

OCR NATIONALS - IT

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		Term1		Term2		Term3	
		Term 1.1	Term 1.2	Term 2.1	Term 2.2	Term 3.1	Term 3.2
10 IT	Theme	Planning and designing the spreadsheet solution	Creating the spreadsheet solution	Creating the spreadsheet solution	Testing the spreadsheet solution Evaluating the spreadsheet solution	TA1 – Design Tools – R050	TA2 – HCI in Everyday Life – R050
	Concept	<i>Data manipulation using spreadsheets</i>	<i>Data manipulation using spreadsheets</i>	<i>Data manipulation using spreadsheets</i>	<i>Data manipulation using spreadsheets</i>	<i>IT in the Digital World</i>	<i>IT in the Digital World</i>
	Skills Knowledge	Design Tools - Flow charts - Mind maps - Story board - Visualisation diagram - Wireframe Functionality - Calculations - Sorting - Filtering - User aids - Data entry messages - Data validation Types of outputs that clearly present information for an organisation - Charts - Lists - Invoices - Reports - Worksheets Human Computer Interface (HCI) - Navigation - Accessibility - Colour - Layout - Learnability - Memorability - Messages - Purpose - User perceptions	Data handling and manipulation - Data validation - Lookup - Range check - Text length - Limited choice - Drop down lists - Radio Buttons - Tick List - Cell formatting - Conditional formatting - Sorting - Filters - Formulae - Operators - Parenthesis - Relational operators - Naming cells - Cell references - Relative/ Absolute/Named/Multi-sheet referencing - Functions - Pivot tables - Importing different file types - Entering different data types - Data types - Boolean - Date - Time - Text - Numeric - Integer - Number/Real - Currency - Percentage - Decimal - Security measures - Modelling tools Techniques to generate the outputs - Charts/graphs - Page layout properties - Adjusting row and column settings User interface - Buttons/Macros - Hyperlinks - Forms R060 Task 1 – Planning a Spreadsheet R060 Task 1 – Designing a Spreadsheet	R060 Task 1 – Designing the Spreadsheet R060 Task 2 – Creating & testing the Spreadsheet Test the user interface and the technical aspects of the spreadsheet solution - Testing during development - Technical testing - Usability testing - Testing after development - Technical testing - Usability testing - Test plan documentation - Types of test data - Extreme - Invalid (Erroneous) - Valid	R060 Task 2 – Creating & testing the Spreadsheet R060 Task 3 – Evaluating the Spreadsheet Methods used to evaluate the success of the spreadsheet solution - Client requirements - HCI design principles and conventions	Types of design tools - Flow charts - Mind maps - Library - Tunnel timeline - Presentation - Visualisation diagrams - Wireframes The purpose, importance and use of HCI in application areas - Banking - Embedded systems - Entertainment - Fitness - Home appliances - Retail	The purpose, importance and use of HCI in application areas - Banking - Embedded systems - Entertainment - Fitness - Home appliances - Retail Hardware considerations - Display - Type - Size - Resources - Memory - Processing power Software considerations - Operating system - Digital platform - Database - Mobile App - Spreadsheet - Website User interaction methods - Gesture - Keyboard - Mouse - Touch - Voice Planning and design considerations - Purpose and user requirements - Target audience - Content - Assets - Audio - Charts and graphs - Hyperlink/Weblink - Photograph(s) /Image(s) - Text - Video - Triggers - Object recognition / Marker-based - Location (GPS) based / Markerless - Superimposition - Layers / User Interaction - Action flow - Static - Interactive

