development of a performance from the prescribed structure
3. Research, scripting and editing
4. Use of performance style/s including performance style/s prescribed in the structure
5. Use of theatrical conventions including the theatrical conventions prescribed in the structure
6. Use of dramatic elements including use of dramatic elements prescribed in the structure
7. Timing
8. Use of expressive skills
9. Use of performance skills
10. Application of stagecraft drawing on key knowledge and skills outlined in other Areas of Study
Unit 1

Unit Description
The focus of this unit is the reading of a range of texts, particularly narrative and persuasive texts, in order to comprehend, appreciate and analyse the ways in which texts are constructed and interpreted. Students will develop competence and confidence in creating written and oral texts.

Areas of Study
1. Reading and Responding:
   - Identify and discuss the structures, features and conventions used by authors of narrative texts to construct meaning in relation to characters, ideas and themes, using appropriate metalanguage.
   - Discuss different ways of interpreting texts, listening to others’ views and responding appropriately.
   - Construct a response to the text, including the use of appropriate metalanguage, to discuss textual features and appropriate evidence from the text to support the response.

2. Creating and Presenting:
   - Explore the ways in which a particular theme or idea (the context) is presented in set texts.
   - Writing may take a variety of forms and genres, but must be related to the text, the context and the given topics or prompts.

3. Using Language to Persuade:
   - Understand points of view and how texts work to influence readers.
   - Identify and discuss in writing, examples of verbal and non-verbal language used by authors of texts to persuade readers and viewers to share a point of view, using appropriate metalanguage.

Unit Outcomes
On completion of this unit, a student should be able to:

- discuss characters, ideas, themes and issues in set texts, and to construct a written response;
- communicate effectively in writing, taking into account text, context, purpose and audience;
- discuss in writing how the use of language in a persuasive text is designed to position readers and viewers.
English/ English as an Additional Language

Unit 2

Unit Description
The focus of this unit is on reading and responding to an expanded range of text types in order to analyse ways in which they are constructed and interpreted, and on the development of competence and confidence in creating written, oral or multimodal texts.

Areas of Study
1. Reading and Responding:
   - Identify and analyse how the structures, features and conventions of a range of text types and genres are used by authors to construct meaning, including analysis of film techniques.
   - Identify and discuss the values and ideas evident in a variety of texts.
   - Construct a response to the text, including the use of appropriate metalanguage to discuss textual features, and appropriate evidence from the text to support the response.

2. Creating and Presenting:
   - Students continue to draw on ideas from the set context and the set text to create and present their own written texts for specific audiences and purposes. ESL students study shorter texts this semester.

3. Using Language to Persuade:
   - As for Unit 1 and including the construction of their own reasoned point of view on an issue of social interest. This point of view may be presented in oral form.

Unit Outcomes
On completion of this unit, a student should be able to:

- construct written responses to set texts;
- produce effective written texts for a range of purposes and audiences;
- discuss in writing how the use of language in a persuasive text is designed to position readers and viewers;
- present a point of view orally or in writing.
Unit 3

Unit Description
The focus of this unit is on reading and responding both orally and in writing to a range of texts. Students analyse how authors of texts create meaning and the different ways texts can be interpreted. They develop competence in the construction of their own texts and the ability to explain the choices they have made as authors.

Areas of Study
Common to each area is the technical language necessary and the conventions of spelling, punctuation and syntax.

1. Reading and Responding:
   • Critically analyse texts (including social, cultural and historical values embodied in them) and the ways that authors construct meaning.
   • Use appropriate metalanguage to construct and support an analysis of a text in writing.

2. Creating and Presenting:
   • Draw on ideas / arguments / features presented in selected texts, context and topic or task.
   • Select and shape ideas, information and argument to construct written texts appropriate to the chosen form, audience, purpose and context.
   • Use appropriate metalanguage to discuss and analyse their own and others’ authorial choices in a written reflective comment.

3. Using Language to Persuade:
   • Identify and analyse, in writing, the verbal and non-verbal language used to position readers in particular ways using appropriate metalanguage (this section is not required for ESL students).
   • Present a sustained and reasoned point of view on a chosen issue of social significance, orally.

Unit Outcomes
On completion of this unit, a student should be able to:

• identify and discuss key aspects of a text and construct a response in writing;
• create and present written texts taking account of audience, purpose and context, and reflect on language choices made;
• discuss, in writing, how language can be used to persuade (not required for ESL students);
• present a reasoned point of view, orally, to the class.
Unit 4

Unit Description
The focus is on reading and responding in writing to a range of texts in order to analyse their construction and provide an interpretation. Students continue to develop the construction of their own texts in relation to the context, selected text and prompts, and reflect on the language choices they make.

Areas of Study
Common to each area is the technical language necessary and the conventions of spelling, punctuation and syntax.

1. Reading and Responding:
   • Develop sustained interpretive points of view about texts, supported by detailed textual analysis and reference to features, structures and conventions.
   • Analyse the ways in which authors express or imply a point of view or values.
   • Use appropriate metalanguage to support a detailed interpretation of a text.

2. Creating and Presenting:
   • As for Unit 3, except that a sustained piece of 1000-1500 words, rather than three shorter pieces, will be completed. ESL students study shorter texts and may choose to write three shorter pieces this semester.

Unit Outcomes
On completion of this unit, a student should be able to:

• discuss and analyse how texts convey ways of thinking and construct a response in writing; and,
• create and present texts, taking account of audience, purpose and context and reflect on language choices made.
Unit 1
Food Safety and Properties of Food

Unit Description
In this unit students study safe and hygienic food handling and storage practices to prevent food spoilage and food poisoning, and apply these practices in the preparation of food. Students consider the selection and use of a range of tools and equipment suitable for use in food preparation. Students examine the links between classification of foods and their properties, and examine changes in properties of food when different preparation and processing techniques are used. They investigate quality and ethical considerations in food selection. Students use the design process to meet the requirements of design briefs to maximise the qualities of key foods.

Areas of Study
1. Keeping food safe
   - Principles of food hygiene and safe food handling in a small-scale food operation
   - Causes of food spoilage and food poisoning
   - Storage practices to ensure safety and maximise the quality of food
   - Safe and hygienic use of tools and equipment to produce quality outcomes

2. Food Properties and preparation
   - The design process and its role in planning, and safely and hygienically preparing and processing foods in a way that maximises the qualities of key foods
   - Plant or animal origin, structure, and classification of key foods, including cereals, fruits, vegetables, nuts and legumes, meats, seafood, dairy foods and eggs
   - Considerations in food selection, including food quality and ethical issues such as fair trade and intensive farming practices
   - Physical, sensory and chemical properties of selected key foods
   - Functional properties of selected key foods and their role in food preparation and processing
   - Changes in physical and sensory properties of selected key foods during preparation and processing.

Unit Outcomes
On completion of this unit students should be able to:

- Explain and apply safe and hygienic work practices when storing, preparing and processing food.
- Analyse the physical, sensory, chemical and functional properties of key foods, and select, prepare and process foods safely and hygienically to optimise these properties using the design process.
### Food and Technology

#### Unit 2
**Planning and Preparation of Food**

**Unit Description**
In this unit students investigate the most appropriate tools and equipment to produce optimum results, including the latest developments in food technology. Students research, analyse and apply the most suitable food preparation, processing and cooking techniques to optimise the physical, sensory and chemical properties of food. Students work both independently and as members of a team to research and implement solutions to a design brief. They use the design process to respond to challenges of preparing food safely and hygienically for a range of contexts and consumers, taking into account nutritional considerations, social and cultural influences, and resource access and availability. Students also explore environmental considerations when planning and preparing meals.

**Areas of Study**

1. **Tools, equipment, preparation and processing**
   - Appropriate selection and safe and hygienic use of tools and equipment for food preparation and processing
   - Technological developments in tools and equipment for domestic use
   - Properties of key foods, including cereals, fruits, vegetables, nuts and legumes, meats, seafood, dairy foods and eggs
   - Suitability of food preparation and processing, wet and dry cooking techniques and presentation methods that optimise properties of key foods, including nutrient content, appearance, aroma, flavour and texture.

2. **Planning and preparing meals**
   - The design process and its role in planning and evaluating meals in small-scale food operations
   - Safe and hygienic food preparation and processing in meal preparation
   - Nutritional considerations when planning, including basic nutritional requirements and special nutritional requirements, such as reduced fat, high fibre, food allergies and food intolerances
   - Social and cultural influences that have an impact on meal planning, such as
     - lifestyle of consumers at a specific stage of the life span, for example childhood and adolescence
     - purpose of the meal
     - beliefs and customs
     - use of Australian indigenous ingredients
     - vegetarianism
   - The impact of resources on planning, such as access to ingredients, skills, equipment, time, and budget
   - Environmental considerations in planning to minimise waste and effectively use resources such as consideration of food miles and use of seasonally available ingredients
   - Food preparation techniques and ingredients suitable for specific purposes, including retaining and improving nutritional value of food
   - Methods of evaluating planning and production activities.

**Unit Outcomes**
On completion of this unit students should be able:

- To use a range of tools and equipment to demonstrate skills and implement processes in the preparation, processing, cooking and presentation of key foods to maximise their properties.
- Individually and as a member of a team, use the design process to plan, safely and hygienically prepare and evaluate meals for a range of contexts.
Unit 3
Food Preparation, Processing and Food Controls

Unit Description
In this unit students develop an understanding of food safety in Australia and the relevant authorities and their regulations. They investigate the causes of food spoilage and food poisoning and apply safe work practices while preparing food. Students demonstrate understanding of key foods and analyse the functions of the natural components of key foods. They investigate cooking techniques and justify the use of the techniques they select when preparing key foods. Students develop an understanding of the primary and secondary processes that are applied to key foods, including food processing techniques to prevent spoilage. They also preserve food using these techniques. Students devise a design brief from which they develop a detailed design plan to complete a set of food items. They implement the design plan in Unit 4.

Areas of Study
1. Maintaining food safety in Australia
   • Causes of food spoilage and food poisoning
   • Safety and hygiene practices to prevent food spoilage and food poisoning
   • The roles and responsibilities of national, state and local authorities in ensuring a safe food supply
   • Food Standards Code in Australia including food labelling regulations, nutrition content claims and health claims
   • Purpose of the HACCP system, and the role of each of the steps in ensuring food safety.

2. Food preparation and processing
   • The primary and secondary processing of key foods
   • The physical, sensory and chemical properties of key foods, including cereals, fruits, vegetables, nuts and legumes, meats, seafood, dairy foods and eggs
   • Functions of natural food components of key foods, including acids, enzymes, alkalis, proteins, starches and sugars, fats and oils and their impact on food preparation and processing
   • Techniques of cooking key foods, including dry methods, wet methods and microwave cooking
   • Preservation techniques to prevent spoilage of food, including freezing, dehydration, use of sugars, use of acids and heat processing (bottling).

3. Developing a design plan
   • The components of a design brief, including context and specifications
   • Development of criteria for evaluation that relate to the design brief
   • The role and importance of components of a design plan
   • Exploration of ideas and research that leads to an outline of a proposed set of food items as a response to a design brief
   • Properties of ingredients to be used in the preparation of the proposed food items
   • Food preparation and techniques of cooking, and preservation techniques suitable to produce a high-quality product that meets the specifications in the design brief
   • Tools and equipment suitable for preparing and processing the proposed food items
   • Food safety and hygiene requirements necessary to produce the proposed food items
   • Methods of developing an overall timeline for production of the four to six food items

Unit Outcomes
On completion of this unit students should be able:

- Explain the roles and responsibilities of and the relationship between national, state and local authorities in ensuring and maintaining food safety within Australia.
- Analyse preparation, processing and preservation techniques for key foods, and prepare foods safely and hygienically using these techniques.
- Develop a design brief, evaluation criteria and a design plan for the development of a food product.
Food and Technology

Unit 4
Food Product Development and Emerging Trends

Unit Description
In this unit students implement the design plan they established in Unit 3. In completing this task, students apply safe and hygienic work practices using a range of preparation and production processes, including some which are complex. They use appropriate tools and equipment and evaluate their planning, processes and product. Students examine food product development, and research and analyse driving forces that have contributed to product development. They investigate issues underpinning the emerging trends in product development. Students also investigate food packaging, packaging systems and marketing.

Areas of Study
1. Implementing a design plan
   - Planning processes to implement a design plan
   - Properties of foods (including physical, sensory, chemical and functional properties)
   - Complex processes, food preparation, processing, preservation and presentation techniques to implement the design plan
   - Food safety and hygiene practices to implement production plans
   - Methods of recording evidence of the food products
   - Methods of evaluating food products, processes and production activities.

2. Food product development
   - Sustainable farming practices as driving forces in food production and the reasons for managing the use of water and chemicals, prevention of land degradation and adoption of organic farming methods
   - Driving forces related to the development of food products, including social pressures, consumer demands, technological developments and environmental considerations
   - The process of food product development, and quantitative and qualitative analysis of new food products
   - Types of food product development, including me-toos and line extensions
   - New and emerging foods, including functional foods and foods to meet particular dietary requirements and food intolerances
   - Innovations and emerging technologies in food product development, including genetic modification, high pressure processing, microencapsulation and membrane technology
   - The purposes of packaging and packaging systems, including Aseptic packaging and Modified Atmosphere Packaging (MAP)
   - Environmental issues associated with food manufacturing and food packaging
   - Food product marketing and promotional strategies, including ethical food marketing to children.

Unit Outcomes
On completion of this unit students should be able:

- Safely and hygienically implement the production plans for a set of four to six food items that comprise the product, evaluate the sensory properties of the food items, evaluate the product using the evaluation criteria, and evaluate the efficiency and effectiveness of production activities.
- Analyse driving forces related to food product development, analyse new and emerging food products, and explain processes involved in the development and marketing of food products.
Unit 1
Natural Environments

Unit Description
This unit investigates the geographic characteristics of natural environments and landforms, and the natural processes that shape and change the Earth’s surface.

It investigates how the interactions between natural processes and human activities can also change natural environments. The nature of change caused by this interaction varies at a range of scales, over space and over time.

Areas of Study
1. Characteristics of Natural Environments
   This area of study focuses on natural environments at two different scales, comparing and contrasting their geographic characteristics, for example location, climate soils, drainage, natural vegetation and topography. It identifies natural features from different kinds of imagery, topographic maps and fieldwork activities. It investigates the natural processes, including extreme natural events that create and change landforms, landscapes and environments.

2. Changes in Natural Environments
   This area of study focuses on the dynamic nature of natural environments and the contribution of the various agents of change such as weathering, erosion, transportation and deposition as well as human activity. It explores the nature and dimensions of change in different environments through different kinds of imagery, topographic maps and fieldwork activities.

Topics for study are coasts and forests.

Unit Outcomes
On completion of this unit students should be able to:

- Describe the characteristics of at least two natural environments and explain how they are developed by natural processes, including extreme weather events (Area of Study 1)
- Analyse and explain the changes in natural environments due to natural processes and human activity (Area of Study 2)
Unit 2
Human Environments

Unit Description
This unit investigates the characteristics of rural and urban environments which are developed by human activities and their interactions with natural environments.

Rural environments are those produced by human activities such as farming, forestry, tourism, mining, fishing and rural settlements. Urban environments are those produced by human activities created by housing, work and leisure pursuits.

These environments vary significantly from place to place, across a variety of scales (from small villages to regional towns, large metropolitan cities and mega cities) and over time.

Decisions that affect the management of the sustainability of these rural and urban environments, and the distribution of rural and urban activities are made by governments, organisations and individuals.

Areas of Study
1. Characteristics of Human Environments
   This area of study focuses on the geographic characteristics of selected rural and urban environments at a range of scales. These geographic characteristics include location, landscapes, climate, living conditions and environmental qualities. It identifies these characteristics from a range of sources including texts, photographs, topographic maps and fieldwork activities. It investigates the nature and type of human activities and their interaction with natural environments.

   Topics for rural environments include farms, fishing areas and rural settlements of Vietnam. Topics for urban environments include the central business district, inner urban areas, retail precincts and leisure areas of Melbourne.

2. Changes in Human Environments
   This area of study focuses on the dynamic nature of rural and urban environments and the factors contributing to change, such as population change, population movement, climate changes, government policies and globalisation. These factors affect the management and sustainability of rural and urban environments at a range of scales.

   Topics for investigation include changes in the size and function of Melbourne and Vietnam; the impact of population changes in Vietnam; changing the nature and location of industries and employment; movement within and between urban renewal; and sustainability of Melbourne and Docklands.

Unit Outcomes
On completion of this unit students should be able to:

- Describe and explain the geographic characteristics of different types of rural and urban environments (Area of Study 1)
- Analyse and explain changes due to human activities in urban and rural environments (Area of Study 2)
Unit 3
Regional Resources

Unit Description
This unit investigates the characteristics of resources and the concept of region. A resource is anything which occurs naturally or is created by humans provided that people use it to satisfy a need or want. Resources found within regions mean different things to different people over place and time. A study of resources is about the processes and relationships operating in the past, in the present, and those which will operate in the future.

Students must investigate a regional resource and a local resource in Australia. The regional resource will be water in the Murray-Darling Basin region. Students will use fieldwork to investigate a local resource – Chapel Street.

