# EMMANUEL COLLEGE
## THE BUSINESS AND COMPUTING DEPARTMENT
## Year 10 Digital Information Technology

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| **Year 10** | **Autumn Term** |
| **Unit Title** | Exploring User Interface Design Principles and Project Planning Techniques |
| **Key Question(s)?** | What are the key features of different types of user interfaces and where can they be appropriately applied? |
| **Threshold Concepts** | A user interface is the means by which a person is able to interact with a computer system. Software features facilitate human-device interaction by:<br><br>• Intuitiveness – prompts for input and clear output improves ease of use<br>• Error Reduction – identifies what you can/can't do to prevent mistakes.<br>• Productivity – simpler interaction makes tasks quicker to perform.<br><br>A text based interface uses simple text on a plain background. A menu based interface presents the user with a list of options and the user navigates sub-menus by choosing relevant options. A graphical user interface uses windows, icons, menus and pointers where the user clicks on objects with pointer-to-input commands.<br><br>The right user interface depends on your individual needs. Different factors must be considered including performance, ease of use and accessibility. The type of display, as well as size and resolution, can also affect your choice of interface.<br>A range of user accessibility needs should be considered when choosing a user interface including visual, hearing and speech impairments.<br><br>Users will have different levels of experience with IT. This will affect their ability to use new interfaces. Experience ranges from those considered 'experts' to 'novice'. Demographics and individual characteristics impact on interface design and selection. These include age, belief, cultural context and background. |
| **Links to Prior Learning** | Students have studied a range of the topics covered through the Year 7-9 curriculum. Specific focus at Year 9 has allowed for key terminology to build a secure foundation of knowledge for students to access this part of the course. |
| | **Spring Term** |
| **Unit Title** | Project Management |
| **Key Question(s)?** | What is effective project management? |
| **Threshold Concepts** | Project management requires entrepreneurs to plan carefully for the implementation of their product. The waterfall method is the most common approach but some favour the agile model.<br><br>An effective project plan includes achievable targets and a clear awareness of the intended audience and purpose of the project. The Design Specification is a detailed document that describes the system being developed and how the system meets the aims and objectives of the project.<br><br>The continuous review and modification of a plan is essential to a positive project outcome. |

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| **Links to Prior Learning** | Students have studied a range of the topics covered through the Year 7-9 curriculum. Specific focus at Year 9 has allowed for key terminology to build a secure foundation of knowledge for students to access this part of the course. |
| | **Summer Term** |
| **Unit title** | Collecting, Presenting and Interpreting Data |
| **Key Question(s)?** | What is the role and impact of using data on individuals? |
| **Threshold Concepts** | Data is a collection of numbers or text that is stored and processed by computer systems. Information is data that has been processed.<br><br>Data modelling is a computer model that simulates a real-life system. It uses complex formula to analyse the data entered and project future data. All data should be validated – checked to ensure that data entered is sensible and reasonable and verified – checked to ensure that data entered matches the original source. We can present data in a range of ways so that it can be interrogated for trends, patterns, anomalies and errors. |
| **Links to Prior Learning** | Students have studied a range of the topics covered through the Year 7-9 curriculum. Specific focus at Year 9 has allowed for key terminology to build a secure foundation of knowledge for students to access this part of the course. |
| **Knowledge and Sequencing Rationale** | The understanding of the ways that we, as humans, interact with computer systems is the basis of the course. Therefore, it is important to have a grasp of this knowledge before attempting to apply it to the set assignment brief where learners will be asked to explain the rationale behind their choice of user interface. From here, the different design features must be known to be able to apply them once again to the assignment and develop an appropriate interface.<br><br>Once learners have the knowledge of user interfaces and have grasped key design concepts, they must then be able to plan and execute a project in which they will select, design, build and review a user interface to meet a set assignment brief. They cannot appropriately do this without the underlying interface knowledge. |