VCE Computing 2016 – 2019

Study Summary

|  |
| --- |
| **Please Note: This study summary includes excerpts from the VCE Computing Study Design. The summary is not a substitute for the VCE Study Design. Users are advised to view the full accredited study design and other resources on the VCAA website.** |

Scope of study

VCE Computing provides students with opportunities to acquire and apply knowledge and skills to use digital systems efficiently and effectively when creating digital solutions both individually and as part of a network.

VCE Computing focuses on the application of a problem-solving methodology, and strategies and techniques for managing information systems in a range of contexts, to create digital solutions that meet specific needs. The study examines each component of an information system (data, people, processes and digital systems) and how their interrelationships affect the types and quality of digital solutions.

Through a structured approach to problem solving, incorporating computational, design and systems thinking, students are equipped to orient themselves towards the future, with an awareness of the technical and societal implications of digital systems.

Rationale

VCE Computing equips students with the knowledge and skills to be creators of digital solutions and discerning users of digital systems, data and information, as they participate in an increasingly globalised society and economy.

This study provides students with practical opportunities to create digital solutions for real-world problems in a range of settings, developing an essential tool set for current and future learning, work and social endeavours. They are equipped to apply new ways of thinking as well as technical and social protocols when developing intellectual and social capital.

VCE Computing provides a pathway to further studies in areas such as computer science, business systems engineering, robotics, linguistics, database management and software development, and to careers in digital-technologies based areas such as web design, information architecture and business analysis.

Structure

The study is made up of six units:

Unit 1: Computing

Unit 2: Computing

Unit 3: Informatics

Unit 4: Informatics

Unit 3: Software development

Unit 4: Software development

Each unit contains between two and three areas of study.

Entry

There are no prerequisites for entry to Units 1, 2 and 3. However, it is assumed that students enrolling in VCE Informatics have sound design thinking skills and students enrolling in VCE Software development have sound computational thinking skills. Students must undertake Unit 3 prior to undertaking Unit 4. Units 1 to 4 are designed to a standard equivalent to the final two years of secondary education. All VCE studies are benchmarked against comparable national and international curriculum.

Unit 1: Computing

In this unit, students focus on how data, information and networked digital systems can be used to meet a range of users’ current and future needs. There are three areas of study: Data and graphic solutions; Networks, and Collaboration and communication and they draw on the four study concepts of Approaches to problem solving, Data and information, Digital systems and Interactions and impact.

Unit 2: Computing

In this unit, students focus on data and how the application of computational, design and systems thinking skills support the creation of solutions that automate the processing of data. There are three areas of study: Programming, Data analysis and visualisation, and Data management and they draw on the four study concepts of Approaches to problem solving, Data and information, Digital systems and Interactions and impact.

Unit 3: Informatics

In this unit, students focus on how the characteristics of data and how it is acquired, managed, manipulated and interpreted to meet a range of needs. There are two areas of study: Organisations and data management, and Data analytics: drawing conclusions and they draw on the four concepts that underpin the study.

In Area of Study 1, students use relational database management system software to create a database solution and a graphics tool to represent how data flows on a website when users undertake online transactions.

Area of Study 2 forms part of a School-assessed Task (SAT), and is the first part of a practical project. Students frame a hypothesis, and gather, manipulate and interpret data to draw conclusions that support or refute the hypothesis. Students use software tools to document a project plan and capture, store, prepare and manipulate data.

Unit 4: Informatics

In this unit, students focus on strategies and techniques for manipulating, managing and securing data and information to meet a range of needs. There are two areas of study: Data analytics: presenting the findings, and Information management and they draw on the four concepts that underpin the study.

Area of Study 1 forms the second part of the SAT. Students create a multimodal online solution, that present the conclusions drawn from their hypothesis. This involves using software to create a web-based solution that contains multiple data types. Students also evaluate the quality of the solution and assess how well their project plan helped them monitor the progress of their project.

In Area of Study 2 students focus on how organisations protect the integrity and security of data that they dispose and store. Students do not use software to demonstrate this outcome.

Unit 3: Software development

In this unit, students develop an understanding of the analysis, design and development stages of the problem-solving methodology and use a programming language to create working software modules. There are two areas of study: Programming practice, and Analysis and design and they draw on the four concepts that underpin the study.

In Area of Study 1, students develop skills in interpreting software designs and in creating working modules using a programming language. The programming language used is a school decision, however, it must be able to support a set of mandated programming requirements.

Area of Study 2 forms part of a School-assessed Task (SAT), and is the first part of a practical project. Students determine a need or opportunity for a purpose-designed solution and then formally document the analysis as a Software Requirements Specification. They then generate a range of design ideas, select their preferred one and develop it as a detailed design. Students use a software tool to document a project plan.

Unit 4: Software development

In this unit, students focus on how the information needs of individuals and organisations are met through the creation of purpose-designed solutions used in a networked environment. There are two areas of study: Software solutions and Interactions and impact.

Area of Study 1 forms the second part of the SAT. Students use specific functions of a programming language to transform the design created in Unit 3, Outcome 2 into a software solution. As part of developing the solution, students conduct a practical useability test to identify features of their solution that work and don’t work. Students also evaluate the quality of the solution and assess how well their project plan helped them monitor the progress of their project.

In Area of Study 2 students apply systems thinking systems when analysing the dependencies between two information systems and assessing the impact on the operation of an information system if shared data has been compromised. Students do not use software to demonstrate this outcome.

Assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on a decision that the student has demonstrated achievement of the set of outcomes specified for the unit. This decision will be based on the teacher’s assessment of the student’s performance on assessment tasks designated for the unit.

Levels of achievement

Units 1 and 2

Procedures for the assessment of levels of achievement in Units 1 and 2 are a matter for school decision.

Units 3 and 4

The Victorian Curriculum and Assessment Authority will supervise the assessment of all students undertaking Units 3 and 4. In the study of VCE Computing students’ level of achievement will be determined by School-assessed Coursework (SACs), a School-assessed Task (SAT), and external assessment.

Percentage contributions to the study score in VCE Informatics are as follows:

* Unit 3 School-assessed Coursework: 10 per cent
* Unit 4 School-assessed Coursework: 10 per cent
* School-assessed Task: 30 per cent
* End-of-year examination: 50 per cent.

Percentage contributions to the study score in VCE Software development are as follows:

* Unit 3 School-assessed Coursework: 10 per cent
* Unit 4 School-assessed Coursework: 10 per cent
* School-assessed Task: 30 per cent
* End-of-year examination: 50 per cent.