

Ursuline College Curriculum Implementation: Computing - Application Development (Year 13)



Curriculum Intent	<i>'I have come so that they may have life and have it to the full.'</i> John 10: Chapter 10. V 10 Inspired by the Gospel values of love, joy, and compassion, we nurture and develop the whole child so that each unique individual grows in confidence and has the knowledge and skills to enable them to achieve their true potential. Our ICT and Computing curriculum aims to develop students' computational thinking and problem-solving abilities, equipping them with the skills needed for future success. Aligned with our core values of respecting, helping, and bearing with each other, we strive to foster resilience and creativity, enabling students to become critical thinkers who can tackle any challenge. Our broad and balanced curriculum prepares students for a technological world, teaching them to use various ICT and coding software. Through exposure to key computational concepts, students gain the knowledge, skills, and understanding to stay safe online, comprehend how computers work, and confidently use technology. This curriculum nurtures resilient learners capable of solving problems and learning from their mistakes. Respecting each other, helping each other, and bearing with each other: Getting better never stops.	
Year 13 Intent	The Year 13 curriculum allows the learners to achieve the Cambridge Advanced National Extended Certificate in Computing: Application Development qualification by completing three additional units Unit F161 is the second and final externally examined unit in the qualification and this is accompanied by two additional units which are coursework based. We currently offer units on games and website development which are marked by the teacher and verified by the exam board.	
Exam Board & Specification	OCR https://www.ocr.org.uk/qualifications/cambridge-advanced-nationals/computing-application-development-level-3-h029-h129/	
Focus & Skills (Inc paper/ unit focus)	Cycle 1	
	Term 1 2.9.26 – 23.10.26 7 weeks	Term 2 2.11.26 – 18.12.26 7 weeks
	Unit F161: Developing application software Topic Area 1: Application software considerations 1.1 Application platforms - Augmented Reality - (AR)/Virtual Reality (VR)/Mixed Reality (MR) - Educational - Instructional - Research - Websites	Unit F161: Topic Area 4: Application software security 4.1 Security considerations - Threats - Botnets - Denial of Service (DOS)/Distributed Denial of Service (DDoS) - Hacking - Lack of supplier support

Commented [CZ1]: @Stannard, Emma

- Ecommerce
- Informative
- Educational
- Social media
- Computer games

1.2 Devices

- Console
- Desktop
- Haptic
- Laptop
- Server
- Smart devices
- Tablet/hybrid
- Wearables

1.3 Storage Locations

1.3.1 On-Site

- File servers
- Network Attached Storage (NAS) devices
- Portable storage devices
- Solid State Drive (SSD)
- Storage Area Network (SAN)

1.3.2 Cloud Storage

- Location of cloud storage
 - Private
 - Public
 - Hybrid
 - Community
- Types of cloud storage
 - File storage
 - Object storage
 - Block storage
 - Elastic/scalable storage
 - Cloud-based database services

Topic Area 2: Data and flow in application software

- Malicious spam
- Malware
- Out of date
 - Software
 - Hardware
 - Firmware

• Physical security mitigations

- Biometrics
- Cable locks
- Cameras
- Locks
- RFID
- SafeSwipe cards

• Digital security mitigations

- Access rights
- Anti-malware
- Back-up
- Cryptography
- Encryption
 - At rest
 - In transit
- Firewalls
 - Hardware
 - Software
- Two-Factor Authentication (2FA)

Topic Area 5: Operational considerations

5.1 Testing

- Test plan structure
 - Test number
 - Test type
 - Test description
 - Purpose
 - Procedure
 - Test data
 - Expected result
 - Actual result
 - Remedial action required

