2-Year Overview

	Year 11 *Master/Secure*	Year 10 *Secure/Develop*
Aims	**Component 1:** Exploring User Interface Design Principles and Project Planning Techniques-explore user interface design and development principles • investigate how to use project planning techniques to manage a digital project • discover how to develop and review a digital user interface **Component 3:** Effective Digital Working Practice-: explore how modern information technology is evolving • consider legal and ethical issues in data and information sharing • understand what cyber security is and how to safeguard against	**Component 2:** Collecting, Presenting and Interpreting Data- explore how data impacts on individuals and organisations • draw conclusions and make recommendations on data intelligence • develop a dashboard using data manipulation tools. **Component 3**: Effective Digital Working Practices-explore how modern information technology is evolving • consider legal and ethical issues in data and information sharing • understand what cyber security is and how to safeguard against
Core Knowledge/ key concepts	**Component 1:** A: Investigate user interface design for individuals and organisations A1 What is a user interface? A2 Audience needs A3 Design principles A4 Designing an efficient user interface A: Investigate user interface design for individuals and organisations B: Use project planning techniques to plan and design a user interface B2 Create a project plan B3 Create an initial design C: Develop and review a user interface C1 Developing a user interface C2 Refining the user interface C3 Review **Component 3:** Effective Digital Working Practices A: Modern technologies A1 Modern technologies A2 Impact of modern technologies B: Cyber security B1 Threats to data B2 Prevention and management of threats to data	**Component 2**: A: Investigate the role and impact of using data on individuals and organisations A1 Characteristics of data and information A2 Representing information A3 Ensuring data is suitable for processing A4 Data collection A5 Quality of information and its impact on decision making A6 Sectors that use data modelling A7 Threats to individuals B: Create a dashboard using data manipulation tools B1 Data processing methods B1 Data processing methods B2 Produce a dashboard C: Draw conclusions and review data presentation methods C1: Drawing conclusions based on the data C2 How presentation affects understanding **Component 3:** Effective Digital Working Practices A: Modern technologies A1 Modern technologies A2 Impact of modern technologies B: Cyber security

	B3 Policy C: The wider implications of digital systems C1 Responsible use C2 Legal and ethical D: Planning and communication in digital systems D1 Forms of notation Revision for final external assessment Preparation for final external assessment	B1 Threats to data B2 Prevention and management of threats to data B3 Policy C: The wider implications of digital systems C1 Responsible use C2 Legal and ethical D: Planning and communication in digital systems D1 Forms of notation Revision for final external assessment Preparation for final external assessment
Skills and knowledge developed	Component 1: Introduction to user interfaces: hardware features, software features and human facilitation and example uses Basic user interface: text-based and menu-based Complex user interfaces: speech/natural language-based, GUI/WIMPs and sensor-based Choosing a user interface: performance/response time, ease of use, user requirements, user experience, accessibility and storage space How hardware and software affects user interfaces: operating systems/platforms, screen type/size, types of user input, hardware resources available and emerging technologies User accessibility needs: visual, hearing, speech, motor and cognitive needs User skills: expert, regular, occasional and novice user skills and demographics: age, beliefs/values, culture and past experiences Design principles: visual elements: colour and font style/size Design principles: text elements: language and amount of information Design principles: layout: consistency, placement of items, user expectations, grouping related items, navigational components and input controls Design principles: user expectations: colour, sound, symbols, visuals Design principles: keeping the user engaged: uncluttered screens, tip text, labels, default values and autofill Design principles: intuitive design: graphics denoting actions, helpful messages, easy reversal of actions, help features and consistency	Component 2: Data and information: meaning, structure, context and processing How to present information: text, numbers, tables, graphs/charts and infographics Making data suitable for processing: validation: range, type, look up, presence and length checks and verification: proofreading and double entry Collecting data: data collection methods, data collection features and big data Why quality is important: source, accuracy, age, completeness, amount of detail, format/presentation and volume Who uses data modelling: types of sectors and data modelling in decision making Threats: privacy, fraud, targeting vulnerable groups and inaccurate data Learning aim A: assessment practice What is a dashboard? Data manipulation methods: importing data and text to columns, formulae and decision making functions Data manipulation methods: lookup functions and count functions Data manipulation methods: logical operations/sorting, using outlines and string operation functions Data manipulation methods: filtering Other processing methods: absolute and relative cell referencing Other processing methods: macros, multiple and linking worksheets and alternative views Other processing methods: conditional formatting Showing information summaries: totals, counts and percentages Breaking information down: sales breakdowns, departmental breakdown, time allocation and budget allocations

