Curriculum Design 2025-26

OCR NATIONALS IN IT

		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 TA1 – Design Tools – R050	Creating the spreadsheet solution TA2 – HCI in Everyday Life – R050	Creating the spreadsheet solution TA2 – HCI in Everyday Life – R050	Testing the spreadsheet solution Evaluating the spreadsheet solution	TA3 – Data & Testing	TA3 – Data & Testing
	Concept	*Data manipulation using spreadsheets* *IT in the Digital World*	*Data manipulation using spreadsheets* *IT in the Digital World*	*Data manipulation using spreadsheets* *IT in the Digital World*	*Data manipulation using spreadsheets* *IT in the Digital World*	*IT in the Digital World*	*IT in the Digital World*

	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
						Information and data
						• What data is
						• What information is
						• The relationship between data and
						• information
						
						Data use - Use of data types in different contexts
						• Alphanumeric
						• Boolean
						• Date
						• Numeric
						  ○ Currency
						  ○ Decimal
						  ○ Integer
						  ○ Percentages
						  ○ Real
						• Text
						
						The difference between validation and verification - Data validation tools
						• Data type check
						• Format check
						• Input mask
						• Length check
						• Limited choice
						  ○ Drop down list
						  ○ Radio buttons
						  ○ Tick list
						• Lookup
						• Presence check
						• Range check
							The difference between validation and verification - Data verification tools
							• Double entry
							• Manual checking
							
							Data collection methods
							• Primary
							  ○ Email
							  ○ Interview
							  ○ Online Questionnaire and survey
							• Secondary
							  ○ Book
							  ○ Government Statistics
							  ○ Magazine
							  ○ Website
							
							Storage of collected data
							• Logical location
							  ○ Cloud
							• Physical location
							  ○ Internal storage device
							  ➢ Primary Hard Drive
							  ➢ Network Drive
							  ○ External storage device
							  ➢ Portable external Hard Drive Disc (HDD)
							  ➢ Portable Solid-State Drive (SSD)
							  ➢ Network-attached storage (NAS) device
							  ➢ Portable USB Flash Drives
							Portable Wireless Drives

		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			

	Wider Curriculum						
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	*Using Augmented Reality to present information* *IT in the Digital World*	*Using Augmented Reality to present information* *IT in the Digital World*	*Using Augmented Reality to present information* *IT in the Digital World*	*Using Augmented Reality to present information* *IT in the Digital World*		

	Skills Knowledge	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
			Augmented Reality (AR) model prototype
			• Characteristics
			  ○ Not full product
			  ○ Confirms functionality
			  ○ Confirms aesthetics
			  ○ Has access to real data
			
			Triggers
			• Trigger characteristics
			  ○ Must be unique
			  ○ Should not contain
			  ➢ blurred images
			  ➢ too much text
			  ➢ too much blank space
			  ○ Object recognition / Marker-based
			  ○ Location based / Markerless
			  ○ Superimposition
			
			Layers / user interaction
			• Single and multiple layers
			• Access to layers
			  ○ Static
				Testing
				• How to carry out testing of an AR model prototype
				  ○ Technical testing
				  ○ User testing
				• Using a test plan
				  ○ Test number
				  ○ What is being tested
				  ○ Expected result
				  ○ Actual result
				  ○ Remedial action
				
				Reviewing the process of creating the Augmented Reality (AR) model prototype
				• Ways to review
				  ○ The effectiveness of the processes followed
				  ○ The effectiveness of the tools and techniques used
				  ○ Does the AR model prototype meet the defined purpose
				  ○ Lessons learnt
					Digital communications – Types
					• Audio
					• Collaboration tools
					• Leaflet
					• Infographics
					• Newsletters
					• Presentations
					• Reports
					• Social Media
					• Video
					• Voice over Internet Protocol (VoIP)
					• Websites
					
					Digital communications – Software
					• Desktop Publishing (DTP)
					• Standard office applications
					
					Digital communications – Digital Devices
					• Smartphone
					• Smart TV
					• PC/Laptop
						Revision
						Revision topics to be directed by pupil performance/suggestions
							COMPLETION OF COURSE