	2.1 Data format and types • Data formats ○ American Standard Code for Information Interchange (ASCII) Unicode ○ Comma-separated Values (CSV) ○ Fixed width ○ JavaScript Object Notation (JSON) ○ Extensible Markup Language (XML) • Data types ○ Boolean ○ Character ○ Date ○ Integer ○ Real ○ String 2.2 Data Flow • Input ○ Number ○ Text ○ Movement ○ Audio ○ Image ▪ Moving ▪ Static • Storage ○ On-site ○ Cloud • Output information ○ Number ○ Text ○ Movement ○ Audio ○ Image ▪ Moving ▪ Static • Black box concept ○ Flow in ○ Flow to storage	○ Retest result • Types of test data ○ Normal ○ Extreme ○ Erroneous • Types of testing ○ Technical ○ User 5.2 Types of application software Installation • Create ghost/image and deployment • Upgrade • Clean install • Repair/modify installs • Remote install • Unattended installation • Cloud download/install • Mobile install • Network install 5.3 Policies • Application user guide • Acceptable Use Policy (AUP) • Backup(s) • Codes of practice • Staying safe online • Use of information Topic Area 6: Legal considerations 6.1 Legal considerations • Legislations and regulations ○ Computer Misuse Act (CMA) ○ Data Protection Act (DPA) ○ UK General Data Protection Regulation (UK GDPR) ○ Freedom of Information Act (FOIA) ○ Privacy and Electronic Communications Regulations (PECR)
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	○ Flow out 2.3 Data States • At rest • In transit (motion) • In use Topic Area 3: API and protocols 3.1 Application Programming Interfaces (API) • Role • Types ○ Composite ○ Internal ○ Private ○ Public ○ Partner • Architecture ○ Representational State Transfer (REST) ○ Simple Object Access Protocol (SOAP) ○ Remote Procedure Call (RPC) 3.2 Protocols • File Transfer Protocol (FTP) • Hyper Text Transfer Protocol (HTTP) • Post Office Protocol (POP) • Simple Mail Transport Protocol (SMTP) • Simple Network Management Protocol (SNMP) • Transport Control Protocol (TCP) • User Datagram Protocol (UDP) • Internet Control Message Protocol (ICMP) • Internet Protocol (IP)	• Independent bodies ○ Information Commissioner's Office (ICO) in the UK Unit F163: Game development Topic Area 1: Game Design 1.1 Types and genres of digital games 1.1.1 Types of game • 2D • 3D • Immersive games (Augmented Reality, Virtual Reality, Mixed Reality) • Massive Multiplayer Online (MMO) games • Massive Multiplayer Online Role-Playing Games (MMORPG) □ • Role Playing Games (RPG) • Platform • Simulation 1.1.2 Genres of game • Action • Educational • Puzzle and trivia • Quest • Sports • Strategy 1.1.3 Gaming platforms • Types of gaming platform 1.1.4 Pan European Game Information (PEGI) Certificates • Age ratings • Content descriptions 1.2 Principles of game design 1.2.1 Game concept • Game purpose • Game audience
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		• Story • Unique Selling Proposition (USP) 1.2.2 Game and gameplay elements • Game elements ○ Goals/objectives ○ Aesthetics/visuals ○ Game world dimensions ▪ Environmental ▪ Physical ▪ Temporal ▪ Emotional ▪ Ethical ○ Theme and story • Gameplay elements ○ Competition ○ Outcome and feedback ○ Player immersion ○ Player interaction ○ Progression ○ Reward/accomplishment ○ Scoring ○ Strategy and chance 1.2.3 Game assets • Animation • Backgrounds • Main characters • Non-Player Characters (NPCs) • Objects • Scenery • Sounds • Textures • Video 1.2.4 Game mechanics • Character and object movement • Character and object navigation
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		• Game actions and events • Game play controls • Game start mechanisms • Game end mechanisms • Inputs and outputs • Collision detection • Player interaction and feedback • Scoring and timing mechanisms • Shortcuts and cheats
Links to CST	Preferential option for the poor and vulnerable: • Learning about the different application platforms and devices that software runs on helps us recognise that not everyone owns the newest or most expensive technology, which reflects the preferential option for the poor and vulnerable by encouraging us to build software that still works well for people using older, cheaper or borrowed devices. • Understanding storage locations and the ways data is formatted and stored helps us keep people's information safe and available, which reflects the preferential option for the poor and vulnerable by making sure those with limited resources or unreliable internet access are not left unable to reach or protect their own data. • Studying how data flows through applications and is shared using APIs and protocols helps us build dependable links between services, which reflects the preferential option for the poor and vulnerable by prioritising the reliable, essential online services that disadvantaged people most depend on.	Preferential option for the poor and vulnerable: • Learning about the threats to application software and the physical and digital measures that protect it helps us keep users safe from harm, which reflects the preferential option for the poor and vulnerable by giving the strongest protection to those least able to recover from fraud, scams or the loss of their data. • Understanding testing, installation, operational policies and the law helps us release software that is safe, dependable and treats people's data fairly, which reflects the preferential option for the poor and vulnerable by protecting the rights and dignity of those who are least able to defend themselves. • Beginning to design digital games with a clear purpose and audience helps us think carefully about who will play them, which reflects the preferential option for the poor and vulnerable by encouraging us to create games that welcome and include players who are often overlooked or left out.
Explicit Skill Content	F161 <u>1.1 Application platforms</u> • Know the uses of each application platform • The advantages and disadvantages of each application platform <u>1.2 Devices</u>	<u>4.1 Security considerations</u> • Know current threats to application security • The risk(s) to application security posed by each current threat • Know current physical and digital security mitigations • How current physical and digital security mitigations protect application software from threats