	Improving the speed of user interfaces: keyboard shortcuts, reversal of actions, informative feedback and distinguishable objects Reducing the user selection time: appropriate object sizes, object emphasis, grouping related objects Learning aim A: assessment practice Component 1: Learning aim A: formal assessment Project methodologies: waterfall, iterative and Agile Co-coordinating project tasks: Gantt charts, PERT charts and critical path diagrams Basic project planning tools: task lists, graphical descriptions, written descriptions and mood boards Planning the project basics: aims and objectives, audience and purpose Defining the project requirements: user requirements, output requirements, input requirements and user accessibility requirements Project constraints and risks: time, resources, task dependencies, security and contingency planning Planning project timescales: overall timescales, when tasks will be completed, key milestones and resources What is a design specification: user requirements, output requirements, input requirements and user accessibility requirements Designing the visuals: sketches and storyboarding Defining the hardware, software and testing strategy Learning aim B: assessment practice Developing a functional user interface: showing the outputs, inputs and the navigational methods Showing the key aspects of a user interface: awareness of intended device, how the requirements have been met, the overall look/feel and the ease of use Refining the user interface: presenting the interface to potential users, gaining feedback, refining the interface, documenting changes Reviewing the user interface and what areas could be developed further Reviewing the project planning techniques and lessons learned	Presentation methods – session 1: form controls, graphs/charts, pivot tables, conditional formatting and select data/range Presentation methods – session 2: form controls, graphs/charts, pivot tables, conditional formatting and select data/range Presentation features: font size/style/colour, cell borders/shading, graphics, axis label and titles Learning aim B: assessment practice Drawing conclusions: e.g. trends, patterns, anomalies and possible errors Making recommendations: e.g. who to target advertisements at, where to deploy staff and how to adapt transport schedules The impact of presentation: information being misinterpreted, information being bias and inaccurate conclusions being made Component 3: Communication technologies: ad-hoc networks, open networks, performance issues and network availability Cloud storage: access rights, synchronisation, availability and scalability Cloud computing: applications, consistency of versions between users, single shared instances and collaboration tools/features Selection of platforms and services: complexity of features, paid versus free, interface design and available devices Using cloud and traditional systems together: device synchronisation, online/offline working and notifications Choosing cloud technologies: disaster recovery policies and security of data Maintenance, set up and performance considerations: maintenance: updates, downtime and staff expertise and performance: responsiveness, complexity of task and available devices Collaborative technologies: world teams, multicultural, inclusion, 24/7/365 and flexibility Using modern technology when managing teams: communication and collaboration tools Using technology when managing teams: scheduling and planning tools Communication with stakeholders: communication platforms and selection of appropriate communication channels Accessibility and inclusivity: interface design, accessibility features and flexibility How modern technologies impact on the organisation: infrastructure, demand, availability, 24/7 access and security of distributed/disbursed data

		How technologies impact the way organisations operate: inclusivity, accessibility and remote working How technology impacts individuals: flexibility, working styles and impact on mental wellbeing A: assessment practice/revision Why systems are attacked: fun, challenge, espionage, financial gain, personal attack and disruption, theft External threats to digital systems and data: unauthorised access, malware, phishing, pharming, social engineering, shoulder surfing and man-in-the-middle attacks Internal threats to digital systems and data security: unintentional disclosure of data, intentional stealing or leaking of information, users overriding security controls, portable devices, downloads from the internet and visiting trustworthy websites User access restriction: locks, passwords, levels of permitted access, biometrics and two-factor authentication Data level protection: firewalls, anti-virus software, device hardening and encryption Finding weaknesses and improving system security: ethical hacking, penetration testing and analysing system data Security policies: who takes responsibility and how to plan for disaster recovery Defining security parameters: passwords and policies Actions to take after an attack: investigate, respond, manage, recover and analyse B: assessment practice/revision Sharing data: benefits, drawbacks and responsible use The impact of technology on the environment: impacts of manufacturing, considerations when upgrading/replacing digital systems and usage of settings policies Accessing information and services: benefits to organisations, individuals and society Legal requirements and professional guidelines Net neutrality and how this impacts organisations Acceptable use policies: scope, assets, acceptable behaviours, unacceptable behaviours, monitoring, sanctions and agreement Data protection principles: lawful processing, specific purposes, relevant data is collected, accuracy, only kept as long as needed, data subject rights and transferring data to other countries Data and the use of the internet: right to be forgotten, appropriate legal use of cookies and other transaction data Intellectual property: importance, methods of identifying and legal/ethical use

		The criminal use of computer systems: unauthorised access/modification, creation of malware and intentional spreading of malware C: assessment practice/revision Forms of notation: introduction Forms of notation: interpreting/creating data flow diagram and flowcharts Forms of notation: interpreting system diagrams, tables and written information D: assessment practice Revise for final externally-set assessment
Wider curriculum links to CC/SMSC/PD and CEIAG	Learn how to revise using different methods Practice exam questions. Know how to retain information To understand other people's opinions Understand how laws support the people who work in technology sectors Understand how laws impact on technology Use good communication skills with others Research into wider and diverse cultural ideas. Developing a personal voice and responding to other's opinions and ideas Demonstrating initiative, self- motivation and resilience Sensitivity towards feelings and opinions of others Communication of ideas and opinions to others – being able to discuss them. Developing an enquiring and questioning mind-set Understanding the importance and role of Technology in society	