							Design Tools Tools used to design the content and action flow for an AR product - o Flowcharts - o Mind Maps - o Mood boards - o Storyboards - o Visualisation diagrams - o Wireframes R070 Task 1 –Designing the Augmented Reality (AR) model prototype
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11 IT	Theme	Designing an Augmented Reality (AR) model prototype Creating an Augmented Reality (AR) model prototype Design tools Human Computer Interface (HCI) in everyday life	Creating an Augmented Reality (AR) model prototype Testing and reviewing Data and testing	Cyber-security and legislation	Digital communications Internet of Everything (IoE)		
	Concept	<i>Using Augmented Reality to present information</i> <i>IT in the Digital World</i>	<i>Using Augmented Reality to present information</i> <i>IT in the Digital World</i>	<i>Using Augmented Reality to present information</i> <i>IT in the Digital World</i>	<i>Using Augmented Reality to present information</i> <i>IT in the Digital World</i>		
	Skills Knowledge	<u>Planning and design considerations</u> • Purpose and user requirements • Target audience • Content • Assets - o Audio - o Charts and graphs - o Hyperlink/Weblink - o Photograph(s) /Image(s) - o Text - o Video • Triggers - o Object recognition / Marker-based - o Location (GPS) based / Markerless - o Superimposition • Layers / User Interaction - o Action flow - o Static - o Interactive <u>Design Tools</u> • Tools used to design the content and action flow for an - o AR product - o Flowcharts - o Mind Maps - o Mood boards - o Storyboards - o Visualisation diagrams - o Wireframes <u>Augmented Reality (AR) model prototype</u> • Characteristics - o Not full product - o Confirms functionality - o Confirms aesthetics - o Has access to real data <u>Triggers</u> • Trigger characteristics - o Must be unique - o Should not contain ➢ blurred images ➢ too much text ➢ too much blank space - o Object recognition / Marker-based - o Location based / Markerless - o Superimposition <u>Layers / user interaction</u> • Single and multiple layers • Access to layers - o Static - o Interactive ➢ Swipe ➢ Click/select ➢ Voice <u>Information output</u> • Audio • Chart(s) and graph(s) • Hyperlink(s)/Webblink(s) • Photograph(s) /Image(s) • Text • Video(s) R070 Task 2 – Creating the Augmented Reality (AR) model prototype	<u>Augmented Reality (AR) model prototype</u> • Characteristics - o Not full product - o Confirms functionality - o Confirms aesthetics - o Has access to real data <u>Triggers</u> • Trigger characteristics - o Must be unique - o Should not contain ➢ blurred images ➢ too much text ➢ too much blank space - o Object recognition / Marker-based - o Location based / Markerless - o Superimposition <u>Layers / user interaction</u> • Single and multiple layers • Access to layers - o Static - o Interactive ➢ Swipe ➢ Click/select ➢ Voice <u>Information output</u> • Audio • Chart(s) and graph(s) • Hyperlink(s)/Webblink(s) • Photograph(s) /Image(s) • Text • Video(s) R070 Task 2 – Creating the Augmented Reality (AR) model prototype	<u>Testing</u> • How to carry out testing of an AR model prototype - o Technical testing - o User testing • Using a test plan - o Test number - o What is being tested - o Expected result - o Actual result - o Remedial action <u>Reviewing the process of creating the Augmented Reality (AR) model prototype</u> • Ways to review - o The effectiveness of the processes followed - o The effectiveness of the tools and techniques used - o Does the AR model prototype meet the defined purpose - o Lessons learnt R070 Task 3 – Testing & Evaluating the Augmented Reality (AR) prototype <u>The impacts of a cyber-security attack on individuals and/or organisations</u> • Data destruction • Data manipulation • Data modification • Data theft – in transit and at rest • Denial of service (DoS) to authorised others • Identify theft <u>Prevention Measures</u> • Physical - o Biometric devices - o Firewalls - o Keypads - o Radio-frequency identification (RFID) - o Secure backups • Logical	<u>Digital communications – Types</u> • Audio • Collaboration tools • Leaflet • Infographics • Newsletters • Presentations • Reports • Social Media • Video • Voice over Internet Protocol (VoIP) • Websites <u>Digital communications – Software</u> • Desktop Publishing (DTP) • Standard office applications <u>Digital communications – Digital Devices</u> • Smartphone • Smart TV • PC/Laptop • Tablet • Smartboard <u>Digital communications – Distribution Channels</u> • Types of distribution channel - o Cloud - o Email - o Messaging - o Mobile Apps - o Multimedia - o VoIP - o Websites • Distribution channel connectivity - o 4G / 5G - o Bluetooth - o Mobile Wi-Fi hotspots - o Wi-Fi - o Wired • Audience demographics - o Accessibility - o Age - o Gender	<u>Revision</u> Revision topics to be directed by pupil performance/suggestions	COMPLETION OF COURSE

		- Object recognition / Marker-based - Location based / Markerless - Superimposition R070 Task 1 – Planning the Augmented Reality (AR) model prototype <u>Purpose and uses of Augmented Reality (AR)</u> - What AR is - The purpose of AR - The sectors where AR can be used in - Architecture - Education - Entertainment - Retail - Lifestyle - Uses of AR Training - Virtual tours - Visualisation of designs, interiors, and concepts - Marketing <u>Types of Augmented Reality (AR) and user interaction</u> - Types of AR - Object recognition / Marker-based - Location based / Markerless - Superimposed - User interaction / layers - Static - Interactive <u>Devices used with Augmented Reality (AR)</u> - Types of devices AR can be used on - Mobile devices - Smart devices - Laptop / PC <u>Information and data</u> - What data is - What information is - The relationship between data and information <u>Data use - Use of data types in different contexts</u> - Alphanumeric - Boolean - Date - Numeric - Currency - Decimal - Integer - Percentages - Real - Text <u>The difference between validation and verification - Data validation tools</u> - Data type check - Format check - Input mask - Length check - Limited choice - Drop down list - Radio buttons - Tick list - Lookup - Presence check - Range check <u>The difference between validation and verification - Data verification tools</u> - Double entry - Manual checking	<u>Application of testing to a range of contexts - Importance and purpose of testing</u> <u>Application of testing to a range of contexts - Test data</u> - Extreme - Invalid (Erroneous) - Valid <u>Application of testing to a range of contexts - Types of testing</u> - Technical - User <u>Threats</u> - Denial of service (DoS) - Hacking including - Black Hat - Grey Hat - White Hat - Malware including - Adware - Botnet - Ransomware - Spyware - Trojan Horse - Virus - Worm - Social Engineering including - Baiting - Phishing - Pretexting - Quid Pro Quo - Scareware - Shoulder Surfing	- Access rights and permissions - Anti-virus / malware software - Two-Factor Authentication (2FA) - Encryption - Firewalls - Secure backups - Username & passwords - Secure Destruction of data - Data erasure - Data sanitation - Magnetic wipe - Physical destruction <u>Legislation related to the use of IT systems</u> - Computer Misuse Act - Copyright, Designs and Patents Act - Data Protection Act - Freedom of Information Act - Health & Safety at Work Act	- Location <u>Use of IoE</u> - What is the IoE - The four pillars of the IoE - The interactivity between the four pillars - IoE digital interactivity - Device to device - Human to device - How digital devices can be tailored to meet the needs of the user <u>Application areas in everyday life</u> - Energy Management - Health - Manufacturing - Military / Emergency Services - Smart devices - Business - Home - Personal - Transport		
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