- Know the characteristics of each type of device that application platforms run on
- The advantages and disadvantages of each device

1.3.1 On-Site

- The characteristics of each storage location
- The advantages and disadvantages of each storage location
- The factors to consider when selecting storage locations

1.3.2 Cloud storage

- The characteristics of each cloud storage location
- The advantages and disadvantages of each cloud storage location
- The factors to consider when selecting cloud storage locations
- The characteristics of each cloud storage type
- The advantages and disadvantages of each cloud storage type
- The factors to consider when selecting cloud storage types

2.1 Data format and types

- Know the characteristics of each data format
- How each data format is used
- The advantages and disadvantages of each data format
- Know the characteristics of each data type
- How each data type is used
- The advantages and disadvantages of each data type

2.2 Data flow

- Know the difference between data and information
- How data is converted to information
- How data flows through application software
- The types of data that flow through application software
- How information flows from application software
- The types of information that flow from application software
- The storage locations required for application software

5.1 Testing

- The purpose of testing
- The importance of testing
- The impact of not testing on applications
- The advantages and disadvantages of testing
- The structure and contents of test plans
- The importance of testing during the development of applications
- The importance of remedial action and retesting
- Know what each type of test data is
- The role of each type of test data during testing
- Know the purpose of each type of testing
- The advantages and disadvantages of each type of testing
- When each type of testing should take place
- How each type of testing takes place

5.2 Types of application software Installation

- How the different installation processes are completed
- The advantages and disadvantages of the different installation processes
- When it is appropriate to use each installation process

5.3 Policies

- Know the purpose and content of each policy to be considered when developing application platforms
- How each policy is applied when developing application platforms
- How to improve the effectiveness of documents and diagrams for users

6.1 Legal considerations

- Know the latest version of each act/regulation
- Know the main purpose(s) of each act/regulation
- The actions that must be taken to comply with each act/regulation when developing application software
- The impact of non-compliance with each act/regulation

	- How to diagrammatically represent data flow using black box concept 2.3 Data States - The characteristics of each data state - When each state is used 3.1 Application Programming Interfaces (API) - The role of APIs and their use - When each API type is used - The advantages and disadvantages of each API type - When each API architecture is used - The advantages and disadvantages of each API architecture 3.2 Protocols - The structure, content, and use of the 4-layer TCP/IP stack - Know the role of each protocol - When each protocol is used	- How PECR relate to DPA and UK GDPR - The role of Information Commissioner's Office (ICO) in the UK F163 1.1 Types and genres of digital games 1.1.1 Types of game - The features and characteristics of each game type - The differences between each game type - How game type impacts game development 1.1.2 Genres of game - The features and characteristics of each game genre - How game genre impacts game development 1.1.3 Gaming platforms - The features and characteristics of gaming platforms - Differences between gaming platforms - How the features and characteristics of gaming platforms impact game development 1.1.4 Pan European Game Information (PEGI) Certificates - The features and characteristics of games which meet each current PEGI rating - How PEGI ratings impact game development
Homework	- Research Activities - Exam Practice Questions - Revision Exercises	- Research Activities - Exam Practice Questions - Revision Exercises
Assessment	- Class activities - End of topic assessments - Mock Paper - Exam Practice questions - Homework	- Class activities - End of topic assessments - Past Papers - Exam Practice questions - Homework
Disciplinary Literacy Vocab	Platforms & devices: application platform, augmented reality (AR), virtual reality (VR), mixed reality (MR), console,	Security threats: botnet, denial of service (DoS), distributed denial of service (DDoS), hacking, malicious spam, malware,