Areas Of Study
1. Use and management of an Australian water resource
   This area of study focuses on water as a resource in Australia, with specific application to the region of the Murray-Darling Basin. Water is a critical resource on the Earth’s second driest continent. In the regional context of the Murray-Darling Basin, the study focuses on the source, availability, distribution and utilisation of water (surface and/or ground water), and examines the dynamic nature of relationships and interactions between natural processes and human activities. Students study a variety of management responses and evaluate strategies designed to achieve sustainable development.

2. Use and management of local resources
   This area of study focuses on the use and management of a significant local retail resource such as Chapel Street. Students study the importance of this local resource, how it is managed and its future sustainability. The local resource is placed in a regional context; for example, in the context of a hierarchy of shopping centres across the wider region. This resource is the focus for fieldwork.

Unit Outcomes
On completion of this unit the student should be able to:

- Analyse the use and management of water within the Murray-Darling Basin region and evaluate its future sustainability
- Describe characteristics of a local resource (Chapel Street) and justify a policy for its future use and management using data collected in the field
Unit Description
This unit investigates the geographic characteristics of global phenomena and responses to them. Global phenomena are major natural or human events, processes or activities. Such phenomena are distributed globally and possess the capacity to affect the globe or significant parts of the globe and require more than a local or national response.

Human population studies are significant to understanding the challenges facing our globalised world. Phenomena such as El Nino, migration, rapid communications technology, Earthquake damage, genetically modified crops, globally changing patterns of investment and industrialisation, shared ocean and atmosphere resources, pandemics and other ‘borderless’ phenomena play important roles in shaping community, environments and landscape change.

Areas Of Study
1. Global phenomena
   This area of study focuses on human populations; examining the geographic distribution, structure and composition as well as the dynamics of population in time and space, including growth and decline in fertility and mortality. The other global phenomenon may include major natural processes and/or human activities and their interactions that are distributed globally. Students investigate the impact on people and natural systems caused by human populations and another global phenomenon.

2. Global responses
   This area of study focuses on the ways in which people and organisations respond to the global impact of two phenomena, including human population at a range of scales. It investigates how people’s responses to the phenomena have changed in the short and the long term, the positive and negative effects of these responses from government and non government organisations or groups and the policies and strategies that promote sustainability.

Unit Outcomes
On completion of this unit the student should be able to:

- Evaluate the relative importance of factors that affect changes in human population and one other selected global phenomenon.
- Compare and evaluate the effectiveness of responses and policies to manage a global phenomenon from a global perspective.
Health and Human Development

Unit 1
The Health and Development of Australia’s Youth

Unit Description
This unit focuses on the health and development of Australia’s youth as well as the many factors that influence their health and development. Students investigate one health issue in detail and analyse personal, community and government strategies or programs that affect youth health and development.

Areas of Study
1. Understanding youth health and development;
   - Definitions of physical, social, emotional and intellectual development
   - Characteristics of, and interrelationships between, physical, social, emotional and intellectual development during the lifespan stage of youth
   - Definitions of health and the limitations of these definitions
   - Characteristics of, and interrelationships between, physical, social and mental dimensions of health
   - Measurements of health status
   - The health status of Australia’s youth
   - Biological determinants of health and development of Australia’s youth
   - The interrelationships between health and development during the lifespan stage of youth

2. Youth issues;
   - The function of major nutrients for the development of hard tissue, soft tissue, blood tissue and energy
   - The consequence of nutritional imbalance in a youth’s diet on short and long-term health and development
   - Food selection models as tools to promote healthy eating during youth
   - Determinants of the health and development of Australia’s youth, including behavioural, physical environment and social environment
   - Health issues facing Australia’s youth
   - The key features of one health issue for Australia’s youth, including:
     - Its impact on all dimensions of health and development
     - Its incidence, prevalence and changes over time (trends)
     - Determinants of health that act as risk and/or protective factors
     - Government, community and personal strategies or programs designed to promote health and development of youth
     - The range of health care services available to youth and their rights and responsibilities in accessing and using relevant services (including Medicare)

Unit Outcomes
On completion of this unit the student should be able to:

- Describe the dimensions of, and interrelationships within and between youth health and development, and analyse the health status of Australia’s youth using appropriate measurements.
- Describe the factors that have an impact on the health and development of Australia’s youth.
- Outline health issues relevant to Australia’s youth, and in relation to a specific health issue, analyse strategies or programs that have an impact on youth health and development.
Health and Human Development

Unit 2
Individual Human Development and Health Issues

Unit Description
This unit focuses on the health and development for the lifespan stages of prenatal, childhood and adulthood. In this unit students identify issues that affect the health and development of Australia’s mothers and babies, children and adults. Students investigate health issues in detail and analyse personal, community and government strategies and programs relevant to these stages of the lifespan.

Areas of Study
1. Prenatal health and individual development
   - The process of fertilisation
   - Physical development from conception to birth
   - The health status of Australia’s pregnant women and unborn babies
   - Determinants that have an impact on health and development during the prenatal stage of the lifespan, including biological, behavioural, physical environment and social environment
   - Determinants that act as risk and/or protective factors in relation to one health issue such as spina bifida, low birth weight, foetal alcohol syndrome or gestational diabetes
   - Government, community and personal strategies and programs designed to promote health and development of pregnant women and unborn children

2. Child health and individual development
   - Physical, social, emotional and intellectual development from birth to late childhood
   - The principles of individual human development
   - The health status of Australia’s children
   - Determinants of the health and development of Australia’s children, including biological, behavioural, physical environment and social environment
   - Determinants that act as risk and/or protective factors in relation to one health issue such as asthma, falls and injuries, food allergies, juvenile arthritis or type 1 diabetes
   - Government, community and personal strategies and programs designed to promote the health and development of children

3. Adult health and individual development
   - The different classifications of the stages of adulthood
   - Characteristics of physical development during adulthood
   - The social, emotional and intellectual development associated with the stages of adulthood and ageing
   - The health status of Australia’s adults
   - Determinants of health and development of Australia’s adults, including biological, behavioural, physical environment and social environment
   - Determinants that act as risk and/or protective factors in relation to one health issue such as cardiovascular disease, cancer, type 2 diabetes, obesity or mental illness
   - Government, community and personal strategies and programs designed to promote health and individual human development of adults

Unit Outcomes
On completion of this unit the student should be able to:

- Describe and explain the factors that affect health and development during the prenatal stage of the lifespan.
- Describe and explain the factors that affect the health and development of Australia’s children.
- Describe and explain the factors that affect the health and development of Australia’s adults.
Unit 3
Australia’s Health

Unit Description
Australians generally enjoy good health when compared to other developed countries however, there is still potential for improvements. In this unit, students have the opportunity to investigate the National Health Priority Areas (NHPAs) initiative, the diversity of health outcomes within our population and the factors that contribute to health status. Students also look at the Australian health system and the role government and non-government organisations play in the implementation of a range of initiatives designed to promote health in Australia.

Areas of Study
1. Understanding Australia’s health
   • Definitions of physical, social and mental dimensions of health and health status
   • Different measures of health status of Australians
   • Health status of Australians compared with populations in other developed countries;
   • Variations in the health status of population groups in Australia, including males and females, higher and lower socioeconomic status groups, rural and remote populations and Indigenous populations;
   • The role of determinants of health, including the physical environment, biological, behavioural and social, in explaining variations in health status
   • The National Health Priority Areas (NHPAs) including:
     ~ key features and reasons for selection of each NHPA
     ~ determinants that act as risk factors
     ~ direct, indirect and intangible costs to individuals and communities of NHPAs
     ~ one health promotion program relevant to each NHPA
   • The role of nutrition in addressing the following conditions recognised in the NHPAs: cardiovascular disease, diabetes mellitus, colorectal cancer, obesity and osteoporosis, taking into account, where relevant, the function (as a determinant of health) and major food sources of protein, carbohydrate, fats, water, calcium, phosphorus, sodium and vitamin D.

2. Promoting health in Australia
   • Models of health and health promotion including the biomedical model of health, social model of health and the Ottawa Charter for Health Promotion;
   • The role of VicHealth including;
     ~ the mission and strategic priorities of VicHealth
     ~ potential health outcomes of a VicHealth funded project and how it reflects the social model of health
   • Australia’s health system including;
     ~ local, state and federal governments’ responsibilities for health and health funding
     ~ the values that underpin the Australian health system
     ~ Medicare, Pharmaceutical Benefits Scheme (PBS) and private health insurance
   • The role of Australia’s governments in promoting healthy eating through
     ~ the information provided by nutrition surveys and how it is used
     ~ the Australian Guide to Healthy Eating and Dietary Guidelines for Australian Adults
   • The role of Australia’s non-government agencies, including Nutrition Australia, in providing dietary advice to promote healthy eating

Unit Outcomes
On completion of this unit the student should be able to:

• Compare the health status of Australia’s population with other developed countries and compare and explain the variations in health status of population groups within Australia.
• Discuss the role of the National Health Priority Areas in improving Australia’s health status.
• Discuss and analyse approaches to health and health promotion, and describe Australia’s health system and the different roles of government and non-government organisations in promoting health.
Unit 4
Global Health and Human Development

Unit Description
This unit takes a global perspective on achieving sustainable improvements in health and human development. In the context of this unit, human development is about creating an environment in which people can develop to their full potential and lead productive, creative lives in accord with their needs and interests. Students focus on the work of the United Nations, World Health Organisation, Department of Foreign Affairs and Trade and non-government organisations and their initiatives aimed at reducing global burden of disease.

Areas of Study
1. Introducing global health and human development
   - Characteristics of developed and developing countries, including high/low mortality strata
   - Definitions of sustainability (including elements of appropriateness, affordability, equity) and human development (including the human development index) according to the UN
   - Similarities and differences in health status and human development between developing countries and Australia
   - The influence on the health status of developing countries compared to Australia of income, gender equality, peace/political stability, education, access to healthcare, global marketing (of alcohol, tobacco and fast/processed foods) and physical environments
   - The eight UN's Millennium Development Goals, their purpose and reasons why they are important

2. Promoting global health and human development
   - The interrelationships between health, human development and sustainability to produce sustainable human development in a global context
   - Different types of aid, including emergency aid, bilateral and multilateral, non-government organisation aid, and how they are used to achieve global health and sustainable human development
   - The role of the UN in providing global health and sustainable development through the following areas of action: world peace and security, human rights, humanitarian assistance and social and economic development
   - The agenda of the WHO in promoting global health and sustainable human development
   - The responsibilities of the Australian Government's AusAID initiatives and the role it plays in developing programs to improve global health and sustainable development
   - The role of non-government organisations based in Australia in promoting global health and sustainable human development
   - Programs focusing on literacy, food security, HIV/AIDS and malaria, immunisation, safe water and sanitation in terms of:
     ~ reasons for each program
     ~ types of aid involved in the programs
     ~ implementation of the programs
     ~ their contribution to the achievement of sustainable human development

Unit Outcomes
On completion of this unit the student should be able to:

- Analyse factors contributing to variations in health status between Australia and developing countries and evaluate progress towards the United Nations' Millennium Development Goals.
- Describe and evaluate programs implemented by government and non-government organisations and analyse the interrelationships between health, human development and sustainability.
History

Unit 1
Twentieth Century History 1900–1945

Unit Description
The first half of the century marked significant change. This unit focuses on World War One, the collapse of the old order in its aftermath and the new power structures, such as Nazism, that filled the vacuum. Daily life also underwent significant change due to the new power structures and technological advances.

The topics studied include:
- Life for Europeans in 1900
- World War I
- The Depression
- Social Norms in Nazi Germany
- The architectural vision of Albert Speer

Areas of Study
1. Crisis and conflict
2. Social life
3. Cultural expression

Unit Outcomes
On completion of this unit the student should be able to:

- analyse and explain the development of a political crisis and conflict in the period 1900 - 1945;
- analyse and discuss patterns of social life and the factors which influenced change to social life in the first half of the twentieth century; and,
- Analyse the relationship between the historical context and a cultural expression of the period from 1900 - 1945.
Unit 2
Twentieth Century History 1945 to 2000

Unit Description
The USA and the USSR emerged from the destruction of World War II as the new super powers and for the next 40 years a Cold War raged between opposing ideologies. The members of the newly formed United Nations aimed at providing an international approach to avoiding warfare and political tensions, with varying degrees of success. Despite advances in medicine, technology and international efforts to improve the quality of life for humankind, wars and civil unrest continued to take a toll on human life across the globe, as did illness, disease and hunger. Individual voices of dissent and social movements challenged existing authorities and brought social, economic and political change. Global communications became increasingly important. The focus of this unit is on the global relationships which have shaped the world of the early twenty-first century.

The topics studies include:
- The Cold War
- The Space Race and other technological developments
- Artistic and cultural expression
- Challenge to authority

Areas of Study
1. Ideas and political power
2. Movements of the people
3. Issues for the millennium

Unit Outcomes
On completion of this unit the student should be able to:

- analyse and discuss how post-war societies used ideologies to legitimise their worldview and portray competing systems;
- evaluate the impact of challenge(s) to establish social, political and/or economic power during the second half of the twentieth century; and,
- analyse issues faced by communities arising from political, economic and/or technological change.
History

Unit 3
History Revolutions - Russia

Unit Description
Revolutions are great disjunctions of time and mark deliberate attempts at new directions. They share the common aim of breaking with the past and by destroying regimes and societies, embarking on a program of political and social transformation. The country studied is Russia.

Areas of Study
1. Revolutionary ideas, leaders, movements and events
   Russia: 1905 to October 1917
   The causes of revolution are examined. Students evaluate the role of ideas, leaders, movements and events in the development of a revolutionary situation. This includes knowledge of the key events of the era, the causes of tensions and conflicts, the ideas used in the revolutionary struggle and the role of individuals and groups.

2. Create a new society
   Russia: November 1917 to the death of Lenin in 1924
   A new political order is not created easily. Revolutions take many years to achieve social and political change. There are ongoing debates about the extent to which significant change was achieved and whether the new order achieved an improved standard of living. Students should be able to assess the contribution of individuals/groups to the progression of the revolution, examine the key ideas and analyse the challenges faced in creating a new society.

   The gathering and evaluation of evidence and historians’ interpretations is integral to this study.

Unit Outcomes
On completion of these units, students should be able to:

- evaluate the role of ideas, leaders, movements and events in the development of the revolution;
- analyse the challenges facing the emerging order and the way in which attempts were made to create a new society, and evaluate the nature of the society created by the revolution.
History

Unit 4
History Revolutions - France

Unit Description
Revolutions are great disjunctures of time and mark deliberate attempts at new directions. They share the common aim of breaking with the past and by destroying regimes and societies, embarking on a program of political and social transformation. The country studied is France.

Areas of Study
1. Revolutionary ideas, leaders, movements and events
   France: 1781 to 4 August 1789
   The causes of revolution are examined. Students evaluate the role of ideas, leaders, movements and events in the development of a revolutionary situation. This includes knowledge of the key events of the era, the causes of tensions and conflicts, the ideas used in the revolutionary struggle and the role of individuals and groups.

2. Create a new society
   France: 5 August 1789 to Year III, (1795)
   A new political order is not created easily. Revolutions take many years to achieve social and political change. There are ongoing debates about the extent to which significant change was achieved and whether the subjects of the new order had an improved standard of living. Students should be able to assess the contribution of individuals/groups to the progression of the revolution, examine the key ideas and analyse the challenges faced by those changing the society.

The gathering and evaluation of evidence and historians’ interpretations is integral to this study.

Unit Outcomes
On completion of these units, students should be able to:

- evaluate the role of ideas, leaders, movements and events in the development of the revolution; and,
- analyse the challenges facing the emerging order and the way in which attempts were made to create a new society, and evaluate the nature of the society created by the revolution.
Unit 1
IT in Action

Unit Description
This unit focuses on how individuals and organisations use, and can be affected by, information and communications technology (ICT) in their daily lives. In Areas of Study 1 and 3, students acquire and apply a range of knowledge and skills to manipulate different data types such as numeric, text, sound and images (still and moving) to create solutions that can be used to persuade, educate, inform and entertain. In Area of Study 3, students also explore how their lives are affected by ICT, and consider strategies for managing how ICT is applied. In Area of Study 2, students examine how networked information systems allow data to be exchanged locally and within a global environment, and explore how mobile devices, such as phones, are used within these networks. When creating solutions, students need an understanding of the problem-solving methodology. In this unit the emphasis is on the problem-solving stages of design and development. Students study the following software tools; Spreadsheet software, web authoring tools, visual thinking tools and project management tools.

Areas Of Study
1. Data analysis and visualisation
   In this area of study students develop and apply knowledge and skills in using spreadsheet software to manipulate numeric data. Students select relevant data and apply functions and techniques to manipulate the data to produce information in graphic form, which is displayed onscreen. Examples of graphical representations are column graphs, scatter diagrams and bubble charts.

   When working with given data sets, students apply the design and development stages of the problem-solving methodology. As students will not be engaged in the analysis stage, they must be provided with details of relevant requirements of the solution, such as what information the solution has to provide and the constraints on the solution.

