Foreword

To the students of Year 12 (2015):

Choosing your VCE subjects is a complex task. No doubt you will be influenced by your studies in the current year, by parents and friends, even the media. The ‘other side’ of the issue though, is your own needs and skills. Trying to bring these two influences together to determine the program you undertake requires time and patience for all involved.

Warrandyte High School offers a diverse curriculum which aims to meet the needs of each individual. The school will provide you with an extensive, formal counselling program. In addition you will have access to other expertise, to computer programs and to information sessions. But it is essential that you consider your own capabilities.

Your ‘may make changes to the subjects you have chosen at a later date, as you improve your understanding of various subjects on offer or as you further consider your career options. You should also be aware that the final subject offerings will be dependent on the teaching resources we have available. A small number of subjects may not run if student demand is not sufficient.

In addition to the extensive academic program offered throughout the school, you are encouraged to participate in a wide variety of enrichment programs. These include the school production, instrumental music, interschool sport, debating and the SRC. Whilst life at VCE level is both busy and challenging, our purpose is to provide an environment in which you can develop as an independent learner, and in an atmosphere which is supportive and caring.

I urge you to be thoughtful about your choice. Do not be afraid of a challenge. At Warrandyte High School we will provide all the support we can to ensure you make a sensible, realistic choice. It has to be a choice that best suits you.

I wish you well.

Stephen Parkin
Principal
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VCE Procedures and processes

The Victorian Certificate of Education (VCE) is normally a two year course of study but may be taken over a longer period. At Warrandyte High School the normal program is:

- 12 units at Year 11 (6 units each semester)
- 10 units at Year 12 (5 units each semester)
- capable students in Year 11 may undertake study in two Year 12 subjects
- capable students in Year 10 may undertake study in two Year 11 subjects

1. Requirements for Satisfactory Completion
In order for the VCE to be awarded, students must satisfactorily complete 16 units of study, including:

- The English requirement is 3 units of English from the English group (English, Literature, English Language, or English as Additional Language EAL) with at least one unit at Unit 3 or Unit 4 level (both if seeking tertiary entrance score i.e. ATAR score).
- at least 3 sequences of units at level 3 and 4, in addition to English.

Satisfactory completion of a unit is based upon completion of all Outcomes specified for that unit. Decisions as to whether the Outcomes have been satisfactorily completed are made by the school in accordance with Victorian Curriculum Assessment Authority (VCAA) regulations.

2. Assessment and Reporting
Satisfactory completion of a unit is based on satisfactory achievement of the Outcomes for each study as specified by the VCAA.

Year 11
Graded assessments for units 1 & 2 of the VCE are determined by the school. A written report from the school will be given at the end of each semester for units 1 & 2. The school report will provide:

- letter symbol “S” (Satisfactory Completion) or “N” (Non-satisfactory Completion) for each Outcome
- letter symbol grading on Assessment Tasks
- written comment by each teacher.

Year 12
Assessment of Units 3 & 4 is based on:

- performance in coursework assessment tasks completed in class
- performance in examinations set by VCAA

Students receive a written report at the end of semester one for Unit 3 only. The school report will provide a letter symbol “S” (Satisfactory Completion) or “N” (Non-satisfactory Completion) for each Outcome.
3. Grading

A+ to E  
10 levels of satisfactory achievement

UG  
assessment task not satisfactory

NA (not assessed)  
assessment task not done  (Assessment tasks completed but not graded due to lateness or resubmission of unsatisfactory work)

4. Procedures to be followed if absent from an Assessment Task

If students are absent for an assessment task they must:
  a) Contact the school as soon as possible
  b) Provide a medical certificate when they return to school

If students are absent for a School Assessed Coursework (SAC) or School Assessed Task (SAT) for non-medical reasons they must also consult with their year level leader prior to the task and provide appropriate documentation to support their application. Extension of time will not be automatically granted.

If students are absent without meeting the above criteria they will receive an N for that Outcome.

Completing missed school assessed tasks

Students whose absences are approved will be required to complete the assessment at the earliest opportunity as determined by the class teacher and/or the Year Level Leader.