	desktop, haptic device, laptop, server, smart device, tablet/hybrid, wearable • Storage locations: file server, network attached storage (NAS), portable storage, solid state drive (SSD), storage area network (SAN), cloud storage (private, public, hybrid, community), object storage, block storage, elastic/scalable storage • Data formats & types: American Standard Code for Information Interchange (ASCII), Unicode, comma-separated values (CSV), fixed width, JavaScript Object Notation (JSON), Extensible Markup Language (XML); Boolean, character, date, integer, real, string • Data flow & states: input, output, information, data flow, black box concept, data state, at rest, in transit, in use • APIs & protocols: application programming interface (API), REST, SOAP, remote procedure call (RPC), FTP, HTTP, POP, SMTP, SNMP, TCP, UDP, ICMP, IP	out-of-date software/hardware/firmware, lack of supplier support • Security mitigations: biometrics, cable lock, RFID, access rights, anti-malware, back-up, cryptography, encryption (at rest / in transit), firewall, two-factor authentication (2FA) • Testing & operations: test plan, test data (normal, extreme, erroneous), technical testing, user testing, remedial action, retest, deployment, ghost/image, clean install, unattended installation • Policies & legislation: acceptable use policy (AUP), code of practice, Computer Misuse Act (CMA), Data Protection Act (DPA), UK GDPR, Freedom of Information Act (FOIA), PECR, Information Commissioner's Office (ICO) • Game design (F163): game type, game genre, gaming platform, Pan European Game Information (PEGI), unique selling proposition (USP), game assets, game mechanics, non-player character (NPC)
Texts/ Resources and Revision Resources	• Charles, C., Corbett, D. & Gainsford, J., 2025. <i>Cambridge Advanced National (AAQ) in Computing: Application Development Student Book</i>. Cambridge: Cambridge University Press. ISBN 9781009817134 • Lesson Resources available on Teams • www.csnewbs.com	• Charles, C., Corbett, D. & Gainsford, J., 2025. <i>Cambridge Advanced National (AAQ) in Computing: Application Development Student Book</i>. Cambridge: Cambridge University Press. ISBN 9781009817134 • Lesson Resources available on Teams • www.csnewbs.com
	Cycle 2	
	Term 3 4.1.27 – 12.2.27 6 weeks	Term 4 23.2.27 – 25.3.27 5 weeks
Focus & Skills (Inc paper/ unit focus)	Unit F161: Complete the EXTERNAL F161 exam for this unit in January. Unit F163: Game development Topic Area 2: Plan and design high-fidelity game prototypes 2.1 Tools to plan and design game prototypes 2.1.1 Game Design Documents (GDDs)	Unit F164: Website Development Topic Area 1: Fundamentals of website development 1.1 Website principles Domain name/Uniform Resource Locator (URL) Structure Platform and browser compliance Device compliance