2. Networks
   In this area of study students investigate how networked information systems allow data and information to be exchanged locally and within a global environment. Students develop an understanding of the technology and procedures, and the roles and responsibilities of people required to connect and maintain computers so that ideas, files, information, programs and resources can be shared. Students consider the advantages and disadvantages of using such networks, and explore how mobile devices are used within networks. Students develop an understanding of the ways in which the security of exchanged and stored data and information can be compromised.

3. ICT in a global society
   In this area of study students develop an understanding about how the applications of particular information and communications technology (ICT) can cause tensions and conflicts between different stakeholders. This area of study involves consideration of contemporary issues within a selected context. Working in teams, which can be virtual, students use web authoring software to create a website that presents an overview of an issue associated with one context. With evidence acquired from both primary and secondary sources, students present on their website the viewpoints of different stakeholders, the team’s opinion regarding the issue and their strategies for encouraging individuals to influence how ICT is applied in particular situations. Students use visualising thinking tools and techniques to assist in formulating team opinions. They use spreadsheet software to manipulate acquired primary data and generate graphical representations to include on their website. Students can supplement these graphical representations with related sound and images, such as recorded and video interviews. Project plans are developed using ICT to record tasks to be completed and team member responsibilities. During the development of the website, progress is monitored and recorded.
Unit Description
This unit focuses on how individuals and organisations use ICT to meet a range of purposes. Students apply a range of knowledge and skills to create solutions, including those that have been produced using a programming or scripting language, to meet users’ needs. In this unit, students apply all stages of the problem-solving methodology when creating solutions.

In Area of Study 1 students analyse data from large repositories and manipulate selected data to create visualisations. In Area of Study 2 students develop skills in using programming or scripting language software and they investigate careers that involve the use of these skills. Working in teams is an important and effective strategy for solving problems, and this strategy is applied in Area of Study 3 when students solve problems for clients in the community.

Students study the following software tools; programming/scripting language, database software, visual thinking tools and project management tool.

Areas Of Study
1. Data analysis and visualisation
In this area of study students develop knowledge and skills in using software tools to access and select authentic data from large data repositories, and in presenting the key aspects of the data in an appropriate visual form. Effective visual forms reduce the effort required by readers to interpret information and are clear, usable, relevant and attractive. Appropriate visual forms include graphs, charts, spatial relationships, maps, histograms and network diagrams (nodes and edges). Sources of large data repositories include the Bureau of Meteorology, World Development Indicators, Australian Bureau of Statistic, United Nations, CSIRO, OECD. Interactivity and the inclusion of dynamic data are key features of some visualisations. When developing these visualisations, students use one or more of the following tools: a programming language, database software, spreadsheet software, data visualisation software.

2. Programming and pathways
In this area of study students develop knowledge and skills in using programming or scripting language software. Flexibility exists regarding the language studied as there is no approved programming list for this area of study. If a programming language is selected in Area of Study 1, it can be used in this area of study. Students develop knowledge and skills in describing data types and data structures, and applying data representation methods. They develop knowledge and skills about methods and techniques for completing a series of small discrete tasks that use features of a programming or scripting language. Students are not required to create complete solutions to information problems; rather they focus on applying knowledge and skills related to activities within the design and development stages of the problem-solving methodology.

3. Tools, techniques and procedures
In this area of study students apply all stages of the problem-solving methodology to create solutions to information problems.

By working in teams, which can be virtual, to solve information problems for known clients, students develop an understanding of how constraints imposed by clients (users) affect the techniques and procedures applied when creating solutions. Individual team members prepare designs for the solutions and collectively they consider the designs and select one, based on agreed criteria, and make adjustments, if appropriate. These designs are considered by the clients, who provide feedback to the teams. Any modifications suggested by the clients are incorporated into the designs. Each student in a team can then individually follow the final design and develop the entire solution, or each student can contribute to the completion of the team’s solutions. This involves using techniques and procedures to efficiently and effectively process and manage data, information and files. Team members record and monitor progress through shared electronic files.
A client-based approach provides the opportunity for students to develop and apply, in real situations, knowledge and understanding about criteria for evaluating the efficiency of processing and the effectiveness of solutions, as identified in the solution designs.

Unit Outcomes
On completion of Unit 1 and 2 students should be able to:

• use ICT tools and techniques, produce a solution in response to an identified need
• create visual presentations such as multimedia presentations
• deliver oral presentations supported by a visual presentation
• develop an electronic learning journal, such as a blog, to record learning progress
• complete written reports using ICT
Unit 3
IT Applications

Unit Description
The focus of Unit 3 is the World Wide Web and how it supports the information needs of individuals, communities and organisations. In Area of Study 1, students investigate the design and technical underpinnings of different types of websites that support the varying needs of online communities.

Students use web authoring software to create prototype websites for particular online communities, taking into account both technical and non-technical constraints.

Area of Study 2 focuses on the use of a relational database management system (RDBMS). Students examine techniques used by organisations to acquire data via websites and consider the relationship between how the data is acquired and the structure of an RDBMS. At the practical level, students acquire and apply knowledge and skills in the use of an RDBMS. In Unit 4 when solving information problems students can either use spreadsheet software or continue to use an RDBMS.

Students apply the analysis, design and development stages of the problem-solving methodology when creating solutions.

Areas of Study
1. Organisations and data management
   In this area of study students develop knowledge about how organisations acquire data via websites. They also develop knowledge and skills in using a relational database management system (RDBMS) to manipulate data typically acquired through websites.

   Students review websites to ascertain the types of data being acquired, including text, numeric and images (still and moving), and to identify how the data is acquired. Students examine how organisations fulfil their legal requirements of protecting the rights of data providers and why organisations want the data organised in particular ways. This provides a lead-in to the fundamentals of an RDBMS, namely fields and field types, and the relationships between data sets.

   Students develop knowledge and skills in describing data types and data structures, and in applying functions, techniques, formats and conventions to manipulate and validate data, and to present suitable information.

2. Online communities
   In this area of study students investigate types of online communities and their needs, and the types, purposes and functionality of specific types of websites that support information exchange, including wikis, blogs, forums and social networking sites.
Unit 4
IT Applications

Unit Description
In this unit students focus on how ICT is used by organisations to solve ongoing information problems and on the strategies used to protect the integrity and security of data and information. In Area of Study 1 either a relational database management system (RDBMS) or spreadsheet software is selected and used to create solutions to information problems. In addition, students use web authoring or multimedia authoring software to produce onscreen user documentation. When creating solutions to ongoing information problems, students apply all stages of the problem-solving methodology.

In Area of Study 2, students explore how organisations manage the storage, communication and disposal of data and information in order to minimise threats to the integrity and security of data and information, and to optimise efficient information handling.

Areas of Study
1. Organisations and information needs
In this area of study students develop and apply knowledge and skills for solving ongoing information problems encountered in organisations. This involves developing knowledge about decision making in organisations and how information systems enable information to be produced to assist decision making. An RDBMS or spreadsheet software is selected for use. Through the application of all of the stages of the problem-solving methodology and the selected software, students create solutions to solve problems. Solutions of this nature have the capacity to process new sets of data for recurring problems. To support the ongoing use of these solutions, students produce user documentation using either web authoring or multimedia authoring software.

2. Information management
This area of study focuses on information management and its importance to organisations. Students investigate the strategies used by organisations to store, communicate and dispose of their data and information. They examine the nature of threats to this data and information, whether accidental, deliberate or technical and use evaluation criteria to consider the subsequent consequences for ineffective information management strategies. Students recommend information management strategies to protect the integrity and security of data and information, taking into account key legal obligations of organisations and any ethical dilemmas faced by organisations and individuals regarding security of information.

Unit Outcomes
On completion of Unit 3 and 4 students should be able to:

- apply stages of the problem-solving methodology to create a prototype website that meets an online community’s needs
- explain the technical requirements to support the hosting of this website
- design, and develop using a relational database management system, a solution to an information problem
- discuss why and how data is acquired via websites
- use selected software to solve an ongoing information problem
- evaluate the efficiency and effectiveness of the solution in meeting the information needs of an organisation.
- evaluate the effectiveness of strategies used by organisations to manage the storage, communication and disposal of data and information
- recommend improvements to current practices.
Languages Other Than English - French and Japanese

Units 1 - 4
Common Areas of Study

Unit Description
The areas of study for LOTE comprise themes and topics, grammar, text types, vocabulary and kinds of writing. They are common to all four units of the study, and they are designed to be drawn upon in an integrated way, as appropriate to the linguistic needs of the student, and the outcomes for the unit.

The themes and topics are the vehicle through which the student will demonstrate achievement of the outcomes, in the sense that they form the subject of the activities and tasks the student undertakes.

The grammar, vocabulary, text types and kinds of writing are linked, both to each other, and to the themes and topics. Together, as common areas of study, they add a further layer of definition to the knowledge and skills required for successful achievement of outcomes.

Themes and topics
There are three prescribed themes with a number of prescribed topics.

French
- The individual (Personal world, Education and aspirations, Personal opinions and values)
- The French-speaking communities (Lifestyles, Historical perspective, Arts and entertainment)
- The changing world (Social issues, World of work, Scientific and technological issues)

Japanese
- The individual (Personal world, Daily life, Past and future)
- The Japanese-speaking communities (Visiting Japan, Life in Japan, Getting to know people in Japan)
- The changing world (The world of work, Changes in daily life, Home and neighbourhood)

Unit 1
On completion of this unit, a student should be able to:
1. Establish and maintain a spoken or written exchange related to personal areas of experience
2. Listen to, read and obtain information from written and spoken texts
3. Produce a personal response to a text focusing on real or imaginary experience

Unit 2
On completion of this unit, a student should be able to:
1. Participate in a spoken or written exchange related to making arrangements and completing transactions
2. Listen to, read and extract and use information and ideas from spoken and written texts
3. Give expression to real or imaginary experience in written or spoken form

Unit 3
On completion of this unit, a student should be able to:
1. Express ideas through the production of original texts
2. Analyse and use information from spoken texts
3. Exchange information, opinions and experiences

Unit 4
On completion of this unit, a student should be able to:
1. Analyse and use information from written texts
2. Respond critically to spoken and written texts which reflect aspects of the language and culture of French/Japanese-speaking communities

Detailed study
The student is required to undertake a detailed study during Units 3 and 4: Language and culture through texts.
Unit 1 Legal Studies

Unit Description
The law influences all aspects of society – at home, at work and in the wider community. Laws are used by society to preserve social cohesion, and to ensure the protection of people from harm and from the infringement of their rights. These laws can be grouped according to their source and whether they are criminal or civil in nature. Following an overview of the law in general, this unit focuses on criminal law.

Areas of Study

1. Law in Society
   All societies have rules and laws that govern the behaviour of individuals and groups so that order is maintained and individual rights are protected. Students develop an understanding of the role of the law and the need for effective laws, as well as the concept that the law confers rights and responsibilities on members of society in their dealings with each other.

2. Criminal Law
   Criminal law regulates conduct in society in order to protect the community, as well as sanction those who commit crimes. Students develop an appreciation of the importance of criminal law by investigating its principles, types of crimes and their enforcement, and possible outcomes.

3. The Criminal Courtroom
   Criminal cases are heard across a number of courts in the Victorian court hierarchy and these are subject to specific processes and procedures. Students investigate procedures that are used prior to bringing a criminal case to trial, as well as the role and jurisdiction of the courts in hearing criminal cases. The adversarial nature of criminal courts is examined, as well as a consideration of the role and operation of juries in criminal cases.

Unit Outcomes

On completion of these units the student should be able to;

- The need for effective laws and describe the main sources and types of law in society.
- The key principles and types of criminal law, apply the key principles to relevant cases and discuss the impact of criminal activity on the individual and society.
- The processes for the resolution of criminal cases, and discuss the capacity of these processes to achieve justice.
Unit 2 Legal Studies

Unit Description
The civil law regulates the rights and responsibilities that exist between individuals, groups and organisations. If legal rights have been infringed, the aggrieved party may pursue legal action through the court system, through a tribunal, or by using one of the methods of dispute resolution. Students examine the rights that are protected by civil law, as well as obligations that laws impose. They investigate types of civil laws and related cases and issues and develop an appreciation of the role of civil law in society and how it affects them as individuals.

Areas of Study
1. Civil Law
   Civil law protects the rights of individuals, groups and organisations in society. Such rights establish responsibilities regarding conduct. Students gain an insight into the importance of civil law in their lives and learn to distinguish between civil and criminal law. They also examine how a situation can result in both criminal and civil action. Students develop an understanding of the process of lawmaking by judges and courts through the operation of the doctrine of precedent and through statutory interpretation. They explore torts and their related defences. Throughout this area of study students apply civil law principles to relevant cases and issues.

2. The Civil Law in Action
   Students investigate the role and operation of dispute resolution bodies and the methods employed in resolving civil disputes. For those disputes that proceed to court, students examine the purpose and operation of civil pre-trial procedures and the adversarial nature of a civil trial, and evaluate the methods of dispute resolution. Students investigate available remedies and examine their effectiveness. They consider the difficulties faced by parties when attempting to resolve disputes.

3. The Law in Focus
   Civil law protects a wide range of rights that exists between parties. The extent and principles of civil rights and responsibilities need to develop along with changes in society, and this creates issues for the law. Students undertake a detailed investigation of a specific area of the law. To develop knowledge and understanding about contemporary issues in the law and their resolution, students consider one or more of the following areas of law: • Contract law • Family law • Consumer protection laws • Workplace laws • Wills and inheritance • Sports and the law • Tenancy law • Environmental law • Any other relevant area of civil law.

A Question of Rights
Individuals can make an impact on the legal system in a number of ways, one of which is the pursuit of cases through the courts. In this area of study students examine an instance where an individual or group has suffered an abuse of their rights and sought redress through the court system. Students investigate an Australian case and develop an understanding of ways in which individuals can shape the law, and examine instances of people being empowered by the legal system. Students discuss the impact of this case on the legal system and the rights of individuals.
Unit Outcomes

- On completion of these units the student should be able to;
  
  - Explain the principles of civil law, law-making by courts, and elements of torts, and apply these to relevant cases.
  - Explain and evaluate the processes for the resolution of civil disputes.
  - Explain one or more area/s of civil law, and discuss the legal system’s capacity to respond to issues and disputes.
  - Describe an Australian case illustrating rights issues, and discuss the impact of the case on the legal system and the rights of individuals.
**Legal Studies**

**Unit 3**
**Legal Studies**

**Unit Description**
The purpose of this unit is to enable students to develop an understanding of the institutions that determine laws and the processes by which laws are made. It considers the reasons why laws are necessary and the impact of the Commonwealth Constitution on the operation of the legal system.

**Areas of Study**

1. **Parliament and the Citizen**
   Parliaments are the supreme law-making bodies in the Australian legal system; their role is to make laws that reflect the views and values of Australian society. This area of study focuses on the principles that underpin the Australian parliamentary system as well as an investigation of parliament as a lawmaking body. Students explore the factors that may influence parliament in bringing about changes in the law by examining the role that individuals and groups may play. Through an investigation of the structure and role of parliament, and the processes it follows in passing legislation, students evaluate the overall effectiveness of parliament as a law-making body.

2. **The Constitution and the Protection of Rights**
   In this area of study students investigate the role of the Commonwealth Constitution in establishing and restricting the law-making powers of State and Commonwealth Parliaments. Students examine how these law-making powers can be changed and analyse the impact of these methods. They investigate the role of the High Court with respect to law-making powers and the protection of rights contained in the Constitution. Students explore the means by which the Commonwealth Constitution protects rights in Australia and develop an awareness of the rights in Australia and develop an awareness of the rights and responsibilities of Australian citizens. They engage in a comparison of the constitutional approach used to protect their rights in Australia with that of another country, raising their awareness of an alternative model for the protection of rights.

3. **Role of the Courts in Law-making**
   In this area of study students develop an understanding of the role that courts play in developing the law. Students investigate the doctrine of precedent and statutory interpretation and consider their operation and effect. They evaluate the effectiveness of courts as a law-making body. Using relevant cases, students explore the relationships between courts and parliament in law-making.

**Unit Outcomes**
On completion of this unit, a student should be able to:

- Explain the structure and role of parliament, including its processes and effectiveness as a law-making body, describe why legal change is needed, and the means by which such change can be influenced.
- Explain the role of the Commonwealth Constitution in defining law-making powers with a federal structure, analyse the means by which law-making powers may change, and evaluate the effectiveness of the Commonwealth Constitution in protecting human rights.
- Describe the role and operation of courts in law-making bodies and discuss their relationship with parliament.
Legal Studies

Unit 4
Dispute Resolution

Unit Description
This unit explores the function and jurisdiction of courts, tribunals and alternative avenues of dispute resolution with a view to comparing and evaluating the operation of various disputes resolution methods. Students develop an understanding of the criminal and civil pre-trial and trial processes and procedures, including the jury system that operates within the Victorian legal system. They also study the operation of the adversary system and compare it with the inquisitorial system.

Areas of Study
1. Dispute Resolution Methods
   There is a range of methods by which legal disputes can be resolved. Criminal cases are determined through the courts, whereas civil disputes can be resolved through a range of methods in courts and tribunals. Students investigate the jurisdictions of selected courts in the Victorian court hierarchy, and develop an understanding of the need for a hierarchy of courts. They examine the methods of dispute resolution used by courts and the Victorian Civil and Administrative Tribunal (VCAT) as a means of resolving civil disputes, and the way the institutions operate to resolve the disputes. Throughout their investigation, students compare and evaluate the operation of these dispute resolution methods.