5. Student Attendance

It is important that students are present in all classes so that they can achieve as well as possible.

- Classroom attendance is compulsory and a requirement of the VCE. Students must attend 90% of classes or they may receive an N for the unit.
- Students who miss classes cannot expect teachers to spend additional time assisting them with missed coursework. It is the student’s responsibility to catch up on any missed work.
- Students are expected to provide a doctor’s certificate if absences are to be excessive.
- Periods without scheduled classes are study time and are to be used for study purposes. On occasion, scheduled study sessions may involve students being required at school for planned activities. At other times, it may involve students in unsupervised excursions and research outside the school. Students without scheduled classes must study in the library or the VCE Centre. It is not free time.
- Students must not leave the school before they have finished all classes for each day. VCE students can arrive late and leave early if they have no scheduled classes. However, once at school they cannot leave the school until their formal classes for that day are completed.
- It is important that students fully utilise private study periods. Regular study together with a balanced social life is the best guarantee of success in the VCE
6. Authentication
Authentication is the term used to cover the procedures for ensuring that the work submitted by students for School Assessed Coursework (SACs) and School Assessed Tasks (SATS) is genuinely their own.
Students must submit for assessment only work that is their own. All assistance received by the student producing the work must be acknowledged and be obvious to the reader.
Students must be responsible for ensuring that the teacher has no difficulty in authenticating their work. They should understand that teachers cannot authenticate work about which they have doubts until further evidence is provided. Attendance and completing work in class are safeguards in authenticating work.

VCAA rules
If there is doubt as to the authenticity of work, the student may be requested to present before a panel of up to three teachers — the study teacher and up to two representatives of the Principal. In these cases the student will be given at least 24 hours notice in writing and may be accompanied by a parent or friend in a support role. At this interview the student will be given the opportunity to convince the panel of the authenticity of the work.
Where the school is satisfied, on the basis of evidence, that a student has submitted work that is not his or her own, the Principal determines the resulting action for the breach of rules in accordance with VCAA guidelines.
This action could include:
- making arrangements for a student to resubmit the work;
- refusing to accept the work;
- cancelling the result of the School Assessed Coursework.

7. Special Provision
Special provision may need to be given for students who for particular reasons are not able to fully meet the criteria for satisfactory completion of course work.

Criteria for determining eligibility for Special Provision
Special provision criteria apply to students who are affected to a significant degree by permanent disability or illness, by any factors relating to personal environment, or by another serious cause during the period in which course work has been undertaken. It is the responsibility of the student to formally notify the Year Level Leader of the details of circumstances relating to the student’s application.

8. Course Changes
Amendments will be accepted only after appropriate negotiations take place between the student, parent, Year Level Leader and Careers Advisor. Parents must agree to course amendments in writing prior to any changes being affected. These decisions must be made within TWO weeks of the new semester commencing in order to ensure that:
- the increased workload for staff is not unreasonable
- the student’s workload does not become excessive. It is the student’s responsibility to ensure that all class work conducted prior to his/her arrival is completed.
VET (Vocational Education and Training)

Features of VET
- It enables students to complete a nationally-recognised vocational qualification (eg. Certificate II in Hospitality Operations) and the Victorian Certificate of Education (VCE) at the same time
- Students can receive credit towards further study
- It is one of several vocationally-orientated school programs designed to meet the needs of industry
- It helps make school leavers more ‘job ready’ providing them with broad vocational skills and a high standard of general education

Contribution to the VCE
VET is incorporated into the VCE. Key features include:
- VET programs reflect a four Unit structure
- Up to eight of the units of study may be VET units obtained across two VET programs
- Up to two of the three sequences other than English can be approved VET Unit 3 & 4 sequences
- Most VET programs contribute directly to the ATAR score

VET at Warrandyte High School
VET Interactive Digital Media and VET Sport and Recreation Units 1 & 2 are usually taken by Year 10 students but some places may be available for Year 11 students.