	• Format, layout and templates of GDDs • Content of GDDs ○ Client requirements ○ Executive summary of game concept ○ Success criteria ○ Game and gameplay elements ○ Game assets ○ Game mechanics 2.1.2 Game planning and design tools • Tools to document designs for game visuals ○ Concept art ○ Storyboard ○ Assets list • Tools to document plans for game mechanics ○ Decision trees ○ Flowchart ○ Pseudo code Topic Area 3: Create high-fidelity game prototypes 3.1 Tools and techniques to source and prepare assets • Sources of assets ○ Internet ○ Stock libraries • Preparation of assets • File formats and properties used in game creation • Asset naming conventions used in game creation 3.2 Technical skills to create game environments and game functionality • Game engine tools ○ Asset management ○ Object controls ○ Animation systems ○ Physics engine/collision detection and response ○ Rendering engine ○ Sound support ○ Scripting environment	Sizes Types W3C compliance Y Protocols and guidelines Web Content Accessibility Guidelines (WCAG) Site structures Index page Site map Web 2.0 Web 3.0 1.2 Purpose of websites Advertise/promote Educate Entertain Influence Inform Market Sell 1.3 Website Types Interactive Multimedia Responsive Single page Static Dynamic Content Management Systems (CMS) 1.4 Website components and structure Semantic page components Interface designs Hyper Text Markup Language 5 (HTML5) or later versions Cascading Style Sheets 3 (CSS3) or later versions Client-side scripting Navigational components
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	○ Libraries ● Programming techniques ○ Variables, constants, operators, inputs, outputs, and assignments ○ Sequence, selection and iteration ○ Conditions using comparison, arithmetic, and Boolean operators ○ File handling ○ Sub programs (sub routines/functions/procedures) <u>Topic Area 4: Test high-fidelity game prototypes</u> 4.1 Game prototype testing ● Testing methods ○ Dry run ○ Iterative ○ Test plan ○ Trace tables ● Testing types ○ Functionality testing ○ Performance testing ○ Play testing ○ Compatibility testing ● Elements of game prototypes to test ○ Actions and events ○ Audio effects ○ Character movement and navigation ○ Consistency of graphics ○ Game play controls ○ Game progression/levels ○ Player interaction and feedback ○ Scoring and timing mechanisms ○ Usability and gaming experience ○ User interface and functionality ● Results analysis and remedial action <u>Topic Area 5: Review and improve high-fidelity game prototypes</u> 5.1 Techniques to review the fitness for purpose of game prototypes	Hyperlinks Hotspots Navigation bar User interactions Forms Tags Responsive design features Compatibility Browser Device Fluid grids Media queries/break points Relative sizing Libraries/Frameworks HTML based CSS based JavaScript based Hypertext Pre-processor (PHP) based Animation techniques 1.5 Search Engine Optimisation (SEO) techniques Crawling Indexing Keywords Metadata Mobile-friendly Ranking <u>Topic Area 2: Plan and design high-fidelity website prototypes</u> 2.1 Planning and design considerations ● Client requirements ● Purpose ● Type of website ● Target audience ● Content of website ● User requirements ● Navigation system
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	• Suitability for meeting: ○ Client requirements ○ Planning and design requirements • Audio-visual/aesthetics quality • Game and gameplay elements • Player interaction and engagement • Player suitability/appeal 5.2 Improvements to, and further developments for, game prototypes 5.2.1 Improvements • Audio • Gameplay • Graphics • Levels and progression • Lifelikeness • Video/animation 5.2.2 Further development opportunities • Building gaming communities • Facilitating in-game purchases • Marketing opportunities • Release to gaming platforms • Widen scope of game concept	• Interactive components • Buttons • Media controls • User input fields • Rollovers • Hyperlinks • Hotspots Assets Text Sound Images Video/animation Forms House style Colours Fonts Styles Images Text Plugins Responsive design features Search Engine Optimisation (SEO) W3C compliance Hosting requirements Cost Location Security Domain name 2.2 Tools to plan and design website prototypes • Tools to document ideas for website prototypes ○ Mind maps ○ Mood boards • Tools to document plans and designs for website prototypes ○ Site plans ○ Visualisation diagrams ○ Wireframes ○ Storyboards
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		○ Assets list ○ House style sheet Topic Area 3: Create high-fidelity website prototypes 3.1 Tools and techniques to create website structures • Folder structure ○ Templates ○ Assets ○ Pages • Site page structure • Index page location 3.2 Techniques to source and prepare assets Sources of assets Internet Stock libraries Preparation of assets File formats and properties used in website creation Asset naming conventions used in website creation 3.3 Technical skills to create website pages • Web authoring software tools ○ Visual design environment ○ Scripting environment with coding assistance ○ Template creation ○ Cascading style sheets (CSS) ▪ Box model ▪ Website/page formatting ▪ Content formatting ○ Responsive design features ○ Form controls ○ Interactive features and controls ○ Preview and publishing ○ Libraries/Frameworks ○ Search Engine Optimisation (SEO)
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		<u>Topic Area 4: Test high-fidelity website prototypes</u> 4.1 Website prototype testing • Testing methods ○ Dry run/trace table ○ Iterative ○ Test Plan • Testing types ○ Technical testing ○ Viewpoint testing ○ User testing • Elements of website prototypes to test ○ Content display ○ Ease of use ○ Hyperlinking ○ Interactive elements ○ Multiple browser testing ○ Multiple device testing ○ Multiple viewpoint size testing ○ Navigation features ○ Pages display ○ Readability of content • Results analysis and remedial action <u>Topic Area 5: Review and improve the effectiveness of high-fidelity website prototypes</u> 5.1 Techniques to review the effectiveness of website prototypes • Suitability for meeting: ○ Client requirements ○ User requirements • Accessibility • Device independence/compatibility • Responsive design • Search Engine Optimisation (SEO) techniques used
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		5.2 Improvements to, and further developments for, website prototypes 5.2.1 Constraints and improvements • Constraints ○ Legislation ○ Libraries/Frameworks ○ Skills ○ Software ○ Time • Improvements ○ Accessibility ○ Browser independence/compatibility ○ Content, visuals, and interaction ○ Device independence/compatibility ○ Domain name ○ Search Engine Optimisation (SEO) ○ Security 5.2.2 Further development opportunities • Extra content/features • Further user interactivity • Hosting considerations • Payment gateways/processors
Links to CST	Preferential option for the poor and vulnerable: • Planning and designing game prototypes around clear client requirements help us build games that genuinely suit the people who will play them, which reflects the preferential option for the poor and vulnerable by prioritising players who are often forgotten, such as those with disabilities or limited access to technology. • Sourcing and preparing assets and building game functionality helps us create games that run smoothly, which reflects the preferential option for the poor and vulnerable by making sure games can still be enjoyed on the modest, lower-cost devices that many people rely on.	Preferential option for the poor and vulnerable: Learning the fundamentals of website development, including accessibility and W3C guidelines, helps us build websites that everyone can use, which reflects the preferential option for the poor and vulnerable by prioritising access for users with disabilities and those who are often shut out of the digital world. Planning, designing, and creating responsive website prototypes helps us make sites that work across many browsers and devices, which reflects the preferential option for the poor and vulnerable by making sure people using older phones, small screens or slow connections are not left behind.