2. Court Processes and Procedures, and Engaging in Justice
   Dispute resolution through courts operating under the adversary system of trial is characterised by formal processes and procedures that must be adhered to by all parties involved with the case. Students investigate the major features of the adversary system of trial and aided by a comparison with the inquisitorial system of trial evaluate the adversarial approach to dispute resolution. They also examine criminal and civil pre-trial and post trial procedures. Students investigate the role of criminal and civil juries, consider their strengths and weaknesses and suggest reforms and alternatives applicable to the current jury system. Throughout their investigation of court processes and procedures, students assess the extent to which these processes contribute to an effective legal system.

Unit Outcomes
On completion of this unit, a student should be able to:

- Describe and evaluate the effectiveness of institutions for resolving civil and criminal disputes.
- Explain the processes and procedures for the resolution of criminal cases and civil disputes, and evaluate their operation and application, and evaluate the effectiveness of the legal system.
Units 1 and 2

This course is designed as a broad introduction to the study of Literature, introducing students to texts in a range of genre, points of view and techniques used in prose, poetry, drama, and non-print forms. One of the texts studied will be Australian.

Unit 1

Unit Description
This unit is designed as a broad introduction to the study of Literature, introducing students to texts in a range of genre, points of view and techniques used in prose, poetry, drama, and non-print forms. One of the texts studied will be Australian.

Areas of Study
1. Readers and their responses:
   • This area of study provides a broad introduction to the study of Literature and introduces students to genre and some of the conventions associated with various forms of texts. The significance of characters, settings and events is explored as students develop informed responses to texts.

2. Ideas and concerns in texts:
   • This area of study focuses on central ideas and concerns of texts to which students respond both creatively and critically. Students consider how texts may support or question particular aspects of society.

3. Interpreting non-print texts:
   • The emphasis is on “reading” non-print material to understand its structure and central concerns. The key knowledge and skills place more emphasis on the point of view that is being represented as well as techniques used and their effects that are specific to non-print texts.

Unit Outcomes
On completion of this unit, a student should be able to:

• Discuss how personal responses to literature are developed and justify their own responses to one or more texts.
• Analyse and respond both critically and creatively to the ways in which one or more texts reflect or comment on the interests and ideas of individuals and particular groups in society.
• Analyse the construction of a film, television, multimedia or radio text and comment on the ways it represents an interpretation of ideas and experiences.
Unit 2

Unit Description
This course is designed as a broad introduction to the study of Literature, introducing students to texts in a range of genre, points of view and techniques used in prose, poetry, drama, and non-print forms. One of the texts studied will be Australian.

Areas of Study
1. The text, the reader and their contexts:
   - This area of study focuses on student analysis and responses, both critical and creative, to a text from a past era. The students examine the social and cultural concerns and values. They identify the language and representations in the text.

2. Ideas and concerns in texts:
   - This area of study focuses on the way two or more texts relate to one another. The ways in which texts have been constructed will be important in understanding how style, form, voice, structure and central concerns affect the reader’s interpretation.

3. Interpreting non-print texts:
   - The emphasis is on “reading” non-print material to understand its structure and central concerns. The key knowledge and skills place more emphasis on the point of view that is being represented as well as techniques used and their effects that are specific to non-print texts.

Unit Outcomes
On completion of this unit, a student should be able to:

- Identify the ways in which a text from a past era reveals the ideas and concerns of individuals and groups at that time.
- Produce a comparative piece of interpretative writing with a particular focus.
Unit 3

Unit Description
This unit focuses on the ways writers construct their work and how meaning is created. Students consider form, views and values and the human experience as well as the social, historical and cultural contexts of literary works.

Areas of Study
1. Adaptations and transformations:
   • A close study of form and genre, to understand the features of particular forms and how meaning changes when the form is changed.

2. Views, values and contexts:
   • Consideration of the ways in which views and values are expressed to create particular perspectives of the world. Students inquire into the ways readers may arrive at differing interpretations and judgments about a text.

3. Considering alternative viewpoints:
   • Students engage in the viewpoints of others in reviews, critical essays and commentaries. Students show how content is shaped and structured and how they are positioned by the writer’s choice of language.

Unit Outcomes
On completion of this unit, a student should be able to:

• Analyse how meaning changes when the form of a text changes.
• Analyse, interpret and evaluate the views and values of a text.
• Evaluate views of a text and make comparisons with their own experience.
Unit 4

Unit Description
This unit focuses on students’ creative and critical responses to texts. Students consider contexts of their responses as well as the concerns, style and point of view in their creative response.

Areas of Study
1. Creative responses to texts:
   • The students focus on imaginative techniques for re-creating a literary work. This helps them to understand the writer’s concerns and craft. They will discuss the purpose and context of their response.

2. Close analysis:
   • This area focuses on detailed scrutiny of style, concerns and construction of a text. Students closely examine textual details to identify features which contribute to their overall interpretations.

Unit Outcomes
On completion of this unit, a student should be able to:

• Respond imaginatively to a text and comment on the connections between the text and the response.
• Analyse critically features of a text, relating them to an interpretation of the text as a whole.
Mathematics Overview

In 2015 there will be three Unit 1 and 2 studies: General Mathematics (Further), General Mathematics (Specialist), and Mathematical Methods. The structure for Unit 3 and 4 consists of three studies: Further Mathematics, Specialist Mathematics and Mathematical Methods.

The following should be noted:

- Your mathematics course at Units 1 and 2 will be largely determined by what you are considering studying at Units 3 and 4, and your interest in mathematics.
- To study Mathematical Methods Units 3 and 4 you must have completed Mathematical Methods Units 1 and 2, and will have a much firmer basis if you have also completed General Mathematics (Specialist).
- To study Specialist Mathematics you must have completed General Mathematics (Specialist) and be enrolled in, or have completed, Mathematical Methods Units 3 and 4.
- When making decisions about which VCE Mathematics units to undertake, students need to refer to current information about tertiary entrance requirements and selection procedures.

When choosing your sequence of mathematics units, first consider your possible choices in Units 3 and 4, then refer to the possible sequences of Units 1 and 2 studies shown below.

**Note:** You must complete the Unit 1 and Unit 2 subjects as prerequisites for Unit 3 and Unit 4

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General Mathematics provides courses of study for diverse groups of students and may be implemented in a number of ways. The course presented here has been designed for students who intend to study Further Mathematics Units 3 and 4.

Unit 1

Unit Description
The areas of study for this unit are Algebra, Graphs of linear relations, Decision and Business Mathematics, and Data analysis. At the end of Unit 1, students will be expected to have covered the topics outlined below. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators in a variety of situations.

Areas of Study
1. Algebra:
   - Substitution and transposition in linear relations
   - The solution of linear equations, including literal linear equations
   - Developing formulas from word descriptions
   - The solution of simultaneous equations
   - The solution of worded problems involving a linear equation or simultaneous linear equations

2. Graphs of linear relations:
   - Determining gradients, intercepts and the equations of straight lines from graphs
   - Sketching straight lines given an equation
   - Simple applications of linear modelling

3. Decision and Business Mathematics:
   - Graphs of relations from linear equations and linear inequalities
   - The solution of simultaneous equations by graphical methods
   - Graphical approaches to solving simple optimisation problems using linear programming

4. Data analysis:
   - Data displays and their interpretation
   - Summary of numerical data using measures of central tendency and spread
   - Five-number summary for a set of data and its graphical representation by box plot

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key concepts in relation to the topics from the selected areas of study, and apply a range of related mathematical routines and procedures.
- Apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.
- Use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Unit 2

Unit Description
The areas of study for this unit are Data analysis, Geometry and Trigonometry, and Arithmetic. At the end of Unit 2, students will be expected to have covered the topics outlined below. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators in a variety of situations.

Areas of Study
- Data analysis:
  - Scatterplots
  - Informal interpretation of patterns and features of scatterplots
  - Correlation and regression
- Geometry and Trigonometry:
  - Similarity in two and three dimensions
  - Solution of triangles by the sine and cosine rules
  - Areas of triangles
  - Pythagoras’ Theorem in two dimensions and simple examples in three dimensions
  - Mensuration (perimeter, area, surface area and volume)
  - Right-angled triangles and solutions to problems involving right-angled triangles
  - Two-dimensional applications including angles of depression and elevation
  - Bearings and navigation
- Arithmetic:
  - Matrix addition, subtraction, multiplication by a scalar and multiplication of matrices
  - Identity and inverse matrices and their properties
  - Applications of matrices

Unit Outcomes
On completion of this unit, a student should be able to:
- Define and explain key concepts in relation to the topics from the selected areas of study, and apply a range of related mathematical routines and procedures.
- Apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.
- Use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
General Mathematics provides courses of study for diverse groups of students and may be implemented in a number of ways. The course presented here has been designed to be studied in conjunction with Mathematical Methods Units 1 and 2, and prepares students for Specialist Mathematics Units 3 and 4.

**Unit 1**

**Unit Description**
The areas of study for this unit are Algebra, Arithmetic, and Geometry and Trigonometry. At the end of Unit 1, students will be expected to have covered the topics outlined below. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

**Areas of Study**

1. **Algebra:**
   - Linear Relations and equations
   - Partial Fractions
   - Loci

2. **Arithmetic:**
   - Integer and rational number systems

3. **Geometry and Trigonometry:**
   - Trigonometric Ratios and their applications
   - Vectors

**Unit Outcomes**
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and apply a range of related mathematical procedures to solve routine problems.
- Apply mathematical processes in non-routine contexts and analyse and discuss these applications of mathematics.
- Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
General Mathematics (Specialist)

Unit 2

Unit Description
The areas of study for this unit are Arithmetic, Graphs of linear and non-linear relations, and Geometry and Trigonometry. Selected material from the areas of study provides a clear progression in key knowledge and key skills from Unit 1 to Unit 2. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

Areas of Study
1. Arithmetic:
   - Polar coordinates and complex numbers

2. Graphs of linear and non-linear relations:
   - Kinematics
   - Statics of a particle
   - Transformations

3. Geometry and Trigonometry:
   - Circular functions
   - Circle Theories

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and apply a range of related mathematical procedures to solve routine problems.
- Apply mathematical processes in non-routine contexts and analyse and discuss these applications of mathematics.
- Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Unit 1

Unit Description
The areas of study for this unit are Algebra, and Functions and Graphs. There will be a progressive development of skills and knowledge with connections across the two areas of study being developed consistently throughout Unit 1 and 2. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

Areas of Study
1. Algebra:
   - Expansion of quadratics and cubics
   - Factorisation of polynomials
   - Solving linear, quadratic and cubic equations and inequations
   - Matrices.

2. Functions and graphs:
   - Coordinate geometry
   - Sketch graphs of straight lines, quadratics, cubics, quartics, rectangular hyperbolas, the truncus, square root functions and circles
   - Graphs of power functions and their corresponding transformations.
   - Relations and functions.

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and apply a range of related mathematical procedures to solve routine problems.
- Apply mathematical processes in non-routine contexts and analyse and discuss these applications of mathematics.
- Use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.
Unit 2

Unit Description
The areas of study for this unit are Algebra, Calculus, Functions and Graphs, and Probability. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

Areas of Study
1. Algebra:
   - Index and logarithmic laws
   - Solution of exponential and logarithmic equations
   - Solution of trigonometric equations

2. Rates of change and calculus:
   - Use of gradient as a measure of the rate of change of a linear function
   - Average rate of change
   - The gradient of a curve at a point
   - The derivative function
   - Differentiation of polynomials
   - Applications of differentiation of polynomials

3. Functions and Graphs:
   - Definition of trigonometric functions
   - Graphs of trigonometric functions
   - Graphs of exponential and logarithmic functions

4. Probability:
   - Random experiments and events
   - Probability of simple and compound events
   - Counting methods
   - Successive non-independent events using conditional probabilities

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and apply a range of related mathematical procedures to solve routine problems.
- Apply mathematical processes in non-routine contexts and analyse and discuss these applications of mathematics.
- Use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.
Unit 3

Unit Description
This unit consists of a compulsory area of study, Data analysis, and then one module from the six modules in the ‘Applications’ area of study. The module to be studied in Unit 3 is Geometry and Trigonometry. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators in a variety of situations.

Areas of Study
1. Core - Data analysis:
   - Data presentation and analysis
   - Correlation and regression techniques
   - Transformations to linearity and residual analysis
   - Time series data

2. Module - Geometry and trigonometry:
   - Pythagoras’ theorem in two and three dimensions
   - Surface area and volume of solids
   - Basic trigonometry and applications
   - Trigonometry with non right-angled triangles
   - Applications of trigonometry

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and use this knowledge to apply related mathematical procedures to solve routine application problems.
- Apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.
- Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Further Mathematics

Unit 4

Unit Description
Two modules from the ‘Applications’ area of study will be studied. These modules are Graphs and relations, and Matrices. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators in a variety of situations.

Areas of Study

1. Module - Graphs and relations:
   - Straight-line graphs, line segments and step graphs
   - Simultaneous linear equations
   - Interpretation of non-linear graphs
   - Linear programming and optimisation

2. Module - Matrices:
   - Matrix representation of data
   - Application of matrix arithmetic to solving practical examples
   - Application of simultaneous linear equations and their solution
   - Application of simple transition transition matrices to analyse practical situations

Unit Outcomes
On completion of this unit, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and use this knowledge to apply related mathematical procedures to solve routine problems.
- Apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.
- Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Mathematical Methods

Units 3 and 4

Unit Description
This subject consists of a selection of content from the following areas of study: Functions and Graphs, Algebra, Calculus, and Probability. The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

Areas of Study
1. Functions and Graphs:
   • Graphs of polynomial, power, exponential, logarithmic, circular and modulus functions
   • Graphs derived from others, using transformations
   • Graphs of sum, difference, product, composite and functions

2. Algebra:
   • Factorisation of polynomials
   • Exponential and logarithm laws
   • Solution of systems of simultaneous linear equations
   • Solving exponential and logarithmic equations
   • Solving circular function equations
   • Finding inverse functions

3. Calculus:
   • Rules for derivatives of polynomial, exponential and circular functions
   • Deducing the graph of the gradient function
   • Applications of differentiation to curve sketching, stationary points, equations of tangents and normals, maximum/minimum problems and rates of change
   • Informal approximation to areas under curves by left and right rectangles
   • Informal treatment of the fundamental theorem of calculus
   • Definite and indefinite integrals
   • Properties of anti-derivatives and definite integrals
   • Application of integration to calculating the area of a region under a curve and areas between curves

4. Probability:
   • Discrete and continuous random variables
   • Bernoulli trials and two-state Markov chains
   • The Binomial distribution, as an example of a probability distribution for a discrete random variable
   • The Normal distribution, as an example of a probability distribution for a continuous random variable

Unit Outcomes
On completion of each of these units, a 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 procedures to solve routine problems.
• Apply mathematical processes in non-routine contexts and analyse and discuss these applications of mathematics.
• Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Specialist Mathematics

Units 3 and 4

Unit Description
The development of course content in these units highlights mathematical structure and proof. Specialist Mathematics Units 3 and 4 assumes concurrent or previous study of Mathematical Methods Units 3 and 4. Familiarity with basic calculus, geometry in two and three dimensions, the unit circle, and trigonometric ratios and their applications is also assumed.

The appropriate use of technology will be incorporated throughout the course and students are expected to use CAS calculators to analyse, investigate and solve problems in a variety of situations.

Areas of Study
1. Functions, relations and graphs:
   - Definition and graphs of the reciprocal circular functions cosecant, secant and cotangent
   - Trigonometric Identities, and compound and double angle formulae for sine, cosine and tangent
   - Restricted circular functions of sine, cosine and tangent, their inverses and graphs of these inverse functions
   - Rational functions, circles, ellipses and hyperbolas and their graphs
2. Algebra:
   - Partial fractions
   - Complex numbers and the representation of relations and regions in the complex plane
3. Calculus:
   - Differential and integral calculus, and their applications, numerical integration
   - Differential equations and their solution, including direction fields and numerical techniques
   - Kinematics, including the application of differential equations, velocity-time graphs and their use
4. Vectors:
   - Addition and subtraction of vectors and their multiplication by a scalar, position vectors.
   - Linear dependence and independence
   - Scalar product of two vectors; scalar and vector resolutes
   - Vector proofs of simple geometric results
   - Vector calculus
5. Mechanics:
   - Inertial mass, momentum, force, resultant force, weight, action and reaction.
   - Equations of motion.
   - Motion of a body, including frictional forces, sliding friction and the coefficient of friction

Unit Outcomes
On completion of each of these units, a student should be able to:

- Define and explain key terms and concepts as specified in the content from the areas of study, and apply a range of related mathematical procedures to solve routine problems.
- Apply mathematical processes, with an emphasis on general cases, in non-routine contexts, and analyse and discuss these applications of mathematics.
- Select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques.
Unit 1
Representation and Technologies of Representation

Unit Description
In this unit students develop an understanding of the relationship between the media, technology and the representations present in media forms. They study the relationships between media technologies, audiences and society. Students develop practical and analytical skills, including an understanding of the contribution of codes and conventions to the creation of meaning in media products, the role and significance of selection processes in their construction, the role audiences play in constructing meaning from media representations, and the creative and cultural impact of new media technologies.