VET in the Mullum Cluster
- An association of 26 schools established to share the delivery of VET
- State, Catholic and Independent schools are members of the Mullum Cluster
- VET information will be available from the Careers office in October
- Most programs are on Wednesday afternoon
- Students are responsible for transport arrangements
- VET programs available to our students will be outlined to them during our careers counselling sessions. Please note these programs incur a cost.
<table>
<thead>
<tr>
<th><strong>Glossary</strong></th>
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| **VCAA**  
The Victorian Curriculum Assessment Authority is the government authority responsible to the Minister of Education for conducting the VCE. |
| **ATAR (AUSTRALIAN TERTIARY ADMISSION RANK)**  
The overall ranking on a scale of zero to 99.95 that a study receives based on his/her study scores. The ATAR is calculated by VTAC and used by universities and TAFE institutes to select students for courses. Formerly known as Equivalent National Tertiary Entrance Rank (ENTER). |
| **GAT**  
The General Achievement Test has been established by the VCAA as a means of determining those SACs and SATs which will be reviewed. Each student undertaking a unit 3 and 4 study must complete the GAT. |
| **LEARNING OUTCOMES**  
What students must know, or be able to do, by the time they have finished a unit. These outcomes are assessed by student performance in SACs and SATs. |
| **SATISFACTORY COMPLETION**  
When a student has passed a unit, they get an ‘S’ for the unit. If students do not satisfactorily complete a unit, they get an ‘N’ for it. |
| **SCHOOL ASSESSED COURSEWORK (SAC)**  
This assesses each student’s level of achievement on the Assessment Tasks specified in the study design. These are done in class as timed activities. |
| **SCHOOL ASSESSED TASK (SAT)**  
A folio or product produced by a student in an Art or Technology study. These tasks are set and assessed using criteria set by VCAA. |
| **SEMESTER**  
The equivalent of half a school year. |
| **SEQUENCE OF UNITS**  
Most studies are being developed as a sequence of four units, with one unit being designed to be taken at each semester level. Units at the third and fourth semester levels are designed to be taken as a pair due to the requirements of external assessment. |
| **STATEMENT OF RESULTS**  
A set of documents which formally state the results you achieved in the VCE, and whether you have graduated. |
STUDIES
The subjects available in the VCE.

STUDY DESIGN
VCAA develops and approves a study design for each VCE study. The study design describes the units available within the study and outlines the objectives, broad areas of content, outcomes and assessment procedures for each unit. Schools will develop courses for units of study.

STUDY SCORE (RELATIVE POSITION)
The measure of the student’s relative position in the cohort of students undertaking the study. This is reported as a score out of 50 for each study.

UNIT
Semester length component of a study representing 50 - 60 hours of formal class time.

VCE
The VCE (Victorian Certificate of Education) is a common certificate to mark the successful completion of secondary schooling. It will be awarded to students who satisfactorily complete a program of studies normally undertaken over four semesters in Years 11 & 12.

VET
Vocational Education and Training

VTAC
Victorian Tertiary Admissions Centre. This body is involved with compilation of tertiary entrance requirements and determining aggregate scores for tertiary institutions.
Course and Career Information

It is essential Tertiary Entrance Requirements are checked before selecting VCE program.

Resources

- www.vtac.edu.au (comprehensive information for Year 10-12 students)
- The Age/Herald Sun-Tertiary Entrance Requirement supplement for Year 10 students
- VTAC guide (for Year 12 students) available from newsagents in July
- Job Guide - all students have been issued with a copy
- Careers room has all the latest tertiary information

Tertiary institutions include:

- www.latrobe.edu.au
- www.monash.edu.au
- www.deakin.edu.au
- www.rmit.edu.au
- www.swin.edu.au
- www.unimelb.edu.au
- www.acu.edu.au
- www.vu.edu.au
- www.ballarat.edu.au
- www.bhtafe.edu.au
- www.nmit.vic.edu.au
- www.angliss.edu.au

Accelerated VCE program

Year 11 students may elect to study up to two Unit 3 & 4 subjects (Year 12 subject) in their program. It would be expected that these students would be highly committed and have achieved high grades in Year 10. Application needs to be made to be considered for this program.