	Testing, reviewing, and improving game prototypes helps us find and fix problems before release, which reflects the preferential option for the poor and vulnerable by making sure that players who are most easily excluded are still able to access and enjoy the finished game.	Testing, reviewing, and improving website prototypes helps us check that a site truly meets client and user requirements, which reflects the preferential option for the poor and vulnerable by putting the needs of the most disadvantaged users first when deciding how to improve it.
Explicit Skill Content	<u>Unit F163: Game development</u> <u>Topic Area 2: Plan and design high-fidelity game prototypes</u> 2.1 Tools to plan and design game prototypes 2.1.1 Game Design Documents (GDDs) - The purpose of, and audiences for, GDDs - How the format, layout and structure of GDDs impact their effectiveness - How to create GDDs for game prototypes 2.1.2 Game planning and design tools - The purpose and use of each planning and design tool - The format, layout and structure of each planning and design tool - How to use tools to document plans and designs for game prototypes <u>Topic Area 3: Create high-fidelity game prototypes</u> 3.1 Tools and techniques to source and prepare assets - How to use internet and stock libraries to search for suitable assets for use in game prototypes - How to prepare assets for use in game prototypes - How to select asset file formats and properties - How to use naming conventions so assets are identifiable 3.2 Technical skills to create game environments and game functionality	<u>Unit F164: Website development</u> <u>Topic Area 1: Fundamentals of website development</u> 1.1 Website principles - The features and characteristics of each website principle - How each principal impacts website development 1.2 Purpose of websites - The purpose of websites - How the content, layout and style are adapted to meet the purpose 1.3 Website types - The features and characteristics of each website type - The differences between each website type - How different types of websites can be combined - How websites are evolving to provide increased personalisation of experience 1.4 Webpage components and structure - The purpose and role of each webpage component - How each component is used/implemented in the creation of webpages 1.5 Search Engine Optimisation (SEO) techniques

- How to use game engine tools/programming techniques to create game scenes/rooms/environments
- How to use game engine tools/programming techniques to implement game functionality

Topic Area 4: Test high-fidelity game prototypes

4.1 Game prototype testing

- The structure, content, and use of testing methods
- How and why to test iteratively both during prototype creation and post-prototype creation
- The purpose of each testing type
- The features and characteristics of each testing type
- When it is appropriate to use each testing type
- How to plan testing to ensure game prototypes function as intended
- How to implement testing to ensure game prototypes function as intended
- How to analyse testing results and identify remedial action

Topic Area 5: Review and improve high-fidelity game prototypes

5.1 Techniques to review the fitness for purpose of game prototypes

- How to assess strengths and weaknesses of game prototypes
- How to compare game prototypes against requirements
- How to assess the quality and appropriateness of audio-visual/aesthetics
- How to assess the appropriateness and effectiveness of game and gameplay elements used
- How to assess the appropriateness and effectiveness of player interaction and engagement
- How to assess the appropriateness and effectiveness of player suitability/appeal

5.2 Improvements to, and further developments for, game prototypes

5.2.1 Improvements

- How search engines find websites
- How website performance in search engines is impacted by optimisation
- The purpose and use of each SEO technique
- How each SEO technique is used to improve a website's performance in search engines

Topic Area 2: Plan and design high-fidelity website prototypes

2.1 Planning and design considerations

- How each consideration impacts website development
- How purpose impacts domain name choice and hosting requirements

