**VCE Applied Computing**

**2020 Timeline: Unit 1**

***Disclaimer:***Please note the timeline is a guide only. It does address the Key Knowledge (KK) and Key Skills (KS) as outlined in the study design. The timeline has been structured on the assumption that there will be four classes per week. The length of the classes and the weeks allocated to each unit will vary from school to school—modifications might be needed.

***Note:***In most instances the bolded text in the dot points in the table below are aligned with the KK and KS in each area of study*.*

| **Unit 1** | | | |
| --- | --- | --- | --- |
| **Term** | **Week** | **Program** | **Skills** |
| **ONE** | **1** | **Area of Study 1: Data analysis**  **Unit 1 overview** (expectations, assessment tasks, study design)  *The focus of the Outcome 1 is for students to interpret teacher-provided solution requirements and designs, and then to collect and manipulate data, analyse patterns and relationships, and develop data visualisations to present findings.*   * **understanding the problem-solving methodology (PSM)** * introduction to AoS1: Data analysis (what it is about – looking at Excel) * developing understanding of **what data is and how we acquire it** – look at examples of banks, hospitals, shopping websites * understanding how we can **acquire and manipulate data using software, such as data visualisation, database and spreadsheet.**  Introduction to Excel * focus on **cell, cell reference, row, edit tabs, fields, tables.** | * analyse the selected data, and discuss the relationships and patterns identified. |
| **2** | * types and purposes of **qualitative and quantitative data** * **characteristics of data and information** * characteristics of **data types** (binary [as represented in images and sound], Boolean, character and numeric) and data structures (data structures include arrays, associative arrays, classes, fields, files, hash tables, linked lists, queues, records and stacks). **Note:** Data structures are mainly relevant for Area of Study 2 * sources, methods and techniques for **acquiring and referencing primary and secondary data** and information * **factors affecting the quality of data** and information, such as accuracy, bias, integrity, relevance and reliability. | * acquire and reference data and information from primary and secondary sources, while taking into account legal and ethical considerations. |
| **3** | * types and purposes of data visualisations suitable for: **educating, entertaining, informing and persuading audiences** * interpretation of information for **communication and decision- making** * **Australian Privacy Principles** relating to the acquisition, management and communication of data and information including non-identification of individuals (Principle 2), information only being held for its primary purpose (Principle 6) and the security measures used to protect personal information (Principle 11) * **ethical issues** arising from the acquisition, storage and use of data and information. | * compare and interpret data visualisations. |
| **4** | * **Australian Privacy Principles** relating to the acquisition, management and communication of data and information including non-identification of individuals (Principle 2), information only being held for its primary purpose (Principle 6) and the security measures used to protect personal information (Principle 11) * **ethical issues** arising from the acquisition, storage and use of data and information * **procedures for the legal and ethical collection** and use of data and information, such as using consent forms * **techniques for protecting data** and information from misuse, such as de-identifying personal data and the use of physical and software security controls. | * interpret solution requirements, constraints and scope * interpret designs using appropriate design tools to represent the functionality and appearance of databases, spreadsheets and data visualisations. |
| **5** | * **functional and non-functional requirements** of solutions, **constraints and scope** * introduction into **basic functions** once formatted, **=SUM, sorting and conditional formatting, input masks, validation rules & texts**   ***Note: conditional formatting could also be translated into database as validation text and rules.***   * apply the abovementioned KS and KK to a given case study focus on **(design tools**, **formats and conventions, validation and testing functions and protecting data and information from misuse).** | **Practice assessment tasks**  **Allow 2 weeks for revision prior**   * use software, and select and apply functions, formats, conventions, data validation and testing.   **Note: This is an ongoing skill.** |
| **6** | * focus on understanding a case study – understanding how to unpack a problem in relation to data * students acquire data from case study and enter it into Excel. | * techniques to efficiently manipulate data and create data visualisations. |
| **7** | **Assessment task – 4 sessions (4 hours)** | |
| **8** | **Area of Study 2: Programming**  *The focus of the outcome is for students to interpret teacher-provided solution requirements to design, develop and evaluate a software solution using a programming language.*   * **intro into the outcome requirements** (knowing that this outcome will involve producing a folio of work) * functions and capabilities of key **hardware and software components** of digital systems required for **processing, storing and communicating data and information.** | * use a range of data types and data structures. |
| **9** | * characteristics of **data types** * types of **data structures** * features of **functional and non-functional solution requirements,** constraints and scope in relation to a given case study/sample situation * **project plans** to coordinate and monitor the tasks, including sequencing and time allocation to create software solutions. | * document and monitor project plans using software.   *Students are given holiday homework to complete a series of tutorials with supporting documentation that records their processes and provides evidence of their work.* |
|  |  | **Area of Study 2: Programming continued** |  |
| **Two** | **1** | * characteristics of **internal documentation** * formatting and **structural characteristics** **of input and output,** such as **file formats** * **naming conventions** for solution elements, such as files, functions, methods and variables * **processing features of a programming language.** | * develop a software solution using appropriate processing features of a programming language. |
| **2** | * **design tools for representing the functionality and appearance** of solution designs, such as data dictionaries, mock-ups and pseudocode * **testing and debugging techniques** to ensure software solutions meet requirements such as test tables and test data. | * select and use appropriate design tools to represent solution designs * design and apply suitable testing and debugging techniques using appropriate test data. |
| **3** | * techniques for **evaluating the efficiency and effectiveness** of software solutions. | * evaluate the efficiency and effectiveness of the software solution to meet requirements.   **Practice assessment tasks** |
| **4** | Buffer week | **Allow 2 weeks for revision** |
| **5** | **Assessment task – 4 sessions/periods** *(or the equivalent of 4 hours)* | |
| **6** | **Unit 1 revision week** | |
| **7** | **Exam for Unit 1** | |