Preference will be given to those students who have already undertaken the Unit 1&2 sequence in the same subject.
## Unit Descriptions

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<th><strong>COMPULSORY</strong></th>
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<th>English</th>
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<td><strong>Health &amp; PE</strong></td>
<td>Unit 3 &amp; 4</td>
<td>Health &amp; Human Development</td>
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<td>Unit 3 &amp; 4</td>
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<td><strong>Mathematics</strong></td>
<td>Unit 3 &amp; 4</td>
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<td><strong>Science</strong></td>
<td>Unit 3 &amp; 4</td>
<td>Biology</td>
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<td>Unit 3 &amp; 4</td>
<td>Chemistry</td>
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<td><strong>Technology</strong></td>
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<td>Unit 3 &amp; 4</td>
<td>Product Design and Technology</td>
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**Please note:** Student selections determine which Unit 1 & 2 subjects run in any given year. The School will endeavour to offer the corresponding Unit 3 & 4 subject in the following year.

If due to a lack of interest a subject does not run at Units 1 & 2, the School will not offer the Unit 3 & 4 subject in the following year.

The above provides students with a list of all subjects that were offered at Unit 1 & 2 last year.

The following pages contain detailed descriptions of all the above listed subjects. These detailed descriptions are listed in alphabetical order by subject with the exception that all mathematics subjects are grouped together and presented in the order as listed above.
Biology

Unit 3: Signatures of Life

This unit first examines the activities of cells at a molecular level. It explores the synthesis of the major big molecules such as enzymes and DNA as well as key chemical processes such as respiration and photosynthesis. The second area of study investigates how the activities of cells are controlled and how organisms protect themselves against infection.

Areas of study:
- Molecules of life
- Detecting and responding

Unit 4: Continuity and Change

The first area of study focuses on molecular genetics and the mechanisms for the transmission of heritable traits. This will include a study of DNA and the technologies that allow the manipulation of genetic material. The second area of study focuses on change to genetic material over time and the nature of evidence supporting the theory of evolution. Students investigate changes in species and examine the process of natural selection. This includes an investigation of human evolution.

Areas of study:
- Heredity
- Change over time

Subject Levy: $20
Approximate compulsory materials cost: $32

Link to study designs for further detail:
**Business Management**

**Unit 3: Corporate management**

In this unit students investigate how large-scale organisations operate. Students examine the environment (both internal and external) in which large-scale organisations conduct their business, and then focus on aspects of individual business’ internal environment and how the operations of the business are managed. Students develop an understanding of the complexity and challenge of managing large-scale organisations and have the opportunity to compare theoretical perspectives with practical applications.

**Areas of study:**
- Large-scale organisations in context
- Internal environment of large-scale organisations
- The operations management function

**Unit 4: Managing people and change**

This unit continues the examination of corporate management. It commences with a focus on the human resource management function. Students learn about the key aspects of this function and strategies used to most effectively manage human resources. The 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:**
- The human resource management function
- The management of change

**Subject Levy: $20**

**Link to study designs for further detail:**
Unit 3: Chemical Pathways

This unit adopts a global perspective by examining the large scale industrial production of some chemicals. The work of chemists in these industries is examined. The investigation of quality control introduces students to a range of analytical techniques and the work of analytical chemists. The design and performance of experiments, including the generation, collection and evaluation of experimental data, are emphasised. We also look at the theory and practical applications of organic chemistry.

Areas of study:
- Chemical analysis
- Organic chemical pathways

Unit 4: Chemistry at Work

This unit looks at the industrial production of chemicals and the energy changes associated with chemical reactions. The effects of factors such as temperature, concentration, pressure and catalysts are studied. The use of chemicals to make electricity in electric cells is emphasised.

Areas of study:
- Industrial chemistry
- Supplying and using energy

Subject Levy: $20
Approximate compulsory materials cost: $32

Link to study design for further detail:
Unit 3

The focus of this Unit is on reading and responding both orally and in writing to a range of texts. Students analyse how the authors of texts create meaning and the different ways in which texts can be interpreted. They develop competence in creating written texts by exploring ideas suggested by their reading within the chosen context, and the ability to explain choices they have made as authors.