Areas of Study
1. Representation
This area of study focuses on an analysis of media representations and how such representations depict, for example, events, people, places, organisations and ideas.

Students learn that media texts are created through a process of selection, construction and representation. Representations of events, ideas and stories, which may appear natural and realistic, are mediated and constructed in ways that are different from the audience’s direct experience of reality. Students develop an understanding of how media representations are subject to multiple readings by audiences who construct meaning based on a range of personal, contextual, social and institutional factors.

Representation involves the selection of images, words, sounds and ideas and the ways in which these are presented, related and ordered. Media codes and conventions, together with such factors as degrees of intended realism, the cultural and historical context of the production and institutional practices, help shape a product’s structure and meaning. Media products are approached in terms of how they are constructed for different purposes, their distribution and the ways audiences may read representations within them.

2. Technologies of representation
In this area of study students produce representations in two or more media forms. Students analyse how the application of the different media technologies affects the meanings that can be created in the representations. The implications for the creation, distribution and consumption of these representations are also discussed.

Media technologies, materials, techniques, applications and processes are used to construct representations in a variety of ways. Different media forms may have features and practices in common, but in production display unique characteristics or practices. Students consider the use of codes and conventions to convey ideas and meaning in representations within the context of the technologies used to construct these representations.

3. New media
In this area of study students explore the emergence of new media technologies. The impact and implications of new media technologies are considered in the context of the capabilities of the technologies, their relationship with existing media and how they provide alternative means of creation, distribution and consumption of media products. Students investigate the changes, possibilities and issues that arise from the development of new technologies and how these alter audience experience and understanding of the media.

Technological advancements in the media occur within the context of the society in which they are created, developed and used. Such developments, therefore, not only affect media products themselves but also change the ways audiences think about and use the media. New media may also influence perceptions of ourselves and the world. Students learn that development, convergence and proliferation of technologies change the way existing and new forms of media are transmitted, exchanged, stored and received. They develop an understanding that these changes may also challenge notions of industry, ownership, copyright, privacy and access.
Unit 2
Media Production and the Media Industry

Unit Description
In this unit students develop their understanding of the specialist production stages and roles within the collaborative organisation of media production. Students participate in specific stages of a media production, developing practical skills in their designated role. Students also develop an understanding of media industry issues and developments relating to production stages and roles and the broader framework within which Australian media organisations operate.

Areas of Study
1. Media production
   This area of study focuses on media production undertaken by students within a collaborative context and the student’s explanation of the process.

   All media representations are constructed through a production process. Production is usually undertaken in stages, often grouped under the headings of preproduction, production and postproduction, with segments of the various stages undertaken by specialist individuals or teams. Media practitioners perform specific roles in the development of a media product from its inception to completed production, distribution and/or exhibition. Students develop an understanding that as each media product progresses through the various stages of production, the work practices and conventions of each specific stage and role help shape the nature of the final media product. When students undertake their production they maintain documentation that includes preproduction media design documents, such as a treatment, screenplay, storyboards or page layouts. This documentation also identifies their involvement, responsibilities and understanding of the stages and roles in the media production process.

2. Media industry production
   In this area of study students focus on national, international and global media industry issues, and the developments in the media industry and their impact on media production stages, and specialist roles within these stages.

   Media products are the result of collaborative and specialist production stages and roles. Students learn that the degree of specialisation among production personnel varies according to the scale and context of the media production process, and that specialist stages and roles require different skills and training. They learn that employment in the industry depends on factors such as the degree of specialism required and funding of media productions, and that the work of media practitioners is influenced by developments and issues within the industry.
Areas of Study continued.....

3. Australian media organisations
   In this area of study students analyse Australian media organisations within a social, industrial and global framework.

   Media products are produced for audiences within a cultural, aesthetic, legal, political, economic, institutional and historical framework. Students learn that their production, distribution and circulation are affected by laws, self-regulatory codes of conduct, industry pressures, the practices of particular media organisations and global trends. They also learn that other factors, for example, sources of revenue, ratings, circulation and distribution, and ownership and control, influence the nature and range of texts produced by media organisations.

Unit Outcomes
On completion of Unit 1 and 2 students should be able to:

• Describe the construction of specific media representations explain how the process of representation reproduces the world differently from direct experience of it construct media representations in two or more media forms compare these representations that are produced by the application of different media technologies
• Discuss creative and cultural implications of new media technologies for the production and consumption of media products
• Demonstrate specialist production skills within collaborative media productions
• Explain and reflect on the media production process media industry issues and developments relating to the production stages of a media product
• Describe specialist roles within the media industry
• Describe characteristics of Australian media organisations
• Discuss the social, cultural and industrial framework within which such organisations operate
Music Performance

Unit 1

Unit Description
This unit focuses on performance in solo and group contexts, studying approaches to performance and performing and developing skills in aural comprehension. Students present a solo and group performance, demonstrate prepared technical work and perform previously unseen music.

Areas of Study
1. Performance skill development:
   - Practice and performance of the solo technical work on the main instrument for development and maintenance of control and dexterity, range of styles and performance techniques
   - Practice and performance of prepared program of solo and group work by a range of composers and/or performers with differentiation between the works
   - Interpretation and, where appropriate, improvisation in the style being prepared or for the performance
   - Performance techniques showing cooperation and empathy with an accompanist as appropriate to the instrument
   - Presentation techniques of music performance appropriate to the style presented in the work.
   - Fluent performance of unprepared material

2. Music craft:
   - Approaches used by other performance to optimise performance that can assist the development of the students work
   - Selected influences on the works being prepared for the performance
   - Ways of improving identified aspects of the student's performance

3. Music language for performance:
   - Different ways scales forms, harmony, duration and texture are used individually and in combination by a range of composers, arrangers and creators of music
   - Scale forms, including major harmonic and both melodic minor forms
   - Diatonic intervals in a melodic context
   - Chords and chord progression in major and minor keys
   - Rhythms, including those in simple quadruple and triple time
   - Structures of melodies in a variety of major and minor keys
   - Conventions in music notation that will assist students to increase sensitivity in interpreting music

Unit Outcomes
On completion of this unit students should be able to:

- Perform a program of contrasting solo and group works, selected solo technical works and works that demonstrate unprepared performance skills.
- Analyse and evaluate the selected influences on works being prepared for performance and approaches that can be used to optimize performance of those works.
- Describe how instruments are used in combination using selected elements of music, and recognize, sing and write scales, intervals, chords and rhythms using conventions in music notation.
Unit 2

Unit Description
This unit continues the development of accuracy, control, flexibility and dexterity in music performance skills on an instrument as a soloist and in a group. Students interpret and perform a range of styles using a diverse range of performance techniques.

Areas of Study
1. Performance skill development:
   • Practice and performance of solo technical work on the main instrument for development and maintenance of accuracy, control, flexibility and dexterity, range of styles and performing techniques
   • Practice and performance of a prepared program of solo and group works by a range of composers and/or performers
   • Interpretation and where appropriate improvisation of the style being prepared for performance
   • Performance techniques showing cooperation and empathy with an accompanist where appropriate to the instrument
   • Presentation techniques of music performance appropriate to the style represented in the work
   • Background of composers and/or performers and socio-cultural and/or geographic influences relevant to performance of selected work
   • Fluent performance of unprepared material
   • Expressive use of solo instruments in combination, including balance of dynamics and tones, and blend of tones

2. Contextual issues and analysis of works:
   • Background of composers and/or performers and issues relevant to the performance of selected works
   • Form or structure of works looking at the whole work or a major section of a work
   • Characteristic patterns in selected works that are expressive or have meaning
   • Characteristic ways textures are used to shape the musical statement in selected works
   • Characteristics of selected works that are typical of historical music stylistic periods
   • Characteristics of composers and/or performer's individual styles presented in selected works
   • Characteristics in selected works that use elements of music and combine elements of music
   • Expressive use of solo instruments in combination, including balance of dynamics and tones and blend of tones
   • Music examples and other graphic representation in selected works

3. Music language for performance:
   • Rhythms structures for recognition, singing and transcription
   • Pitch structures for recognition, singing and transcription
   • Conventions in traditional music notation on a music manuscript
   • Characteristic and idiomatic use of instruments in orchestrations and arrangements
   • Expressive use of solo instrument/s in combination, including balance of dynamics and tones and blend of tones

4. Creative organisation of sound:
   • Aspects of music language used in devising original work include range and characteristics of different instruments in orchestrations and arrangements
   • Use of instruments in combination
   • Music forms and structures
   • Conventions in traditional music notation on music manuscript
Unit 2 continued....

**Unit Outcomes**

On completion of this unit students should be able to:

- Demonstrate developing performance and presentation skills in performing a program of contrasting solo and group works, selected technical work and work that demonstrates unprepared performance.
- Discuss the contextual issues and describe the characteristics and style represented in the works, the structure of the works and expressive features relevant to performance of works selected for performance.
- Recognise, sing and write scales, interval and chords; transcribe rhythms and melodies; use conventions in music notations and describe how instruments are used in combination.
- Devise a composition or improvisation that uses music language drawn from an analysis of selected works prepared for performance.
Unit 3

Unit Description
This unit prepares students to present convincing performances of group and solo works. In this unit students select a program of group and solo works representing a range of styles and diversity of character for performance. They develop instrumental techniques that enable them to interpret the works and expressively shape their performances. They also develop an understanding of performance conventions they can use to enhance their performances. Students develop skills in unprepared performance, aural perception and comprehension, transcription, music theory and analysis.

The focus for analysis in Area of Study 3 is works and performances by Australian musicians.

Area of Study 1
Performance
Outcome 1
On completion of this unit the student should be able to present an informed, accurate and expressive performance of a program of group and solo works.
To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge:
• a program of group and solo works that represents a range of music styles and diversity of character, including a work/s composed since 1910 and accompanied/unaccompanied works as appropriate to the instrument/group
• strategies for preparing performances of selected group and solo works
• strategies for developing accuracy, fluency and control in group and solo performance
• idiomatic instrumental tone qualities and ways to achieve clarity and variation of tone
• ways of achieving shape in music through control and variation of expressive elements of music
• strategies for developing informed interpretations of works that demonstrate appropriate balance between relevant personal, ensemble, stylistic, practical, technological, historical and cultural influences

Area of Study 2
Performance Technique
Outcome 2
Key knowledge:
• strategies for developing effective technical practice routines, including ways of incorporating use of ICT
• idiomatic instrumental techniques to develop accuracy, control, fluency, flexibility, dexterity, security, coordination and tone
• performance techniques relevant to technical, expressive and/or stylistic challenges in selected group and/or solo works
• strategies for optimising group rehearsals and presenting group performances, including rehearsal time management, and ways of communicating within the group and with the audience
• performance techniques associated with developing ways of achieving appropriate blend, balance, intonation, tempo, dynamics, articulation, leading and following in performance of selected group and/or solo works
• strategies related to physical and psychological wellbeing that improve performance outcomes
• strategies for reflecting on and evaluating personal development as an instrumentalist and ability to perform technical, expressive and/or stylistic aspects of selected group and solo works
Music Performance - Group or Solo Performance

Unit 3 continued....

- strategies for achieving systematic development of unprepared performance skills, including, as appropriate, sight reading and/or improvisation as relevant to selected performance contexts
- technical considerations relevant to sound production and/or sound reinforcement as appropriate to acoustic properties of performance venues, style and character of selected works and performance context.

Area Of Study 3
Musicianship
Outcome 3

In this area of study students systematically develop music theory knowledge and skills in aural comprehension and analysis. They develop and refine their ability to identify, recognise, notate and transcribe short music excerpts, as well as to re-create short sections of music by singing, humming and/or playing. Students practise and refine their ability to notate music by hand. They develop an understanding of ways expressive elements of music can be interpreted in the performance of music works. They apply this knowledge to their analysis of ways in which Australian performers have interpreted a variety of works by Australian composers/songwriters that have been created after 1910.
Unit 4

Unit Description
In this unit students refine their ability to present convincing performances of group and solo works. Students select group and solo works that complement works selected in Unit 3. They further develop and refine instrumental and performance techniques that enable them to expressively shape their performance and communicate their understanding of the music style of each work. Students continue to develop skills in aural perception and comprehension, transcription, theory, analysis and unprepared performance. Students continue to study ways in which Australian performers interpret works that have been created since 1910 by Australian composers/songwriters.

Area of Study 1

Performance
Outcome 1
Key knowledge:

- a program of works that represents a range of music styles and diversity of character, including a work/s composed since 1910 and accompanied/unaccompanied works as appropriate to the instrument/group
- strategies for preparing and refining performances of selected group and solo works
- strategies for refining accuracy, fluency and control in group and solo performance
- idiomatic instrumental tone qualities and ways to achieve clarity and variation of tone
- Music Performance Unit 4
- ways of achieving shape in music through control and variation of expressive elements of music
- strategies for developing and refining informed interpretations of works that demonstrate appropriate balance between relevant personal, ensemble, stylistic, practical, technological, historical and cultural influences
- historical and contemporary conventions and contextual influences relevant to interpretation and performance of selected works
- strategies for developing and refining communication, interaction, cooperation and empathy with other musicians as appropriate to performance of selected works
- stylistic characteristics, musical structures and use of other elements of music in selected works
- roles of, and relationships between, instrumental voices in selected group works, or parts within the texture of solo works
- a variety of approaches to interpretation of selected works by other performers
- presentation techniques, including conventions of performance that are appropriate to the instrument/s, ensemble/s, works, styles and performance space.

Area of Study 2

Performance technique
Outcome 2
Key knowledge:

- strategies for developing effective technical practice routines, including ways of incorporating use of ICT
- idiomatic instrumental techniques to achieve accuracy, control, fluency, flexibility, dexterity, security, coordination and tone
- performance techniques relevant to technical, expressive and/or stylistic challenges in selected group and/or solo works
- strategies for optimising group rehearsals and presenting effective group performances, including rehearsal time management and ways of communicating within the group and with the audience
Music Performance – Group or Solo Performance

Unit 4 continued....

• performance techniques associated with developing ways of achieving appropriate blend, balance, intonation, tempo, dynamics, articulation, leading and following in performance of selected group and/or solo works
• strategies related to physical and psychological wellbeing that improve performance outcomes
• strategies for reflecting on and evaluating personal development as an instrumentalist and ability to communicate musical intentions in performance of selected works
• strategies for achieving systematic development of unprepared performance skills, including, as appropriate, sight reading and/or improvisation as relevant to selected performance contexts
• technical considerations relevant to effective sound production and/or sound reinforcement as appropriate to acoustic properties of performance venues, style and character of selected works and performance context.

Area of Study 3

Musicianship
Outcome 3

In this area of study students consolidate knowledge and skills developed in Unit 3 Outcome 3. Students continue systematic work to develop skills in theory, aural comprehension and analysis. They further develop and refine their ability to identify, recognise, notate and transcribe short music excerpts, as well as to re-create short sections of music by singing, humming and/or playing. Students practise and refine skills in notating music by hand. They develop a more sophisticated understanding of ways in which expressive elements of music can be interpreted in music works. They apply this knowledge to their analysis of ways in which Australian performers have interpreted works by Australian composers/songwriters created after 1910.

Assessment

Assessment of Levels Of Achievement
The student’s level of achievement for Unit 4 will be determined by School-assessed Coursework and two end-of-year examinations.

Contribution to final assessment
School-assessed Coursework for Unit 4 will contribute 10 per cent.

End-of-year examinations
The level of achievement for Units 3 and 4 is also assessed by an end-of-year performance examination that contributes 50 per cent, and an end-of-year aural and written examination that contributes 20 per cent.

End-of-year performance examination
Description
The student will give a live performance in only one of the following contexts:
• as a member of a group OR
• as a soloist.

The live performance will draw on knowledge and skills from Unit 3 Outcome 1 and Unit 4 Outcome 1. The examination will be assessed by a panel of examiners using criteria published annually by the Victorian Curriculum and Assessment Authority.

An examination is defined as a single assessment period.
Music Performance – Group or Solo Performance

Unit 4 continued....

**Group performance examination**
Students will present a live performance of at least four contrasting works that represent a range of styles and diversity of character. At least two works in the program must be selected from the Units 3 and 4 Prescribed List of Group Works published annually on the Victorian Curriculum and Assessment Authority website. Details of examination and program requirements are published in the prescribed list.

**Solo performance examination**
Students will present a live performance of works selected from the Units 3 and 4 Prescribed List of Notated Solo Works published annually on the Victorian Curriculum and Assessment Authority website. Details of examination and program requirements specific to each instrument including the number of works to be performed are published in the prescribed list.
Unit 1
Bodies in Motion

Unit Description
In this unit students explore how the body systems work together to produce movement and analyse this motion using biomechanical principles. They are introduced to the aerobic and anaerobic pathways utilised to provide the muscles with the energy required for movement and the basic characteristics of each pathway. Students apply biomechanical principles to improve and refine movement. Students also study injury prevention and rehabilitation strategies.