- Flowcharts
- Mind Maps
- Mood boards
- Storyboards
- Visualisation diagrams
- Wireframes

Augmented Reality (AR) model prototype
- Characteristics
  - Not full product
  - Confirms functionality
  - Confirms aesthetics
  - Has access to real data

Triggers
- Trigger characteristics
  - Must be unique
  - Should not contain
    - blurred images
    - too much text
    - too much blank space
  - Object recognition / Marker-based
  - Location based / Markerless
  - Superimposition

R070 Task 1 – Planning the Augmented Reality (AR) model prototype

Purpose and uses of Augmented Reality (AR)
- 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

Types of Augmented Reality (AR) and user interaction
- Types of AR
  - Object recognition / Marker-based
  - Location based / Markerless
  - Superimposed
- User interaction / layers
  - Static
  - Interactive

Devices used with Augmented Reality (AR)
- Types of devices AR can be used on
  - Mobile devices
  - Smart devices
  - Laptop / PC

Information and data
- What data is
- What information is
- The relationship between data and
- information

Data use - Use of data types in different contexts
- Alphanumeric
- Boolean
- Date
- Numeric
  - Currency
  - Decimal
  - Integer
  - Percentages
  - Interactive
    - Swipe
    - Click/select
    - Voice

Information output
- Audio
- Chart(s) and graph(s)
- Hyperlink(s)/Weblink(s)
- Photograph(s) /Image(s)
- Text
- Video(s)

R070 Task 2 – Creating the Augmented Reality (AR) model prototype

Application of testing to a range of contexts - Importance and purpose of testing

Application of testing to a range of contexts - Test data
- Extreme
- Invalid (Erroneous)
- Valid

Application of testing to a range of contexts - Types of testing
- Technical
- User

Threats
- 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

R070 Task 3 – Testing & Evaluating the Augmented Reality (AR) prototype

The impacts of a cyber-security attack on individuals and/or organisations
- Data destruction
- Data manipulation
- Data modification
- Data theft – in transit and at rest
- Denial of service (DoS) to authorised others
- Identify theft

Prevention Measures
- Physical
  - Biometric devices
  - Firewalls
  - Keypads
  - Radio-frequency identification (RFID)
  - Secure backups
- Logical
  - Access rights and permissions
  - Anti-virus / malware software
  - Two-Factor Authentication (2FA)
  - Encryption
  - Firewalls
  - Secure backups
  - Usernames & passwords
- Secure Destruction of data
  - Data erasure
  - Data sanitation
  - Magnetic wipe
  - Physical destruction

Legislation related to the use of IT systems
- Computer Misuse Act
- Copyright, Designs and Patents Act
- Data Protection Act
- Freedom of Information Act
- Health & Safety at Work Act
- Tablet
- Smartboard

Digital communications – Distribution Channels
- Types of distribution channel
  - Cloud
  - Email
  - Messaging
  - Mobile Apps
  - Multimedia
  - VoIP
  - Websites
- Distribution channel connectivity
  - 4G / 5G
  - Bluetooth
  - Mobile Wi-Fi hotspots
  - Wi-Fi
  - Wired
- Audience demographics
  - Accessibility
  - Age
  - Gender
  - Location

Use of IoE
- 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

Application areas in everyday life
- Energy Management
- Health
- Manufacturing
- Military / Emergency Services
- Smart devices
  - Business
  - Home
  - Personal
  - Transport

		○ Real • Text The difference between validation and verification - Data validation tools • Data type check • Format check • Input mask • Length check • Limited choice ○ Drop down list ○ Radio buttons ○ Tick list • Lookup • Presence check • Range check The difference between validation and verification - Data verification tools • Double entry • Manual checking Data collection methods • Primary ○ Email ○ Interview ○ Online Questionnaire and survey • Secondary ○ Book ○ Government Statistics ○ Magazine ○ Website Storage of collected data • Logical location ○ Cloud • Physical location ○ Internal storage device ➢ Primary Hard Drive ➢ Network Drive ○ External storage device ➢ Portable external Hard Drive Disc (HDD) ➢ Portable Solid-State Drive (SSD) ➢ Network-attached storage (NAS) device ➢ Portable USB Flash Drives ➢ Portable Wireless Drives					
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