Areas of study:
- Reading and Responding
- Creating and Presenting
- Using Language to Persuade

Unit 4

The focus of this unit is on reading and responding in writing to a range of texts in order to analyse their construction and provide an interpretation. Students create written multimodal texts suggested by their reading within the chosen Context and explain creative choices they have made as authors in relation to form, purpose, language, audience and context.

Areas of study:
- Reading and Responding
- Creating and Presenting

Subject Levy: $20

Link to study designs for further detail:
Food and Technology

Unit 3: Food Preparation, Processing and Food Controls

In this unit students develop an understanding of food safety in Australia and the relevant national, state and local authorities and their regulations, including the Hazard Analysis and Critical Control Points (HACCP) system. They investigate the causes of food spoilage and food poisoning and apply safe work practices while preparing food. Students demonstrate understanding of key foods, including functions of their natural components and apply this information in the preparation of foods. They investigate cooking techniques and justify their use 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 and also preserve food using these techniques. Students devise a design brief from which they develop a detailed design plan and evaluation criteria. In preparing their design plan, students conduct research and incorporate their knowledge about key foods, properties of food, tools, equipment, safety and hygiene, preparation, cooking and preservation techniques. In developing the design plan, students establish an overall production timeline to complete the set of food items (the product) to meet the requirements of the brief for implementation in Unit 4.

Areas of study:
- Maintaining food safety in Australia
- Food preparation and processing
- Developing a design plan

Unit 4: Food Product Development and Emerging Trends

In this unit students develop individual production plans for the proposed four to six food items and 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, including social pressures, consumer demand, technological developments, and environmental considerations. Students also investigate food packaging, packaging systems and marketing.

Areas of study:
- Implementing a design plan
- Food product development

Subject Levy: $20
Approximate compulsory materials cost: $190

Link to study designs for further detail:
Health and Human Development

Unit 3: Australia’s Health

In this unit students will develop an understanding of the health status of Australians by investigating the burden of disease, researching the health of population groups in Australia and accounting for inequities in health status. Students will explore the determinants of health to explain variations in health status and investigate the government and non-government initiatives designed to promote health and development.

Areas of study:
- Understanding Australia’s health
- Promoting health in Australia

Unit 4: Global health and human development

This unit focuses on the global health and individual development exploring the factors that influence health in developing countries. It explores the interrelationship between health, human development and sustainability. Evaluation of programs related to types of aid, literacy, food security, malaria, safe water and sanitation.

Areas of study:
- Introducing global health and human development
- Promoting global health and human development

Subject Levy: $20

Link to study designs for further detail:
History (Revolutions)

Unit 3: Revolutions

This unit focuses on the Russian Revolution as a means of understanding revolution as a process of dramatically accelerated social change. It examines the nature of the crisis in the old regime and considers the different theories put forward to explain the cause of revolution. It also examines the ideas utilised in the revolutionary struggle and the role of groups and individuals in bringing about radical change. The unit evaluates the consolidation of the revolution and the creation of a new society.

Areas of study:
- Evaluate the role of ideas, leaders, movements and events in the revolution.
- Analyse the challenges facing the emerging new 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 4: Revolutions

This unit focuses on the revolution in China. It examines the nature of the crisis in the old regime and considers the different theories put forward to explain the cause of revolution. It also examines the ideas utilised in the revolutionary struggle and the role of groups and individuals in bringing about radical change. The unit evaluates the consolidation of the revolution and the creation of a new society.

Areas of study:
- Evaluate the role of ideas, leaders, movements and events in the revolution.
- Analyse the challenges facing the emerging new 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.

Subject Levy: $20

Link to study design for further detail:


## Legal Studies

### Unit 3: Law-making

In this unit students develop an understanding of the institutions that determine our laws, and their law-making powers and processes. They undertake an informed evaluation of the effectiveness of law-making bodies and examine the need for the law to keep up to date with changes in society. Students develop an appreciation of the complex nature of law-making by investigating the key features and operation of parliament, and influences on law-making.

Students develop an understanding of the importance of the Constitution in their lives and on society, and undertake a comparative analysis with another country. They learn of the importance of the role played by the High Court in interpreting and enforcing the Constitution, and ensuring that parliaments do not act outside their areas of power nor infringe protected rights.