Areas of Study
1. Body Systems and Human Movement
   This area of study students examine the systems of the human body and how they translate into movement. Through practical activities they explore the major components of the musculoskeletal, cardiovascular and respiratory systems and their contributions and interactions during physical activity. Anaerobic and aerobic pathways are introduced and linked to the types of activities that utilise each of the pathways.

2. Biomechanical Movement Principles
   In this area of study students examine biomechanical principles underpinning physical activity and sport. Through their involvement in practical activities, students investigate and analyse movements in a variety of activities to develop an understanding of how the correct application of biomechanical principles leads to improved performance.

3. Injury Prevention and Rehabilitation
   In this area of study, students focus on sports injury risk management strategies used to reduce the risk of injury to the participant/athlete, and the rehabilitation practices and processes an individual/athlete may use to ready them for a return to sport and physical activity. Students analyse and demonstrate a range of different strategies that may be implemented at a club, an administration, a coaching or an individual level.

Unit Outcomes
On completion of this unit the student should be able to:

- Collect and analyse information from, and participate in, a variety of practical activities to explain how the musculoskeletal, cardiovascular and respiratory systems function, and how the aerobic and anaerobic pathways interact with the systems to enable human movement.
- Collect and analyse information from, and participate in, a variety of practical activities to explain how to develop and refine movement in a variety of sporting actions through the application of biomechanical principles.
- Observe, demonstrate and explain strategies used to prevent sports injuries, and evaluate a range of techniques used in the rehabilitation of sports injuries.
Physical Education

Unit 2
Sports Coaching and Physically Active Lifestyles

Unit Description
This unit explores a range of coaching practices and their contribution to effective coaching and improved performance of an athlete. Students are introduced to physical activity and the role it plays in the health and wellbeing of the population. Through a series of practical activities, students gain an appreciation of the level of physical activity required for health benefits and investigate how participation in physical activity varies across the lifespan. They explore a range of factors that influence participation in regular physical activity, and collect data to identify perceived barriers and the ways in which these barriers can be overcome.

Areas of study
1. Effective coaching practices
   In this area of study students focus on the roles and responsibilities of a coach as well as looking at coaching pathways and accreditation. Students apply the various coaching skills by participating in practical coaching activities.

2. Physically Active lifestyles
   This area of study focuses on the range of physical activity options in the community. Health benefits of participation in regular physical activity and health consequences of physical inactivity and sedentary behaviour are explored at individual and population levels. Students explore the dimensions of the National Physical Activity Guidelines and investigate the current status of physical activity and sedentary behaviour from an Australian perspective. Students investigate factors that facilitate involvement in physical activity and consider barriers to participation for various population groups. Students create and implement a program that encourages compliance with the National Physical Activity Guidelines for a given age group.

3. Decision making in sport
   This detailed study introduces students to an understanding of games and sport, including how they are categorised. Through a series of practical activities students analyse and interpret different strategies and tactics used within game situations, and approaches to coaching that develop a player’s ability to implement an appropriate strategic decision.

Unit Outcomes
On completion of this unit the students should be able to

- Demonstrate their knowledge of, and evaluate, the skills and behaviours of an exemplary coach, and explain the application of a range of skill learning principles used by a coach
- Collect and analyse data related to individual and population levels of participation in physical activity, and sedentary behaviour, and create and implement
- Explain the importance of interpreting game play and selecting appropriate tactics and strategies in sports
Unit 3
Physical Activity Participation and Physiological Performance

Unit Description
This unit introduces students to an understanding of physical activity and sedentary behaviour from a participatory and physiological perspective. Students apply various methods to assess physical activity and sedentary levels, and analyse the data in relation to adherence to the National Physical Activity Guidelines. Students study and apply the social-ecological model to identify a range of Australian strategies that are effective in promoting participation in some form of regular activity.

Students investigate the contribution of energy systems to performance in physical activity. In particular, they investigate the characteristics of each system and the interplay of the systems during physical activity. Students explore the multi-factorial causes of fatigue and consider different strategies used to delay and manage fatigue and to promote recovery.

Areas of Study
1. Monitoring and promotion of physical activity
   This area of study uses subjective and objective methods for assessing the student's own and another cohort's physical activity and sedentary levels. Students analyse the advantages and limitations of each of these methods to determine the most appropriate measure for a given setting. Students identify components of the social-ecological model to assist in the critique of government and non-government strategies aimed at increasing physical activity within the population.

2. Physiological responses to physical activity
   In this area of study students explore the various systems and mechanisms associated with the energy required for human movement. They consider the cardiovascular, respiratory and muscular systems and the roles of each in supplying oxygen and energy to the working muscles. They examine the way in which energy for activity is produced via the three energy systems and the associated fuels used for activities of varying intensity and duration. Students also consider the many contributing factors to fatigue as well as recovery strategies used to return to pre-exercise conditions. Through practical activities students explore the relationship between the energy systems during physical activity.

Unit Outcomes
On completion of this unit, a student should be able to:

- Analyse individual and population levels of sedentary behaviour and participation in physical activity, and evaluate initiatives and strategies that promote adherence to the National Physical Activity Guidelines.
- 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 fatigue mechanisms and recovery strategies.
Unit 4
Enhancing Performance

Unit Description
Improvements in performance, in particular fitness, depend on the ability of the individual or coach to gain, apply and evaluate knowledge and understanding of training. Students undertake an activity analysis. Using the results of the analysis, they then investigate the required fitness components and participate in a training program designed to improve or maintain selected components. Athletes and coaches aim to continually improve and use nutritional, physiological and psychological strategies to gain advantage over the competition. Students learn to critically evaluate different techniques and practices that can be used to enhance performance, and look at the rationale for the banning or inclusion of various practices from sporting competition.

Areas of Study
1. Planning, implementing and evaluating a training program
   This area of study focuses on the components of fitness and assessment of fitness from a physiological perspective. Students consider the manner in which fitness can be improved by the application of appropriate training principles and methods. Students conduct an activity analysis of an elite athlete to determine the fitness requirements of a selected sport. They participate in fitness testing and an individual training program and evaluate this from a theoretical perspective.

2. Performance enhancement and recovery practices
   This area of study explores nutritional, physiological and psychological strategies used to enhance performance. Students examine legal and illegal substances and methods of performance enhancement and develop an understanding of different anti-doping codes. Students consider strategies used to promote recovery, including nutritional, physiological and psychological practices.

Unit Outcomes
On completion of this unit, a student should be able to:

- Plan, implement and evaluate training programs to enhance specific fitness components.
- Analyse and evaluate strategies designed to enhance performance or promote recovery.
Physics

Unit 1

Unit Description
This unit focuses on the wave-like properties of light, nuclear and radioactivity physics, and a third area of study to be chosen from: astronomy, medical physics or energy from the nucleus.

Areas of Study
1. Nuclear and radioactivity physics:
   - Model radioactive decay as random decay
   - Apply a simple particle model of the atomic nucleus to the origin of radiation
   - Describe the effect of radiation on humans
   - Describe the effects of ionizing radiation on the environment
   - Describe nuclear transformations
   - Describe natural and artificial isotopes and neutron absorption as one means of production of artificial radioisotopes
   - Identify sources of bias and error in written and other media related to nuclear and radioactivity physics
   - Use information sources to assess risk in the use of nuclear reactions and radioactivity
2. Electricity:
   - Apply charge conservation and energy to electrical phenomena
   - Model circuit relationships mathematically
   - Model resistance in series and parallel circuits
   - Model simple electrical devices, car and household electrical systems as simple direct current circuits
   - Model household electricity connections as a simple circuit comprising fuses, switches, circuit breakers loads and earth
   - Identify causes and effects of treatment of electric shock in homes and relate these to danger threshold for current and time
   - Investigate practically the operation of simple circuits
   - Convert energy values to kilowatt-hour
   - Use safe and environmentally responsible practices in the use of electrical equipment and power supplies
3. One study to be selected from:
   - Astronomy
   - Medical physics
   - Energy from the nucleus
   - Astrophysics
   - Investigation: Flight
   - Investigation: Sustainable Energy Sources
Unit 1 Continued....

Unit Outcomes
Students should be able to:

- The unit focuses on Physics as a human endeavour. The detailed studies provide opportunities to explore the application of energy concepts and models in nuclear energy, sustainable energy sources, flight, space and medical contexts.
- Describe the uses and effects of nuclear reactions and radioactivity in industry, the environment and the general community.
  - (a) Use observations to explain the motions of the stars, planets and describe models of planetary motion.
  - or
  - (b) Describe and explain applications of radioisotopes, optical fibres, waves and lasers to medical diagnosis and treatment and describe the production and/or simple interpretation of images of the human body produced by CT, X-rays or ultrasound.
  - or
  - (c) Describe and explain typical fission and fission reactions, and energy transformation phenomena of importance in stars in the use of nuclear energy.
**Unit 2**

**Unit Description**
This unit of study consists of movement, electricity, and a third area of study to be chosen from: astrophysics, investigations: aerospace or investigations: alternative energy sources.

**Areas of Study**

1. **Motion:**
   - Describe non-uniform and uniform motion along a straight line graphically
   - Analyse motion along a straight line graphically, numerically and algebraically
   - Describe how changes in movement are caused by the actions of forces
   - Explain movement in terms of the Newtonian model and some of its assumptions
   - Compare the accounts of the action of forces by Aristotle, Galileo and Newton
   - Apply the vector model of forces to readily observable forces including weight, friction and reaction forces
   - Interpret energy transfers and transformations using energy conservation models applied to ideas of work, energy and power
   - Apply graphical, numerical and algebraic models to primary data collected during practical investigations

2. **Wave like properties of light:**
   - Explain how models are used by physical scientists to organize and explain observed phenomena
   - Model wave behaviour as the transfer of energy
   - Describe examples of transverse and longitudinal waves
   - Describe mathematically connections between wavelength, frequency, period and speed of travel waves
   - Identify visible light as a particular region of a spectrum of transverse electromagnetic radiation
   - Apply a wave model of energy transfer to visible light and electromagnetic spectrum
   - Describe polarization of visible light
   - Describe the colour components of white light and colour effects
   - Evaluate the strengths and limitations of a wave model applied to a light phenomena
   - Describe the ray model of a light as derived from a wave model
   - Model refraction effects mathematically, using Snell’s Law
   - Describe colour dispersion in prisms and lenses
   - Use information sources to assess risk in the use of light sources, lasers, lenses and mirrors
   - Recognize and adopt safe practices in the use of light sources, lasers and optical devices

3. **One study to be selected from:**
   - Astronomy
   - Medical physics
   - Energy from the nucleus
   - Astrophysics
   - Investigation: Flight
   - Investigation: Sustainable Energy Sources
**Physics**

**Unit 2 Continued....**

**Learning Outcomes**

Students should be able to:

- Describe and explain movement of particles and bodies in terms of Aristotelian, Galilean and Newtonian theories.
- Students to see the light phenomena through examples of the interaction of the physical world with human biology.
  - (a) Describe and explain methods used to gather information about stars and other astronomical objects and relate this information to models of the nature and origin of the Universe;
  - or
  - (b) Design an experimental investigation into an aspect of aerospace technology and report on the investigation using Newton’s and Bernoulli’s theories;
  - or
  - (c) Use concepts of energy transfer and transformations to design and report on an experimental investigation into an aspect of alternative energy.
Unit 3

Unit Description
This unit focuses on motion in one and two dimensions, electronics and photonics and a third area of study chosen from: Einstein’s relativity, investigating structures and materials, or further electronics.

Areas of Study

1. Motion in one and two dimensions:
   - Newton’s three laws of motion, the absolute nature of space and time
   - Apply Newton’s laws of motion to situations involving two or more forces
   - Analyse the ideal motion of projectiles near the Earth’s surface graphically and algebraically
   - Analyse relative speed of objects along a straight line in two dimensions
   - Analyse impulse and momentum transfers between objects moving along a straight line
   - Analyse transfers of energy between kinetic energy, potential energy and other forms of energy
   - Analyse planetary and satellite motion
   - Use uniform information sources to assess risk in the use of moving objects and equipment

2. Electronics and photonics:
   - Apply concepts of current, voltage power to operation of electronic circuits
   - Simplify circuits comprising parallel and series resistance and unloaded voltage dividers
   - Describe the effect of voltage characteristics of a single stage non transistor voltage
   - Analyse voltage characteristics of amplifiers including linear voltage gain and clipping
   - Use technical specifications related to voltage, current resistance, power illumination for electronic components
   - Analyse simple electronic transducer circuits
   - Compare and contrast bandwidth for information transfer in simple metal wire and optic fibres
   - Describe energy transfers and transformations in electrical – optical and optical – electrical conversion systems
   - Describe the transfer of energy in opto-electronic devices.
   - Use information sources to assess risk in the use of electrical, electronic and photonic equipment

3. Detailed study
   Choose one of the following
   - Einstein’s relativity
   - Investigating structures and materials
   - Further electronics
   - Photonics
   - Sound
   - Synchrotron

Learning Outcomes

Students should be able to:

- Use the Newtonian model in one and two dimensions to describe and explain transport motion and related aspects of safety, and motion in space.
- Compare and explain the operation of electronic and photonic devices and analyse their use in domestic and industrial systems.
Physics

Unit 4

Unit Description
This unit covers the complex interactions of light and matter. A field model of electromagnetism is applied to the generation, distribution and use of electric power.

Areas of Study
1. Electric power:
   - Apply a field model to magnetic phenomena
   - Apply a field model to define magnetic flux
   - Explain the generation of voltage
   - Quantify magnetic forces on current carrying wires
   - Describe the operation of simple DC motors
   - Describe the generation of voltage in generators and alternators
   - Use $rms$ values for a sinusoidal AC voltage
   - Compare sinusoidal AC voltage produced as a result of uniform rotation of a loop in a constant magnetic flux
   - Explain transformer action
   - Model mathematically transmission losses
   - Use information sources to assess risk in the use of electricity

2. Interactions of light and matter:
   - Explain the results of Young's double slit experiment
   - Interpret the pattern produced by light when it passes through a gap
   - Interpret the photoelectrical effect as evidence for the particle-like nature of light
   - Interpret electronic diffraction patterns as evidence for the wave like nature of matter
   - Distinguish between the momentum of photons and the momentum as applied to the wave like nature of matter
   - Interpret atomic absorption and emission spectra in terms of quantized energy level model of the atom
   - Interpret the emission and absorption spectra of hydrogen in terms of the model in which the electrons are found
   - Use information sources to assess risk in the use of light sources, lasers and related equipment
Learning Outcomes

- To use wave and photon models to explain interactions of light and matter and the quantized energy levels of atoms.
- To explain the operation of electric motors, generators and alternators and the generation, transmission, distribution and use of electric power.
- In the detailed studies students look at aspects of synchrotron, photonics or sound and its applications.
Psychology

Unit 1
Introduction to Psychology

Unit Description
This area of study introduces the nature and scope of psychology as a scientific discipline. Students learn about the processes involved in psychological research, the evidence-based nature of findings in psychology, and ethical principles in the practice and conduct of psychology and psychological research.

Area of Study
1. Introduction to psychology:
   - Scope of psychology including specialist career fields and fields of application and their contribution to understanding human behaviour
   - Classic and contemporary theories that have contributed to the development of psychology from philosophical beginnings to an empirical science, including the relationship between psychology and psychiatry
   - Differences between contemporary psychological research methods and non-scientific approaches to investigating and explaining human behaviour
   - Major perspectives (biological, behavioural, cognitive and socio-cultural), that govern how psychologists approach their research into human behaviour
   - Application of psychological perspectives to explain visual perception:
     ~ characteristics of the visual perceptual system and the visual processes involved in detecting and interpreting visual stimuli
     ~ the effect of psychological factors on perceptual set
     ~ distortions of visual perceptions by illusions
   - Research methods and ethics associated with the study of psychology

2. Lifespan Psychology
   - Stages of the lifespan: infancy, childhood, adolescence, early adulthood, middle age and old age;
   - The interaction between heredity and environmental factors ‘nature versus nurture’ in influencing psychological development;
   - Classic and contemporary theories that contribute to an explanation of psychological development including:
     ~ perceptual development: Eleanor Gibson’s work on infant perception
     ~ emotional development: John Bowlby and Mary Ainsworth’s work on attachment theory with reference to Harry Harlow’s work on attachment in monkeys
     ~ cognitive development: Jean Piaget’s four-stage theory
     ~ psycho-social development: Erik Erikson’s eight-stage theory
     ~ moral development: Lawrence Kohlberg’s six-stage theory;
   - The nature and incidence of mental illness in the population and across the lifespan
   - Research methods and ethics associated with the study of lifespan psychology.

Learning Outcomes
Students should be able to:

- Describe how research has informed different psychological perspectives used to explain human behaviour, and explain visual perception through these perspectives.
- Describe a range of psychological development theories and conduct an investigation into one stage in the lifespan of an individual.
Psychology

Unit 2
Self and Others

Unit Description
Understanding what influences the formation of attitudes of individuals and behaviours of groups can inform and contribute to explanations of individual aggression or altruism, the positive and negative power of peer pressure, and responses to group behaviour.

Differences between individuals can also be ascribed to differences in intelligence and personality, but conceptions of intelligence and personality and their methods of assessment are contested. Differences between individuals, groups and cultures can be analysed in varied ways through different psychological perspectives informed by both classic and contemporary theories.

Areas of Study
1. Interpersonal and group behaviour:
   - Classic and contemporary theories and studies relating to the formation and change of attitudes, including the applications and limitations of the tri-component model of attitudes
   - The interrelationship between attitudes, prejudice and discrimination:
     ~ factors contributing to the development of prejudice
     ~ factors which may reduce prejudice: inter-group contact (sustained contact, mutual interdependence, equality), cognitive interventions and super-ordinate goals
     ~ social and cultural grouping, stigma, stereotypes and prejudice: gender, race and age;
   - Social influences on the individual:
     ~ effects of status and social power within groups, informed by researchers such as Zimbardo
     ~ factors affecting obedience including social proximity, legitimacy of authority figures and group pressure, informed by researchers such as Milgram
     ~ factors affecting conformity, including normative influence and culture, informational influence, unanimity, group size, deindividuation and social loafing, informed by researchers such as Asch, and Smith and Bond
     ~ ways in which a group may influence others to change their behaviour including peer pressure, risk-taking behaviour;
   - Pro- and anti-social behaviour of the individual:
     ~ characteristics of, and factors influencing, pro-social behaviour: situational (bystander intervention and effect), social norms-reciprocity principle; social responsibility norm; personal (empathy, mood, competence); altruism
     ~ characteristics of, and factors influencing, anti-social behaviour: diffusion of responsibility; audience inhibition; social influence; cost-benefit analysis
     ~ social learning theory, including the work of Bandura
     ~ explanations of aggression from ethological, biological, psychodynamic and social learning perspectives;
   - Research methods appropriate to the measurement of attitudes and behaviours
   - The extent to which ethical principles are applied to research investigations into attitudes and behaviours

2. Intelligence and personality:
   - The concept of intelligence and factors that influence intelligence, including the interaction of genetic and environmental factors;
   - Classic and contemporary approaches to describing intelligence, including:
     ~ Howard Gardner’s theory of multiple intelligences
     ~ Robert Sternberg’s triarchic theory of intelligence
     ~ Cattell-Horn-Carroll model of psychometric abilities
     ~ Salovey and Mayer’s ability-based model of emotional intelligence;
Psychology

Unit 2 Continued….

- Strengths and limitations of scientific methodologies used to measure intelligence, including:
  - Intelligence Quotient (IQ)
  - Standford-Binet test
  - Weschler's Intelligence Scales;
- The concept of personality, including characteristic patterns of thoughts, feelings and behaviours of an individual, and the influence of genetic and environment factors
- Classic and contemporary theories of describing and classifying personality:
  - psychodynamic including the work of Sigmund Freud
  - trait theories including the work of Gordon Allport, Raymond Cattell (16 personality factor model), Hans Eysenck (PEN model), Costa and McRae (NEO-PI/Five Factor model)
  - humanistic including the person-centred theory of Carl Rogers
- The use of personality and aptitude inventories in vocational selections and workplace settings:
  - Myers-Briggs Type Indicator (MBTI)
  - Holland’s Self Directed Search
- Strengths and limitations of methodologies used to describe and classify personality, including the use of projective tests:
- Research methods and ethics associated with investigations into intelligence and personality

Learning Outcomes
- Explain how attitudes are formed and changed, and discuss the factors that affect the behaviour of individuals and groups.
- Compare different theories of intelligence and personality, and compare different methodologies used in the measurement of these.
Unit 3
The Conscious Self

Unit Description
This unit focuses on the study of the relationship between the brain and the mind through examining the basis of consciousness, behaviour, cognition and memory.

Areas of Study
1. Mind, Brain and Body
   Why do I think and feel the way I do? How does my brain work? What is the relationship between my brain and my mind? What happens when I sleep?

Key knowledge:
- concepts of normal waking consciousness and altered states of consciousness, including daydreaming, meditative and alcohol-induced, in terms of levels of awareness, content limitations, controlled and automatic processes, perceptual and cognitive distortions, emotional awareness, self-control and time orientation
- sleep as an altered state of consciousness: purpose, characteristics and patterns of the stages of sleep including rapid eye movement (REM) and the non-rapid eye movement (NREM) stages of sleep
- methods used to study the level of alertness in normal waking consciousness and the stages of sleep:
  - measurement of physiological responses including electroencephalograph (EEG), electrooculargraph (EOG), heart rate, body temperature and galvanic skin response (GSR)
  - the use of sleep laboratories, video monitoring and self reports
- the effects of total and partial sleep deprivation:
  - loss of REM and NREM sleep
  - sleep recovery patterns including amount of sleep required, REM rebound and microsleeps
  - sleep-wake cycle shifts during adolescence compared with child and adult sleep including delayed onset of sleep and need for sleep
- the interaction between cognitive processes of the brain and its structure including:
  - roles of the central nervous system, peripheral nervous system (somatic and autonomic), and autonomic nervous system (sympathetic and parasympathetic)
  - roles of the four lobes of the cerebral cortex in the control of motor, somatosensory, visual and auditory processing in humans; primary cortex and association areas
  - hemispheric specialisation: the cognitive and behavioural functions of the right and left hemispheres of the cerebral cortex, non-verbal versus verbal and analytical functions
- contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including:
  - studies of aphasia including Broca's aphasia and Wernicke's aphasia
  - spatial neglect caused by stroke or brain injury
  - split-brain studies including the work of Roger Sperry and Michael Gazzaniga
- research methods and ethical principles associated with the study of the brain and states of consciousness, as outlined in the introduction to the unit.
2. Memory

Why do I remember some things and forget others? How are memories formed? Can I improve my memory? These questions highlight the characteristics of memory as a cognitive process.

Key knowledge:
- mechanism of memory formation:
  - role of the neuron in memory formation informed by the work of E. Richard Kandel
  - roles of the hippocampus and temporal lobe and anygdala
  - consolidation theory
  - memory decline over the lifespan
  - amnesia resulting from brain trauma and neurodegenerative diseases including dementia and Alzheimer’s disease
- comparison of models for explaining human memory:
  - Atkinson-Shiffrin’s multi-store model of memory including maintenance and elaborative rehearsal, serial position effect and chunking
  - Alan Baddeley and Graham Hitch’s model of working memory: central executive, phonological loop, visuo-spatial sketchpad, episodic buffer
  - levels of processing as informed by Fergus Craik and Robert Lockhart
  - organisation of long-term memory including declarative and episodic memory, and semantic network theory
- strengths and limitations of psychological theories of forgetting:
  - forgetting curve as informed by the work of Hermann Ebbinghaus
  - retrieval failure theory including tip-of-the-tongue phenomenon
  - interference theory
  - motivated forgetting as informed by the work of Sigmund Freud including repression and suppression
  - decay theory
- manipulation and improvement of memory:
  - measures of retention including the relative sensitivity of recall, recognition and relearning
  - use of context dependent cues and state dependent cues
  - mnemonic devices including acronyms, acrostics, narrative chaining
  - effect of misleading questions on eye-witness testimonies including the reconstructive nature of memory informed by the work of Elizabeth Loftus
- research methods and ethical principles associated with the study of memory, as outlined in the introduction to the unit.

Learning Outcomes
- Explain the relationship between the brain, states of consciousness including sleep, and behaviour, and describe the contribution of selected studies and brain research methods
- Compare theories that explain the neural basis of memory and factors that affect its retention, and evaluate the effectiveness of techniques for improving and manipulating memory
Psychology

Unit 4
Brain, Behaviour and Experience

Unit Description
This unit focuses on the interrelationship between learning, the brain and its response to experiences, and behaviour. The overall quality of functioning of the brain depends on experience, and its plasticity means that different kinds of experience change and configure the brain in different ways. Students investigate learning as a mental process that leads to the acquisition of knowledge, development of new capacities and changed behaviours. Understanding the mechanisms of learning, the cognitive processes that affect readiness for learning, and how people learn informs both personal and social issues.

Areas of Study
1. Learning
   How do we learn? Why do some people learn faster than others? How important are role models in shaping behaviour?

Key knowledge:
- behaviours not dependent on learning including reflex action, fixed action patterns and behaviours due to physical growth and development (maturation)
- neural mechanisms of learning:
  ~ developmental plasticity and adaptive plasticity of the brain: changes to the brain in response to learning and experience; timing of experiences
- applications of, and comparisons of, learning theories:
  ~ classical conditioning as informed by Ivan Pavlov: roles of neutral, unconditioned, conditioned stimuli; unconditioned and conditioned responses
  ~ applications of classical conditioning: graduated exposure, aversion therapy, flooding
  ~ three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement
  ~ applications of operant conditioning: shaping, token economies
  ~ comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)
  ~ trial-and-error learning
  ~ observational learning (modelling) processes in terms of the role of attention, retention, reproduction, motivation, reinforcement as informed by Albert Bandura’s social learning theory
- the extent to which ethical principles were applied to classic research investigations into learning including John Watson’s ‘Little Albert’ experiment
- research methods and ethical principles associated with the study of learning, as outlined in the introduction to the unit.
Psychology

Unit 4 continued....

2. Mental health
What does mental health mean? How can ‘normality’ be defined? Is feeling stressed ‘normal’? What is the relationship between mental health and illness? How can mental wellbeing be enhanced?

Key knowledge:
- concepts of normality and differentiation of mental health from mental illness
- systems of classification of mental conditions and disorders: underlying principles of classification; strengths and limitations of discrete categorical (DSM-IV and ICD-10) and dimensional (graded and transitional) approaches to classification of mental disorders
- use of a biopsychosocial framework (the interaction and integration of biological, psychological and social factors) as an approach to considering physical and mental health
- application of a biopsychosocial framework to understanding the relationship between stress and physical and mental wellbeing:
  ~ physiological and psychological characteristics of responses to stress including fight-flight response, eustress and distress;
  ~ psychological determinants of the stress response; strengths and limitations of Richard Lazarus and Susan Folkman’s Transactional Model of Stress and Coping
  ~ social, cultural and environmental factors that exacerbate and alleviate the stress response
  ~ allostasis (stability through change brought about by the brain’s regulation of the body’s response to stress) as a model that integrates biological, psychological and social factors that explain an individual’s response to stress
  ~ strategies for coping with stress including biofeedback, meditation/relaxation, physical exercise, social support
- application of a biopsychosocial framework to understanding ONE of the following types of mental disorder and its management:
  1. Anxiety Disorder: Specific Phobia:
     ~ biological contributing factors: role of the stress response; role of the neurotransmitter gammaamino butyric acid (GABA) in the management of phobic anxiety
     ~ psychological contributing factors: psychodynamic, behavioural and cognitive models; the use of psychotherapies in treatment including cognitive behavioural therapy (CBT), systematic desensitisation and flooding
     ~ socio-cultural contributing factors: specific environmental triggers such as being bitten by a dog; parental modelling and transmission of threat information
     ~ the interaction between biological, psychological and socio-cultural factors which contribute to an understanding of the disorder and its management
  OR
  2. Mood disorder: major depression:
     ~ biological contributing factors: role of genes in contributing to the risk of developing major depression; roles of the neurotransmitters serotonin and noradrenaline in major depression; the function of antidepressant medication in management
     ~ psychological contributing factors: learned helplessness; stress; the use of psychotherapies in management including cognitive behaviour therapy and psychodynamic psychotherapy
     ~ socio-cultural contributing factors: abuse, poverty, social isolation and social stressors as risk factors; support factors including family and social networks and recovery groups
     ~ the interaction between biological, psychological and socio-cultural factors which contribute to an understanding of the disorder and its management
Unit 4 continued....

OR

3. Addictive disorder: gambling
   ~ biological contributing factors: role of the dopamine reward system and as a target for treatment
   ~ psychological contributing factors: social learning theory and schedules of reinforcement; the use of psychotherapies in treatment including cognitive behavioural and psychodynamic therapies
   ~ socio-cultural contributing factors: social permission of gambling opportunities; management including social network and recovery groups
   ~ the interaction between biological, psychological and socio-cultural factors which contribute to an understanding of the disorder and its management

OR

4. Psychotic disorder: schizophrenia
   ~ biological contributing factors: genetic predisposition; drug-induced onset; changes in brain activity; the use of medication that blocks dopamine to treat psychosis
   ~ psychological contributing factors: impaired mechanisms for reasoning and memory; the use of psychotherapies in management including cognitive behavioural and remediation therapies, stress management
   ~ socio-cultural contributing factors: social disadvantage, trauma and psycho-social stress as risk factors; psychoeducation, supportive social (including family) environments, removal of social stigma
   ~ the interaction between biological, psychological and socio-cultural factors which contribute to an understanding of the disorder and its management

1. research methods and ethical principles associated with the study of mental health, as outlined in the introduction to the unit.

Unit Outcomes
On completion of this unit, a student should be able to:

- Explain the neural basis of learning, and compare and contrast different theories of learning and their applications.
- Differentiate between mental health and mental illness, and use a biopsychosocial framework to explain the causes and management of stress, simple phobia and a selected mental disorder.
Unit 1
Artistic Inspiration and Techniques

Unit Description
This unit focuses on using sources of inspiration and individual ideas as the basis for developing artworks and exploring a wide range of materials and techniques as tools for communicating ideas, observations and experiences through artmaking.

Students also explore and research the ways in which artists from different times and cultures have interpreted and expressed ideas, sourced inspiration and used materials and techniques in the production of artworks.

Areas of Study
1. Developing art ideas:
   This area of study focuses on the development of individual ideas and the identification of sources of inspiration to be used as starting points for making art. Students explore artmaking practices that use a variety of methods to communicate and develop ideas. Students explore different sources as starting points for the making of artworks. These may include reflections on personal experiences, ideas and issues as well as the observations of people, societies, natural and constructed objects and environments. Various methods of recording sources of inspiration are identified and developed into a visual language through a variety of ways. Students consolidate their experience through the development of their individual ideas and the artwork they produce.

2. Materials and techniques:
   This area of study focuses on the use of materials and techniques in the production of artworks. Students explore a range of materials and techniques. They develop skills and learn to safely manipulate particular characteristics and properties of materials. They investigate the way various visual effects and aesthetic qualities can be achieved. Students convey individual ideas through the use of different materials and techniques. To consolidate the knowledge gained, students undertake a process of reflection and evaluation in written and visual forms of the work produced.

3. Interpretation of art ideas and use of materials and techniques
   This area of study focuses on the way artists from different times and cultures have interpreted ideas and sources of inspiration and used materials and techniques in the production of artworks. The work of artists from different times and cultures is studied in order to gain a broader understanding of how artworks are conceived and produced. Students begin to compare and contrast the way artists have used similar and different materials and techniques and interpreted ideas and sources of inspiration in producing artworks. Students research a range of resources to support the identification and discussion of materials and techniques appropriate to artists’ work, becoming familiar with art language and with some of the terminology used in art analysis.
Unit Outcomes
On completion of this unit the student should be able to:

- Source inspiration, identify individual ideas and use a variety of methods to translate these into visual language.
- Explore and use a variety of materials and techniques to support and record the development of individual ideas to produce artworks.
- Discuss how artists from different times and cultures have interpreted sources of inspiration and used materials and techniques in the production of artworks.
Unit 2
Design Exploration and Concepts

Unit Description
This unit focuses on students establishing and using a design process to produce artworks. The design process includes the formulation and use of an individual approach to locating sources of inspiration, experimentation with materials and techniques, and the development of aesthetic qualities, directions and solutions prior to the production of artworks. Students also develop skills in the visual analysis of artworks. Artworks made by artists from different times and cultures are analysed to understand the artists' ideas and how they have created aesthetic qualities and identifiable styles.

Areas of Study
1. Design exploration
   This area of study focuses on developing artworks through an individual design process based on visual research and inquiry. In developing an individual design process, students learn to explore ideas and sources of inspiration. Students respond to stimuli to generate ideas related to context and items; for example, the environment, personal experiences and human emotion. They experiment with materials and techniques, practise skills and use art elements including line, tone, shape, colour, texture and other elements such as sound and light, to produce particular aesthetic qualities. Students learn to generate a range of directions, and analyse and evaluate these before the production of artworks.

2. Ideas and styles in artworks
   This area of study focuses on an analysis of artworks. Artworks by artists and/or groups of artists from different times and cultures are analysed in order to understand how art elements and principles are used to communicate artists' ideas, and create aesthetic qualities and identifiable styles. These art elements include line, tone, shape, colour, texture and may include other elements such as sound and light. Visual principles may include repetition, scale and space. The use of signs, symbols and images for their implied meaning are also identified and discussed. In analysing artworks, students further develop appropriate art terminology and skills in researching and using a variety of references.

Unit Outcomes
On completion of this unit the student should be able to:
• Develop an individual design process, including visual research and inquiry, in order to produce a variety of design explorations to create a number of artworks.
• Analyse and discuss the ways in which artists from different times and cultures have created aesthetic qualities in artworks, communicated ideas and developed styles.
Unit 3
Studio Production and Professional Practices

Unit Description
The focus of this unit is the implementation of the design process leading to the production of a range of solutions. Students use an exploration proposal to define an area of exploration and apply a design process to explore and develop their ideas.

Students will research developments in a particular studio form and investigate traditional and contemporary practices of artists.

Areas of Study
1. Design process:
   - Development of an exploration proposal
   - Definition and documentation of an area of exploration
   - Exploration and development of individual and creative responses to the ideas in the exploration proposal
   - Identification and investigation of sources of inspiration
   - Conceptual and aesthetic development of subject matter
   - Materials and techniques appropriate to the area of exploration
   - Documentation of the process of making informed choices during the design process, based on reflection, analysis, evaluation and selection
   - Methods of organising and planning the development of art works
   - Methods of developing a range of creative solutions

2. Professional practices:
   - The ways in which artists interpret artistic influences, cultural contexts and ideas in order to develop distinctive styles and approaches to subject matter
   - The ways in which changing materials and techniques have affected artistic practices
   - Traditional and contemporary work environments and their affect on artists’ professional practice
   - The ways in which new and emerging media technologies are influencing selected art form(s) and practice(s)

Unit Outcomes
On completion of this unit, a student should be able to:

- Present a design process which defines an area of exploration in an exploration proposal, explore and develop the ideas described in the work brief and produce a range of potential solutions
- Examine and discuss traditional and contemporary working practices in relation to a particular art form(s) and the ways in which artists interpret artistic influences, cultural contexts and ideas in developing distinctive styles.
Unit Description
The focus of this unit is to produce a cohesive folio of finished art works and to gain an understanding of artists’ involvement in the art industry.

Artists rarely produce single unrelated pieces of finished work. A body of work is created over time and usually demonstrates continuity and development. Materials, techniques and aesthetics are reworked to enhance visual qualities and to more clearly convey the artist’s intentions. Artistic risks are taken and conventions often challenged in resolving the needs of a particular project.

On exhibiting work the artist enters the realm of the art industry where galleries, curators, designers and conservators play various roles. In the promotion and critiquing of art works various issues arise which create debate about the content and context of art in a contemporary setting.

Areas of Study
1. Studio production:
   - Refining and applying materials and techniques and utilising their particular characteristics
   - The exploration and refinement of visual form in order to communicate ideas
   - Communication and resolution of the ideas presented in the work brief
   - The production of a cohesive folio of art works
   - Methods of presenting art works appropriate to the art form

2. Art industry contexts:
   - The roles of public galleries and other art spaces
   - The approaches, methods and roles related to curatorship, exhibition design and conservation in preserving and presenting artists’ work
   - Ethical considerations and regulations that affect the use made of the work of other artists in the making of new art work

Unit Outcomes
On completion of this unit, a student should be able to:

- Produce a cohesive folio of finished art works which has developed from a design process and which resolves the aims and intentions set out in the work brief formulated in Unit 3
- Research, analyse and evaluate roles and methods involved in the presentation of art works to an audience and discuss contemporary art industry issues
Unit 1
Pre-modern Theatre

Unit Description
This unit focuses on the application of acting and other stagecraft in relation to theatrical styles of the pre-modern era - up to 1920.

Periods from the pre-modern era of theatre include Ancient Greek, Roman, Liturgical drama such as morality/miracle/mystery plays, Italian and Commedia Dell’Arte, Elizabethan and Shakespearean, Restoration comedies and dramas, Naturalism/Realism and non-Western Theatre such as Noh Theatre and Kabuki.

Areas Of Study
1. Pre-modern theatre
2. Interpreting playscripts
3. Analysing a play in performance

Key skills and knowledge applicable to all areas of study:
• Characteristics and features of three or more pre-modern theatre periods
• Approaches to interpreting text in play scripts
• Use and application of theatrical styles, acting skills and stagecraft to shape performances of play scripts
• Approaches to creating and manipulating actor-audience relationships in performance
• Theatre terminology and expressions

Unit Outcomes
• On completion of this unit the student should be able to identify and describe the distinguishing features of pre-modern theatre play scripts
• On the completion of this unit students should be able to apply acting and other stagecraft to interpret play scripts from the pre-modern era
• On completion of this unit the student should be able to analyse a performance of a play script
Unit 2
Modern Theatre

Unit Description
In this unit students study theatrical styles and stagecraft through working with play scripts in both their written form and in performance with an emphasis on the application of stagecraft. Students work with play scripts from the modern era, focussing on works from the 1920s to the present. They study theatrical analysis and production evaluation and apply these skills to the analysis of a play in performance. Theatrical movements in the modern era include Epic Theatre, Theatre of the Absurd, Expressionism and Physical Theatre.

Areas Of Study
1. Modern Theatre
2. Interpretation through stagecraft
3. Analysing a play in performance

Outcomes
• On completion of this unit the student should be able to identify and describe the distinguishing features of modern era theatre play scripts
• On completion of this unit the student should be able to apply stagecraft to interpret play scripts from the modern era
• On completion of this unit students should be able to analyse and evaluate stagecraft in a performance of a play script

Assessment tasks for both units are selected from the following:
• Performance of play scripts from the pre-modern and modern eras
• Oral/visual/multimedia reports/presentations
• Tests
• Responses to structured questions
• Research report

At least two assessment tasks must be performance-based
Unit 1
Introduction to Visual Communication Design

Unit Description
This unit focuses on using visual language to communicate messages, ideas and concepts. This involves acquiring and applying design thinking skills as well as drawing skills to make messages, ideas and concepts visible and tangible. Students practise their ability to draw what they observe and they use visualisation drawing methods to explore their own ideas and concepts. Students develop an understanding of the importance of presentation drawings to clearly communicate their final visual communications. Through experimentation and through exploration of the relationship between design elements and design principles, students develop an understanding of how design elements and principles affect the visual message and the way information and ideas are read and perceived. Students review the contextual background of visual communication through an investigation of design styles. This research introduces students to the broader context of the place and purpose of design.

Areas of Study
1. Drawing as a means of communication
   This area of study introduces the skill set that underpins the discrete design process stages of generating ideas, developing concepts and refining drawings. It focuses on the development of visual language and design thinking skills. Students use observational, visualisation and presentation drawing as the means by which ideas and concepts are communicated. Through observational drawing students consider reasons for the choices designers make regarding the aesthetics, appearance and function of objects/structures. Students investigate ways of representing form and surface textures, and apply different materials and media to render drawings. Students use drawing methods such as paraline and perspective to create three-dimensional freehand drawings that maintain proportion. Students use these observational drawings as a starting point for visualising new design possibilities. They creatively use a range of media to generate drawings that represent alternative visualisations. Freehand visualisation drawing methods are used to make thinking visible and to communicate ideas. Drawing is also used as a means of presentation. Students learn how to produce resolved presentation drawings which are more refined and demonstrate an understanding of the application of selected media and materials.

2. Design elements and design principles
   This area of study focuses on design elements and design principles. Students experiment with these elements and principles when using freehand and image-generation methods such as photography, digital photography, printmaking and collage to visualise ideas and concepts. They investigate purposes for creating visual communications and consider how the relationship between design elements and design principles contributes to achieving these purposes. Through addressing a stated purpose, students are introduced to a skill set that underpins the design process stages of generation of ideas and development of concepts.

3. Visual communication design in context
   Visual communication design draws on a broad range of sources to support creativity and innovation. Historical and cultural practices and the values and interests of different societies influence innovation in visual communication designs. Through a case study approach, students explore how visual communications have been influenced by social and cultural factors and past and contemporary visual communication practices. Students consider the works of key designers in terms of visual language and the use of materials, methods, media, design elements, design principles and presentation formats. This area of study introduces students to the design process stage of research.

Outcomes in Unit 1
- On completion of this unit the student should be able to:
  - Create drawings for different purposes using a range of drawing methods, media and materials.
  - Select and apply design elements and design principles to create visual communications that satisfy stated purposes.
  - Describe how a visual communication has been influenced by past and contemporary practices, and by social and cultural factors.
Unit 2
Applications of Visual Communication Design

Unit Description
This unit focuses on the application of visual communication design knowledge, design thinking skills and drawing methods to create visual communications to meet specific purposes in designated design fields. Students use presentation drawing methods that incorporate the use of technical drawing conventions to communicate information and ideas associated with the environmental or industrial fields of design. They investigate how typography and imagery are used in visual communication design. They apply design thinking skills when exploring ways in which images and type can be manipulated to communicate ideas and concepts in different ways in the communication design field. Students develop an understanding of the design process as a means of organising their thinking about approaches to solving design problems and presenting ideas. In response to a brief, students engage in the stages of research, generation of ideas and development of concepts to create visual communications.

Areas of Study

1. Technical drawing in context
   This area of study focuses on the acquisition and application of presentation drawing skills that incorporate the use of technical drawing conventions. These drawings present information and ideas associated with a specific design field. One of the following design fields is selected for detailed study:
   - environmental design or
   - industrial/product design

   Within the environmental design field, students can focus on a specific area such as architectural, interior or landscape design. Within the industrial design field, students can focus on a specific area such as appliances/homewares, packaging, tools and transport. In the selected design field students investigate ways in which information and ideas can be communicated to a client and draw on these understandings when creating presentation drawings. They acquire knowledge and skills related to technical drawing conventions and apply these when representing forms using two- and three-dimensional presentation drawings appropriate to the selected field. Students use manual and/or digital methods to create the drawings.

2. Type and imagery
   Increasing advancements in the digital communication of information and their popularity has led to a greater need for understanding the meaning and function of typography in visual language. In this area of study students develop knowledge and skills in manipulating type and images when communicating ideas and concepts in the design field of communication. Within the field of communication design, students can focus on areas such as graphic design, packaging/surface design and brand identity. They consider historical and contemporary factors that have influenced the style and layout of print and screen-based presentation formats. Students develop and apply skills in selecting and manipulating type to evoke different moods and emotions, and use a range of manual and digital methods when creating and manipulating images. Students consider the suitability of file formats of images for print and on-screen presentations and the relationship between images and type when communicating ideas and concepts. They use imagination and creative thinking techniques to stimulate curiosity and the development of divergent options when selecting and manipulating images and type for print and screen-based presentations. Broadly, in this area of study students focus on the design process stages of generating ideas and development of concepts. Students develop knowledge of their legal obligations regarding ownership of images and type and apply this knowledge when visually communicating ideas and concepts.
Visual Communication and Design

Unit 2 continued............

3. Applying the design process
   This area of study focuses on the application of specific stages of the design process to organise thinking about approaches to solving design problems and presenting ideas. Students respond to a given brief addressing communication, environmental or industrial fields of design that outlines the messages or information to be conveyed to a target audience. The brief also provides a basis for reflection, as students develop an understanding of the iterative nature of this process by revisiting stages to meet the brief’s requirements. In response to a given brief, students engage in research and analysis to support their interpretation of the brief and as stimulus for imagining and generating ideas. Drawing on their creativity, students use a range of manual and/or digital methods, media and materials to generate ideas for further development. Students reflect on these options and further develop their preferred one. In response to their own evaluation, using the brief as a point of reference, students refine and present their visual communication. Throughout the design process students accumulate and annotate their drawings as part of their ongoing evaluation to assist with creating visual communications.

Outcomes in Unit 2
   On completion of this unit the student should be able to:
   
   • Create presentation drawings that incorporate relevant technical drawing conventions and effectively communicate information and ideas for a selected design field.
   • Manipulate type and images to create visual communications suitable for print and screen-based presentations, taking into account copyright.
   • Engage in stages of the design process to create a visual communication appropriate to a given brief.
Unit 3
Design Thinking and Practice

Unit Description
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, 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 analysis of visual communication designers to support the development of their own work. They establish a brief and apply design thinking skills 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. Design from a variety of historical and contemporary design fields is considered by students to provide directions, themes or starting points for investigation and inspiration for their own work. Students use observational and visualisation drawings to generate a wide range of design ideas and apply design thinking strategies to organise and evaluate their ideas. The brief and investigation work underpin the developmental and refinement work undertaken in Unit 4.

Areas of Study

1. Analysis and practice in context
   In this area of study students explore a range of existing visual communications in the communication, environmental and industrial design fields. The focus of each design field is:
   - communication – the design and presentation of visual information to convey ideas and concepts
   - environmental – the design and presentation of visual information for built/constructed environments
   - industrial – the design and presentation of visual information for manufactured products.

   Students analyse how design elements, design principles, methods, media and materials are used in visual communications in these fields to achieve particular purposes for targeted audiences. Students draw on their findings from the analysis to inform the creation of their own visual communications and they articulate these connections. In response to given stimulus material, students apply skills to create visual communications for different purposes, audiences and contexts using a range of manual and digital methods, media and materials. The visual communications created by students include a two- and/or three-dimensional presentation drawing.

2. Design industry practice
   In this area of study students investigate how the design process is applied in industry to create visual communications. Students develop an understanding of the processes and practices used to support collaboration between clients, designers and specialists when designing and producing these visual communications. Students develop an understanding of the function of the brief and approaches to its development. They examine how design and production decisions made during the design process are influenced by a range of factors. Students develop an understanding of the legal obligations of designers and clients with respect to ownership of intellectual property and how these obligations may affect decision making.
3. Developing a brief and generating ideas
In this area of study students gain a detailed understanding of three stages of the design process: development of a brief, research and the generation of ideas. Students develop an understanding of the contents of a brief and the critical role that it plays in forming the direction and boundaries for their research and generation of ideas. They apply this knowledge when developing a single brief that proposes and defines two distinct communication needs for a real or imaginary client. When defining the two needs for the client, students establish two clearly different directions that are distinct in their intentions and that will result in separate final presentation formats. For each need, consideration must be given to the target audience, the purposes of the communication and the possible contexts. These become the criteria to inform further decisions in the design process, and students must apply this process twice; once for each need. Students undertake research to gather information about each of the client’s needs and for inspiration in responding to the brief. Ideas are generated and explored, and possible methods, media and materials are investigated. Books, magazines, films, popular media, the internet, photographs, interviews, exhibitions and site visits can serve as sources of inspiration and information. Copyright and source acknowledgment conventions are observed. The findings of the research and explorations are collated and then analysed using annotations and sketches to explain how they may be used to satisfy the brief. Students use both observational and visualisation drawings to investigate and document their ideas and approaches. Students apply design thinking techniques to support creative and reflective thinking and to organise their ideas. This work informs the evaluation and selection of design ideas that are developed into design concepts and presented as final visual communications in Unit 4.

Unit Outcomes
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.
- Describe how visual communications are designed and produced in the design industry and explain factors that influence these practices.
- Be able to apply design thinking skills in preparing a brief, undertaking research and generating a range of ideas relevant to the brief.
Visual Communication and Design

Unit 4
Design Development and Presentation

Unit Description
The focus of this unit is 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 needs. Having completed their brief and generated ideas in Unit 3, students continue the design process by developing and refining concepts for each 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 with their target audience. As students revisit stages to undertake further research or idea generation when developing and presenting their design solutions, they develop an understanding of the iterative nature of the design process. Ongoing reflection and evaluation of design solutions against the brief assists students with keeping their endeavours focused. Students refine and present two visual communications within the parameters of the brief. They reflect on the design process and the design decisions they took in the realisation of their ideas. They evaluate their visual communications and devise a pitch to communicate their design thinking and decision making to the client.

Areas of Study

1. Development of design concepts
   In this area of study students focus on the design process stages of the development of concepts and refinement. Using separate design processes, students develop and refine design concepts that satisfy each of the needs of the brief established in Unit 3. When selecting ideas to develop as concepts, students must ensure that each idea is discernibly different in intent and presentation format. Students manipulate and apply design elements and design principles to create concepts that attract the interest of their target audience and convey the messages, ideas and information required to satisfy the brief. Students explore and develop expertise in a range of appropriate manual and digital methods, materials and media for use in the design solutions for the brief. Two-dimensional and three-dimensional drawing methods may be used to assist with visualising and presenting solutions and determining proportions and scale if appropriate. Students apply design thinking techniques and use mock-ups to test and evaluate the suitability of each design concept. For each selected concept they further refine it in preparation for the final presentation. Students apply techniques to acquire feedback and to reflect and record the design thinking behind their decision making.

2. Final presentations
   This area of study focuses on the final stage in the design process, the resolution of presentations. Students produce two final visual communication presentations, which are the refinements of the concepts developed in Outcome 1. This involves selecting and applying materials, methods, media, design elements and design principles appropriate to the designs and selected presentation formats. Students explore ways of presenting their final visual communications that attract and engage the target audiences.

3. Evaluation and explanation
   In this area of study students devise a pitch to present and explain their visual communications. Their pitch is informed by an evaluation of the ways that the final visual communications meet the requirements of the brief and the design decisions made throughout the design process. Students explain their thinking behind each visual communication and the reasons for their selection and use of particular materials, media and methods, design elements, design principles, and presentation formats. They draw on their annotations and reflections assembled during the design process to evaluate the effectiveness of their design solutions in relation to the requirements of the brief. Students consider client responses to their pitch. They may respond to questions and offer further clarification of their visual communication.
Unit 4 Continued..................

Unit Outcomes
On completion of this unit the student should be able to:

- Develop distinctly different design concepts for each need, and select and refine for each need a concept that satisfies each of the requirements of the brief.
- Be able to produce final visual communication presentations that satisfy the requirements of the brief.
- Be able to devise a pitch to present and explain their visual communications to an audience and evaluate the visual communications against the brief.