2.2 Tools to plan and design website prototypes

- The purpose and use of each tool
- The components and conventions of each tool
- When it is appropriate to use each tool
- How to use tools to document ideas for website prototypes
- How to use tools to document plans and designs for website prototypes including:
 - House style
 - Content
 - Page layout
 - Page linking
 - Navigation systems
 - Interface
 - Functionality

Topic Area 3: Create high-fidelity website prototypes

3.1 Tools and techniques to create website structures

- How to structure folder systems for website prototypes
- How to identify index page location for website prototypes

3.2 Techniques to source and prepare assets

	• How to assess potential improvements to game prototypes 5.2.2 Further development opportunities • How to assess potential further development opportunities for game prototypes	• How to use internet and stock libraries to search for suitable assets for use as website content • How to prepare assets for use as website content • How to select asset file formats and properties which are used for website prototypes • How to use naming conventions so assets are identifiable 3.3 Technical skills to create website pages • How to use web authoring software tools to create editable templates for use in website prototypes • How to use web authoring software tools to create individual webpages of website prototypes • How to create website prototypes which meet current W3C and accessibility guidelines <u>Topic Area 4: Test high-fidelity website prototypes</u> 4.1 Website prototype testing • The structure, content, and use of testing methods • How and why to test iteratively both during prototype creation and post-prototype creation • The purpose of each testing type • The features and characteristics of each testing type • When it is appropriate to use each testing type • How to plan testing to ensure website prototypes function as intended • How to implement testing to ensure website prototypes function as intended • How to analyse testing outcomes and identify remedial action <u>Topic Area 5: Review and improve the effectiveness of high-fidelity website prototypes</u> 5.1 Techniques to review the effectiveness of website prototypes • How to assess strengths and weaknesses of website prototypes • How to compare website prototypes against requirements
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		- How to assess the device accessibility, compatibility, and responsiveness of website prototypes - How to assess the effectiveness of SEO techniques used in website prototypes 5.2 Improvements to, and further developments for, website prototypes 5.2.1 Constraints and improvements - How to assess the impact of constraints on website prototypes - How to assess potential improvements to website prototypes 5.2.2 Further development opportunities - How to assess potential further development opportunities for website prototypes
Homework	- Research Activities - Exam Practice Questions - Revision Exercises	- Research Activities - Exam Practice Questions - Revision Exercises
Assessment	Unit F161 External Assessment: 14/01/2027 PM (1hr 15 mins) - Class activities - End of topic assessments - Exam Practice questions - Past Exam Papers - Homework	- Class activities - End of topic assessments - Case-study Preparation - Exam Practice questions - Past Exam Papers - Homework
Disciplinary Literacy Vocab	Planning & design: Game Design Document (GDD), client requirements, success criteria, concept art, storyboard, assets list, decision tree, flowchart, pseudocode Assets & file handling: sources of assets, stock library, file format, asset properties, asset naming convention Game engine & programming: game engine, asset management, object controls, animation system, physics engine, collision detection, rendering engine, scripting environment, library, variable, constant, operator,	Web fundamentals: domain name, uniform resource locator (URL), World Wide Web Consortium (W3C) compliance, Web Content Accessibility Guidelines (WCAG), index page, site map, Web 2.0, Web 3.0 Types & components: static, dynamic, responsive, single-page, multimedia, content management system (CMS), semantic components, Hypertext Markup Language 5 (HTML5), Cascading Style Sheets 3 (CSS3), client-side scripting

	sequence, selection, iteration, subroutine (function/procedure) • Testing & review: dry run, iterative testing, trace table, functionality testing, performance testing, play testing, compatibility testing, remedial action, fitness for purpose	• Navigation & interactivity: hyperlink, hotspot, navigation bar, form, rollover, plugin • Responsive design: fluid grid, media query, breakpoint, relative sizing, browser/device compatibility, library, framework • Search Engine Optimisation: SEO, crawling, indexing, keyword, metadata, ranking, mobile-friendly • Planning & design: mind map, mood board, site plan, visualisation diagram, wireframe, storyboard, house style
Texts/ Resources and Revision Resources	• Charles, C., Corbett, D. & Gainsford, J., 2025. <i>Cambridge Advanced National (AAQ) in Computing: Application Development Student Book</i>. Cambridge: Cambridge University Press. ISBN 9781009817134 • Lesson Resources available on Teams • www.csnewbs.com	• Charles, C., Corbett, D. & Gainsford, J., 2025. <i>Cambridge Advanced National (AAQ) in Computing: Application Development Student Book</i>. Cambridge: Cambridge University Press. ISBN 9781009817134 • Lesson Resources available on Teams • www.csnewbs.com
	Cycle 3	
	Term 5 12.4.27 – 28.5.27 7 weeks	Term 6 7.6.27 – 16.7.27 6 weeks
Focus & Skills (Inc paper/ unit focus)	<u>Unit F162: Designing and communicating UX/UI solutions</u> <u>Topic Area 5: Review and improve UX/UI solutions</u> 5.1 Review the fitness for purpose of UX/UI solutions • Suitability for meeting: - Client requirements, User requirements, Solution requirements • Application of UX/UI design principles 5.2 Improvements to UX/UI solutions • User experience □ Use of UX/UI design principles • Use of principles of UX/UI design psychology • Use of UX/UI interface standards	

5.3 Review the processes used to plan, design, and communicate UX/UI solutions

- Effectiveness of processes used
- Effectiveness of tools and techniques used

Unit F161: Developing application software

Topic Area 1: Application software considerations

1.1 Application platforms

- Augmented Reality (AR)/Virtual Reality (VR)/Mixed Reality (MR)
 - Educational, Instructional, Research, Websites, Ecommerce, Informative, Educational, Social media
- Computer games

1.2 Devices

- Console
- Desktop
- Haptic
- Laptop
- Server
- Smart devices
- Tablet/hybrid
- Wearables

1.3 Storage locations

1.3.1 On-Site

- File servers
- Network Attached Storage (NAS) devices
- Portable storage devices
- Solid State Drive (SSD)
- Storage Area Network (SAN)

1.3.2 Cloud storage

- Location of cloud storage - Private, Public, Hybrid, Community
- Types of cloud storage - File storage, Object storage, Block storage, Elastic/scalable storage, Cloud-based database services.

Links to CST	Reviewing and improving UX/UI solutions against client, user and solution requirements helps us make sure designs truly work for the people who need them, which reflects the preferential option for the poor and vulnerable by putting first the needs of users who find technology hardest to access or use. Revisiting application platforms, devices, and storage options helps us understand how software reaches different users, which reflects the preferential option for the poor and vulnerable by making sure digital tools stay affordable, dependable, and available to those with the fewest resources.	
Explicit Skill Content	5.1 Review the fitness for purpose of UX/UI solutions • How to assess strengths and weaknesses of UX/UI solutions • How to compare UX/UI solutions against requirements • How to assess the application of UX/UI design principles 5.2 Improvements to UX/UI solutions • How to assess potential improvements to UX/UI solutions 5.3 Review the processes used to plan, design, and communicate UX/UI solutions • How to assess the strengths and weaknesses in the processes used to plan, design, and communicate UX/UI solutions • How to assess the effectiveness of the processes used to plan, design, and communicate UX/UI solutions • How to assess the effectiveness of tools and techniques used to plan, design, and communicate UX/UI solutions <u>Unit F161: Developing application software</u> Topic Area 1: Application software considerations 1.1 Application platforms • Uses of each application platform • The advantages and disadvantages of each application platform	

	1.2 Devices • The characteristics of each type of device that application platforms run on • The advantages and disadvantages of each device 1.3 Storage locations • The characteristics of each storage location • The advantages and disadvantages of each storage location • The factors to consider when selecting storage locations 1.3.2 Cloud storage • The characteristics of each cloud storage location • The advantages and disadvantages of each cloud storage location • The factors to consider when selecting cloud storage locations • The characteristics of each cloud storage type • The advantages and disadvantages of each cloud storage type • The factors to consider when selecting cloud storage types	
Homework	• Research Activities • Exam Practice Questions • Revision Exercises	
Assessment	• Class activities • End of topic assessments • Case-study Preparation • Exam Practice questions • Homework • F161 Re-sit EXAM: 10/05/2027 AM (1hr 15 mins)	
Disciplinary Literacy Vocab	• Requirements & review: client requirements, user requirements, solution requirements, fitness for purpose, suitability, usability • UX/UI design: user experience (UX), user interface (UI), UX/UI design principles, UX/UI design psychology, interface standards, accessibility, iteration	

	• Processes & evaluation: strengths and weaknesses, effectiveness, tools and techniques, remedial action • Application software (F161 revision): application platform, device, on-site storage, cloud storage, network attached storage (NAS), storage area network (SAN), solid state drive (SSD)	
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