Students investigate the nature and importance of courts as law-makers and undertake an evaluation of their effectiveness as law-making bodies. They also investigate the relationships that exist between parliaments and courts.

### Areas of study:
- Parliament and the citizen
- The Constitution and the protection of rights
- Role of the courts in law-making

### Unit 4: Resolution and justice

The legal system provides mechanisms by which legal disputes of both a criminal and a civil nature can be resolved in a fair and just manner. Students examine the institutions that adjudicate criminal cases and civil disputes. They also investigate methods of dispute resolution that can be used as an alternative to civil litigation. Students investigate the processes and procedures followed in courtrooms and develop an understanding of the adversary system of trial and the jury system, as well as pre-trial and post-trial procedures operating in Victorian. Using the elements of an effective legal system, students consider the extent to which court processes and procedures contribute to the effective operation of the legal system and consider reforms or changes that could further improve its effective operation.

### Areas of study:
- Dispute resolution methods
- Court processes and procedures, and engaging in justice

### Subject Levy: $20

Maths flow chart

Year 7
Year 8
Year 9
Year 10

Year 11 Foundation Maths
Year 11 General Maths
Year 11 Math Methods

Year 12 Further Maths
Year 12 Math Methods
Year 12 Specialist Maths
Maths – Further Mathematics

Unit 3

Students practise mathematical algorithms, routines and techniques and use them to solve standard problems; apply mathematical knowledge and skills in unfamiliar situations which require investigative, modelling or problem-solving approaches and use technology to learn mathematics and apply it in different contexts.

Unit 3 consists of the study of the core section of ‘data analysis’ which covers the presentation, summary, description and analysis of uni-variate data and bivariate simple data. The module of ‘geometry and trigonometry’ covers the trigonometric ratios, similar triangles, Pythagoras theorem, basic properties of triangles and applications to regular polygons and applications to various two-dimensional and three-dimensional shapes.

Areas of study:
- Knowledge of key concepts, skills and applications.
- Application of data analysis skills and concepts.
- Use of technology in mathematical investigations.

Unit 4

Unit 4 involves the study of two of the modules. The ‘graphs and relations’ module covers the graphical representation and analysis of linear and non-linear relations as model for various practical contexts as well as graphical and algebraic approaches to solving equations and inequalities. The ‘matrices’ module covers the matrix representation of discrete data in regular arrays, and the application of matrix arithmetic to the analysis of problems in practical situations. Technology is to be used to carry out computations as applicable.

Areas of study:
- Knowledge of key concepts, skills and applications.
- Application of data analysis skills and concepts.
- Use of technology in mathematical investigations.

Subject Levy: $20
Maths – Mathematical Methods CAS

Unit 3

Unit 3 has a focus on the following areas of study including: Functions and graphs which cover polynomials and modulus functions. Exponential and logarithmic functions, circular functions, graphs of sum, difference, product and composite functions, graphical and numerical solution of equations, graphs of inverse functions:

- Application and interpretation of combinations of these graphs.
- Algebra covers the functions including composition of functions, simple functional equations, inverse functions and the solution of equations. This area of study includes the identification of appropriate solution processes for solving equations, and systems of simultaneous equations, presented in various forms. It covers recognition of equations and systems of equations that are solvable using inverse operations or factorisation and the use of graphical and numerical approaches for problems involving equations where exact value solutions are not required or which are not solvable by other methods. This should support work in the other areas of study.

Areas of study:

- Knowledge of key concepts and skills
- Application of mathematical processes in non-routine contexts
- Use of the (CAS) calculator and other technologies in mathematical investigations.

Unit 4

Unit 4 has a focus on the following areas of study including calculus continuity and limits; the gradient function; derivatives of polynomials and other functions; the chain rule; the product rule; the quotient rule. Applications of differentiation, rates of change, stationary points, maximum and minimum values, related rates of change. Integration and its applications, anti-differentiation of algebraic expressions and other functions, areas under curves, definite integrals, the areas between two curves. Probability covers discrete random variables and discrete probability distributions; the binomial probability distribution. Continuous random variables and Continuous probability distributions; the normal distribution.

