# Computing

# **Course Description**



Technology continues to evolve rapidly, providing opportunities for enterprising individuals to create new technologies and innovative uses for existing technologies. This study equips students with the knowledge and skills required to adapt to a dynamic technological landscape, including the ability to identify emerging technologies, envisage new uses for digital technologies and consider the benefits that these technologies can bring to society at a local and at a global level. VCE Applied Computing is underpinned by four key concepts: digital systems, data and information, approaches to problem solving, and interactions and impact.

# **Course Structure**

# Unit 1: Applied computing

This unit introduces students to the stages of the problem-solving methodology. Students focus on how data can be used within software tools such as databases and spreadsheets to create data visualisations, and the use of programming languages to develop working software solutions. Students upskill in a number of software tools including databases, spreadsheets, python programming.

## Area of Study

- 1. Data analysis
- 2. Programming

# Unit 2: Applied computing

This unit introduces students to develop innovative solutions to needs or opportunities that they have identified and propose strategies for reducing security risks to data and information in a networked environment. Students learn about networks and are introduced to a number of software and hardware tools to create an innovative solution.

#### Area of Study

- 1. Innovative solutions
- 2. Network security

#### Unit 3: Data analytics

In this unit students apply the problem-solving methodology to identify and extract data through the use of software tools such as database, spreadsheet and data visualisation software to create data visualisations or infographics. Students develop an understanding of the analysis, design and development stages of the problem-solving methodology. They undertake a research project investigating data available and create spreadsheets and databases to solve information problems.

#### Area of Study

- 1. Data analytics
- 2. Data analytics: analysis and design

#### Unit 4: Data analytics

In this unit students focus on determining the findings of a research question by developing infographics or dynamic data visualisations based on large complex data sets and on the security strategies used by an organisation to protect data and information from threats. They continue to work on their research project and compare organisation security systems to determine if they are safe from threats. They monitor their projects using Gantt charts.

#### Area of Study

- 1. Data analytics: development and evaluation
- 2. Cybersecurity: data and information security

# **Entry and Recommendations**

There are no prerequisites for entry to Units 1, 2 and 3. Students must undertake Unit 3 prior to undertaking Unit 4.

# Assessment

## Satisfactory Completion

Demonstration of achievement of outcomes and satisfactory completion of a unit are determined by evidence gained through the assessment of a range of learning activities and tasks.

## Level of Achievement

## Unit 1 and 2

- Coursework Unit 1
  - Folio of database skills
  - Folio of spreadsheet skills
  - Case Study solution
  - Examination
- Coursework Unit 2
  - Presentation of networks
  - Folio of HTML skills
  - o Case study
  - $\circ \quad \text{Network design} \\$
  - o Innovative solution
  - Examination

## Unit 3 and 4

- Unit 3 School-based Assessment (10%)
  - Database and Spreadsheetcase study solution
- Unit 4 School-based Assessment (10%)
  - o Comparison of two organisationsecurity and threats
- School Assessed Task (30%)
  - o Report on topic
  - Investigation of data related to the topic
  - o Manipulation of data using arange of software skills
  - o Creation and evaluation of infographic and data visualisation
  - Project management
- Examination (50%)