Areas of study:

- Knowledge of key concepts and skills
- Application of mathematical processes in non-routine contexts
- Use of the (CAS) calculator and other technologies in mathematical investigations.

Subject Levy: $20
Maths - Specialist Mathematics

Unit 3

Specialist Mathematics Units 3 & 4 assumes concurrent or previous study of Mathematics Methods (CAS) Units 3 & 4.

It involves the study of material from the areas of study: ‘coordinate geometry’, ‘functions, relations and graphs’, ‘algebra’, ‘calculus’, ‘vectors’ and ‘mechanics’. This extends and further develops material from Mathematical Methods Units 3 and 4 and also introduces new content.

Students practise mathematical algorithms, routines and techniques and use them to solve standard problems, apply mathematical knowledge and skills in unfamiliar situations which require investigative, modelling or problem-solving approaches and use technology appropriately and effectively to learn mathematics and apply it in different contexts.

Unit 3 has a focus on functions, relations and graphs which covers simple power functions of integer powers, reciprocal functions of quadratic functions and circular functions, inverse circular functions, relations representing circles, simple ellipses and hyperbolas in Cartesian and parametric forms, graphical representation of these functions and relations and the analysis of key features of their graphs. The area of algebra is covered with the focus on complex numbers and calculus including differential and integral calculus. The arithmetic and algebra of vectors topic is also covered.

Areas of study:
- Knowledge of key concepts, skills and applications.
- Application of mathematical processes in non-routine contexts.
- Use of technology in mathematical investigations.

Unit 4

Unit 4 covers Kinematics including rectilinear motion, the calculus of differential equations and vector calculus. The area of mechanics is also covered which involves statics and an introduction to Newtonian mechanics, for both constant and variable acceleration.

Areas of study:
- Knowledge of key concepts, skills and applications.
- Application of mathematical processes in non-routine contexts.
- Use of technology in mathematical investigations

Subject Levy: $20

Link to study design for further detail (all maths subjects):
Physical Education

Unit 3: Physical Activity Participation & Physiological Performance

This unit introduces students to an understanding of physical activity and sedentary behaviour from a participatory and physiological perspective. Students apply methods to assess physical activity levels, study and apply the social-ecological model in promoting participation in regular physical activity. Students investigate the contribution of energy systems to performance in physical activity, the causes of fatigue and ways to manage fatigue, promoting recovery.

Areas of study:
- Monitoring and promotion of physical activity
- Physiological responses to physical activity

Unit 4: Enhancing Performance

Students undertake an activity analysis investigating the required fitness components, participating in a training program designed to improve/maintain selected components. Students critically evaluate different techniques practices and looking at the rationale for the banning or inclusion of various practices from sporting competition.

Areas of study:
- Planning, implementing and evaluating a training program
- Performance enhancement and recovery practices

Subject Levy: $20
Approximate compulsory materials cost: $32

Link to study design for further detail:
Physics

Unit 3

This unit focuses on the ideas that underpin much of the technology found in areas such as communications, engineering, commerce and industry. Motion in one and two dimensions is introduced and applied to moving objects on Earth and in space. Circuit models are applied to further aspects of electricity and electronics, and the operation and use of photonic devices are introduced. The detailed studies offer examples of theoretical and practical applications of these technologies.

Areas of study:
- Motion in one and two dimensions
- Electronics and photonics
- The ability to compare and explain the operation of electronic and photonic devices and analyse their use in domestic and industrial systems
- The ability to compare and explain the properties of construction materials, and model the effects on structures and materials of forces and loads.

Unit 4

This unit focuses on the development and limitations of models in explaining physical phenomena. A field model of electromagnetism is applied to the generation of electricity, and the development of models that explain the complex interactions of light and matter are considered. The detailed studies provide examples of innovative technologies used for research and communication.

Areas of study:
- Electric power
- Interactions of light and matter
- The ability to use a “wave model” of sound to describe and evaluate the recording of sound.

Subject Levy: $20
Approximate compulsory materials cost: $32

Link to study design for further detail:
Unit 3: Applying the Product Design Process

In this unit students are engaged in the design and development of a product that meets the needs and expectations of a client and/or an end-user, developed through a design process and influenced by a range of complex factors. These factors include the purpose, function and context of the product; human centred design factors; innovation and creativity; visual, tactile and aesthetic factors; sustainability concerns; economic limitations; legal responsibilities; material characteristics and properties; and technology. Design and product development and manufacture occur in a range of settings. An industrial setting provides a marked contrast to that of a ‘one-off situation’ in a small ‘cottage’ industry or a school setting. Although a product design process may differ in complexity or order, it is central to all of these situations regardless of the scale or context. This unit examines different settings and takes students through the Product design process as they design for others.

In the initial stage of the Product design process, a design brief is prepared. It outlines the context or situation around the design problem and describes the needs and requirements in the form of constraints or considerations.

Areas of study:
- The designer, client and/or end-user in product development
- Product development in industry
- Designing for others

Unit 4: Product Development and Evaluation

In this unit students learn that evaluations are made at various points of product design, development and production. In the role of designer, students judge the suitability and viability of design ideas and options referring to the design brief and evaluation criteria in collaboration with a client and/or an end-user. Comparisons between similar products help to judge the success of a product in relation to a range of Product design factors. The environmental, economic and social impact of products throughout their life cycle can be analysed and evaluated with reference to the Product design factors.

Areas of study:
- Product analysis and comparison
- Product manufacture
- Product evaluation

Subject Levy: $20
Approximate compulsory materials cost: $95

Link to study design for further detail:
Psychology

Unit 3: The Conscious Self

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:
- Mind Brain and Body
- Memory

Unit 4: Brain, behaviour and experience

This unit focuses on the interrelationship between learning, the brain and its responses to experiences and behaviour. Students investigate learning as a mental process that leads to acquisition of knowledge, development of new capacities and changed behaviours.

Areas of study:
- Learning
- Mental Health

Subject Levy: $20
Approximate compulsory materials cost: $32

Link to study design for further detail:
**Unit 3: Studio production and professional art practices**

This unit focuses on the implementation of an individual design process leading to the production of a range of potential directions. Students develop and use an exploration proposal to define an area of creative exploration. They plan and apply a design process to explore and develop their individual ideas. Analysis of these explorations and the development of the potential directions is an intrinsic part of the design process to support the making of finished artworks in Unit 4.

**Areas of study:**
- Exploration proposal
- Design process
- Professional art practices and styles

**Unit 4: Studio production and art industry contexts**

This unit focuses on the production of a cohesive folio of finished art works. To support the creation of the folio, students present visual and written documentation explaining how selected potential directions generated in Unit 3 were used to produce the cohesive folio of finished artworks. These artworks should reflect the skilful application of materials and techniques, and the resolution of ideas and aesthetic qualities.

**Areas of study:**
- Folio of artworks
- Focus, reflection and evaluation
- Art industry contexts

**Subject Levy: $20**
**Approximate compulsory materials cost: $95**

**Link to study design for further detail:**
VET Interactive Digital Media

VET Interactive Digital Media Unit 3 and 4

The aims of the Certificate III in Interactive Digital Media are to provide students with the skills, knowledge and attitudes for employment and training in interactive multimedia.

This qualification provides a wide range skill development including:
- graphic design using software applications such as Photoshop, Illustrator and Flash
- writing and instructional design
- sound recording and editing
- video recording and editing
- webpage design and editing using applications such as Dreamweaver
- Web 2.0 technologies

Upon successful completion of Units 1, 2, 3 and 4 students will receive a nationally recognised TAFE certificate. The Unit 3 & 4 sequence also comprises units for the completion of VCE. Unit 3 & 4 scored assessment tasks contribute to the student’s tertiary entrance score.

Units 3 & 4 comprise the following modules:
- Create 2D digital animations
- Write content for a range of media
- Explore and apply the creative design process to 2D forms
- Author interactive sequences
- Prepare video assets
- Create visual design components

Assessment is made up of three coursework tasks, worth 66% of the overall study score and an end of year examination, worth 34% of the overall study score.

Subject Levy: $0

Link to VCAA publications for further detail: