MARINA INTERNATIONAL SCHOOL

IT SCHEME OF WORK

FORM 7 - TERM 1

WEEK	TOPIC	TOPIC DETAILS
1.1	Emerging technologies	Describe emerging technologies (including: • 3D printing, 4G and 5G cellular communications, • artificial intelligence (AI), • Augmented reality, • biometrics, • cloud computing, • computer-assisted translation (CAT),
1.2	Emerging technologies	• holographic and 4th generation optical data storage, holographic imaging, • quantum cryptography, • robotics, • QR codes, • wearable computing • ultra-high definition television (including: 4K resolution screens)
1.3	GRAPHICS CREATION:- Vector images	create a vector image that meets the requirements of its intended application and audience: • use layers to overlap items • use grouping or merging tools • use rotation and place an item • use transform tools to resize
1.4	Vector images	• use selection tools to select parts of an image • use crop tools to crop part of an image • use fill tools to colour items • use colour gradients • use node editing • fit text to a path • save an image in different file formats • compress an image to different resolutions using file formats (including: .jpg and .png) to suit different media file size requirements

WEEK	TOPIC	TOPIC DETAILS
2.1	Emerging technologies (continued)	• vision enhancement, • virtual reality, and their possible uses in different fields, (including: medicine, manufacturing, space exploration) • evaluate the impact of emerging technologies on individuals and their lifestyles (including: smartphones performing many of the tasks that PCs and laptops perform)
2.2	Emerging technologies (continued)	• evaluate the impact of emerging technologies on organisations • evaluate the impact of emerging technologies on medicine (including: development of prosthetics and medical products, tissue engineering, artificial blood vessels and the design of medical tools and equipment)
2.3	Graphics Creation (continued) :- Bitmap images	create a bitmap image that meets the requirements of its intended application and audience • use layers to overlap items • use rotation and place an item • use grouping or merging tools • use selection tools to select parts of an image • use crop tools to crop part of an image • use masking tools • use tools to improve parts of an image (including blend, replicate, retouch)
2.4	Bitmap images	• use tools to remove red eye • use filters (including blur, distort, sharpen) • convert between colour, duotone and black and white images • use colour gradients • resize an image • resize the canvas • change the opacity of all or part of an image • use text tools to include text • save an image in different file formats • compress an image to different resolutions using file formats (including: .bmp, .jpg, .png, .gif to suit different media file size requirements)
3.1	Emerging technologies (continued)	• evaluate the impact of emerging technologies on the environment • discuss the advantages and disadvantages of storing data in the cloud. (end of topic 11)
3.2	ROLE AND IMPACT OF IT IN SOCIETY:- eBusiness	• evaluate the impact of information technology on eBusiness (including: banking, shopping, trading goods) • describe how it is possible to be subjected to fraud when using credit cards online • evaluate the impact of digital currency (including: Bitcoin, Litecoin) • explain how IT is used in eBusiness (including: electronic funds transfer, automatic stock control, electronic data exchange, business-to-business buying and selling, online stores) • discuss how organisations mine data to analyse social and economic trends

WEEK	TOPIC	TOPIC DETAILS
3.3	Bitmap image (continued)	• describe the difference between a bitmap and a vector graphic • describe how typical features found in bitmapped and vector graphics software are used in practice
3.4	Bitmap image (continued)	• evaluate their suitability for a given scenario • evaluate the impact of image editing on society (including: media, advertising, fashion, shopping, politics, entertainment) (end of topic "Graphic creation")
4.1	Role and impact of IT in society (continued):- Social networking	• evaluate methods used for social networking (including: chat rooms, instant messaging, forums, email, blogs, microblogs) and their impact on changing social patterns
4.2	Video conferencing and teleworking	• describe video-conferencing and the hardware and software used • describe web-conferencing and the hardware and software used • discuss the advantages and disadvantages of video-conferencing on employers and employees • discuss the advantages and disadvantages of web-conferencing on employers and employees
4.3	PROGRAMMING FOR THE WEB	It is recommended that for this section of the syllabus, candidates should have a working knowledge of HTML and CSS, (for example, have studied website authoring in Cambridge IGCSE Information and Communication Technology, syllabus 0417).
4.4	JavaScript:- Candidates should be able to use JavaScript to:	Candidates should be able to use JavaScript to: • Demonstrate a range of object-based programming techniques o recognise data types (including: number, string, Boolean, array, object) o assign and understand the term variables o carry out calculations and basic string manipulation o use arrays o use comparison and logical operators
5.1	Role and impact of IT in society (continued):- Teleworking	• describe teleworking • discuss the effects of teleworking on employers and employees
5.2	Technology in society	• evaluate the impact of information technology on society (including: sport, manufacturing, medicine, education, banking, eBusiness)
5.3	JavaScript (continued)	o use conditional statements (including: if, else, else if, switch) o use loops (including: for, for/in, while, do/while)

WEEK	TOPIC	TOPIC DETAILS
5.4	JavaScript (continued)	o use iterative methods o create functions o trap errors o control events o create html forms to interact with the user o add comments to explain JavaScript code
6.1	Role and impact in society (continued):- Technology enhanced learning	• discuss the advantages and disadvantages of software-based training methods • evaluate the impact of technology on learning (including: Massive Open Online Courses (MOOC), computer based training, online tutorials, video-conferencing)
6.2	NETWORKS:- Network components	• describe the role and operations of the following components in a network: switches, hubs, wireless access points, network interface cards, wireless network interface cards, routers, repeaters, gateways, bridge, firewalls (hardware and software) and servers
6.3	JavaScript (continued)	• output/display data to: o HTML documents o HTML elements o alert boxes o the browser console • add interactivity to web pages
6.4	JavaScript (continued)	• explain JavaScript terms and programming techniques
7.1	Technology enhanced learning (continued)	software-based training methods including computer based training, online tutorials, video-conferencing)
7.2	Network components (continued)	• describe the role and operations of the following components in a network: switches, hubs, wireless access points, network interface cards, wireless network interface cards, routers, repeaters, gateways, bridge, firewalls (hardware and software) and servers
7.3	JavaScript (continued)	o Repeat: the use conditional statements (including: if, else, else if, switch) o use loops (including: for, for/in, while, do/while)
7.4	JavaScript (continued)	o use iterative methods o create functions o trap errors o control events o create html forms to interact with the user o add comments to explain JavaScript code o HTML documents o HTML elements o alert boxes o the browser console

WEEK	TOPIC	TOPIC DETAILS
8.1	Network Components:- (continued)	o describe bandwidth o describe bit rate o describe bit streaming (both real-time and on demand) o discuss the importance of bit rates/broadband speed on bit streaming
8.2	Network Components	o describe packet switching, circuit switching and message switching o describe optical communication/transmission methods (fibre optic, laser), their advantages, o disadvantages and their typical applications
8.3	JavaScript (continued)	Review of: • Object programming techniques • Describe a range of: o object-based programming techniques o data type: including: number, string, Boolean, array, object
8.4	• conditional statement • loops: • html forms	o including: if, else, else if, switch o including: for, for/in, while, do/while o create interactive html forms o JavaScript codes
9.1	Network components (continued)	• evaluate wireless communication/transmission methods (including: Bluetooth®, infrared, WiFi, radio), their advantages, disadvantages, and their typical applications • explain the importance of bandwidth and bit rate when transmitting data • analyse how different types of communication/transmission media (cables, wireless, optical) govern the bandwidth available for transmitting data
9.2	Network components	• describe what a protocol is and different types of protocols (including: Wide Area Network protocols and Local Area Network access protocols) • describe how the BitTorrent protocol provides peer-to-peer file sharing
9.3	JavaScript (continued):- Review of: Html code/element	• Output/display data to: o HTML documents o HTML elements o alert boxes
9.4	Html code/elements	o the browser console • add interactivity to web pages • explain JavaScript terms and programming techniques
10.1	Network security	• describe the security issues that could arise from networking computers • explain how security issues can be prevented on a computer network • evaluate a range of physical and software-based security methods for a computer network • list the principles of a data protection act

WEEK	TOPIC	TOPIC DETAILS
10.2	Network security	• analyse the need for a data protection act • evaluate methods for combating IT crime (including: physical security methods, biometric methods, firewalls, back-up, encryption, access rights, malware security, anti-virus, anti-spyware)
10.3	ANIMATION	Candidates should be able to: • create and evaluate an animation (stop frame and key frame) that meets the requirements of its intended application and audience o place objects o place an image o use frames
10.4	ANIMATION (continued)	o set key frames o use timings o use layers o show and hide objects o resize objects o use coordinates to move and place objects
11.1	REVISION: Graphics Creation (Vector image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
11.2	REVISION: Graphics Creation (Vector image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
11.3	REVISION: Graphics Creation (Vector image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
11.4	REVISION: Graphics Creation (Vector image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
12.1	REVISION: Graphics Creation (Bitmap image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
12.2	REVISION: Graphics Creation (Bitmap image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1

WEEK	TOPIC	TOPIC DETAILS
12.3	REVISION: Graphics Creation (Bitmap image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
12.4	REVISION: Graphics Creation (Bitmap image) and Advanced Theory	Past Question Papers Revise past questions papers relating to the topic covered before Mock Examination 1
13.1	MOCK EXAMINATION 1 BEGINS	Forms 3, 5, 6 & 7
13.2	MOCK EXAMINATION 1 BEGINS	Forms 3, 5, 6 & 7
13.3	MOCK EXAMINATION 1 BEGINS	Forms 3, 5, 6 & 7
13.4	MOCK EXAMINATION 1 BEGINS	Forms 3, 5, 6 & 7
14.1	MOCK EXAMINATION 1 (continued)	Forms 3, 5, 6 & 7
14.2	MOCK EXAMINATION 1 (continued)	Forms 3, 5, 6 & 7
14.3	MOCK EXAMINATION 1 (continued)	Forms 3, 5, 6 & 7
14.4	MOCK EXAMINATION 1 (continued)	Forms 3, 5, 6 & 7

IT SCHEME OF WORK

FORM 7 - TERM 2

WEEK	TOPIC	TOPIC DETAILS
1.1	Network (continued):- Satellite Communication Systems	• describe how satellite communication systems are used and work in data transfer systems, television and radio broadcasting systems and global positioning systems (GPS)
1.2	Network (continued):- Satellite Communication Systems	• discuss the advantages and disadvantages of using satellites for data transfer systems, television and radio broadcasting systems, and GPS
1.3	Animation (continued)	• understand the use of tweening and what effect it creates • use tweening (motion tweening) to create a smooth transition between frames • use morphing (shape tweening) • understand the use of morphing and what effect it creates
1.4	Animation (continued)	• use morphing to create a smooth transition between images • add text • change the opacity of objects and text • use masking layers
2.1	PROJECT MANAGEMENT:- Stages in project management	Candidates should be able to: • describe the stages of project management from project conception to project close
2.2	Types of project management	• discuss the types of project management software and the advantages and disadvantages of each type
2.3	Project management software	• explain how project management software is used (including: planning, scheduling of tasks, allocation of resources, costings, communications, decision-making)

WEEK	TOPIC	TOPIC DETAILS
2.4	Review animation	Emphasis would be placed on: ☐ objects ☐ images ☐ frames ☐ key frames ☐ timings ☐ layers ☐ hide/show/resize objects ☐ coordination and moving object ☐ use and effects of tweening ☐ use motion tweening when creating transition between frames ☐ morphing (shape tweening)/effects/ masking layers
3.1	Project Management (continued): - Critical path analysis and Gantt charts	• describe, interpret and create a critical path analysis • describe, interpret and create a Gantt chart
3.2	Disaster recovery management	• describe disaster recovery management (including: risk analysis, perpetrator analysis, risk testing, quantifying the risk, securing the risk, software protection, password controls, recovery management)
3.3	Prototyping	• describe prototyping • describe types of prototyping (including: evolutionary, incremental, throw-away, rapid) • discuss the advantages and disadvantages of prototyping
3.4	MAIL MERGE	Candidates should be able to: • create a master document structure (including: standard letter) • create a source file using appropriate software • link a master document to a source file, identifying and using correct field names, using conditional operators • specify rules for managing recipients and content of a mail merge set up fields for manual completion
4.1	Prototyping (continued)	• describe Rapid Application Development (RAD) and other methods of software development (including: the conventional 'waterfall' method) • discuss the advantages and disadvantages of rapid application development (RAD)
4.2	CAD/CAM	• evaluate the use of computer-aided design (CAD) and computer-aided manufacturing (CAM) • describe the uses of computer-aided design (CAD) and computer-aided manufacturing (CAM) • discuss the benefits and drawbacks of using computer-aided design (CAD) and computer-aided manufacturing (CAM)

WEEK	TOPIC	TOPIC DETAILS
4.3	Mail Merge (continued)	• set up fields for manual completion • create appropriate prompts to the user for manual completion • use the software to automatically select the required records • use manual methods and software tools to ensure error-free accuracy
4.4	Mail Merge (continued)	• perform mail merge using the master document and data sources • create variable fields to control record selection and omission when merging • explain why mail merge documents are created
5.1	SYSTEM LIFE CYCLE:- Analysis	Candidates should be able to: • analyse and evaluate different methods of researching a situation (including: questionnaires, interviews, observation, document analysis) • describe the content of the requirements specification, system specification and design specification
5.2	SYSTEM LIFE CYCLE:- Design	• identify a flow of data through a system and create a data flow diagram (DFD) and a system flowchart • design and evaluate data collection forums and screen layouts • design and evaluate validation routines • create a data dictionary for a given situation • evaluate suitable hardware and software for a new system
5.3	REVISION: Past Questions (A Level & AS Question Papers)	Revise past questions papers in preparation for Mock Examination 2
5.4	REVISION: Past Questions (A Level & AS Question Papers)	Revise past questions papers in preparation for Mock Examination 2
6.1	System Life Cycle (continued):- Development and testing	• describe the purpose of test data • explain the purpose of alpha testing • explain the purpose of beta testing • analyse the difference between alpha testing and beta testing • explain the purpose of black box testing
6.2	Development and testing	• explain the purpose of white box testing • analyse the difference between black box testing and white box testing • explain the importance of testing and having a test plan • describe how a test plan is created • create a test plan for a given situation
6.3	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2

WEEK	TOPIC	TOPIC DETAILS
6.4	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2
7.1	System Life Cycle (continued)	• describe the different methods of implementing a system (including: parallel running direct changeover, phased implementation, pilot implementation)
7.2	System Life Cycle (continued)	• analyse the suitability of an implementation method for a given situation
7.3	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2
7.4	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2
8.1	System Life Cycle (continued):- Documentation	• design and develop elements of technical documentation • design and develop elements of user documentation • explain the need for technical and user documentation
8.2	Evaluation and Maintenance	• evaluate a new system in terms of efficiency, ease of use and meeting user requirements • explain the need for maintenance • explain perfective, adaptive, preventive and corrective maintenance
8.3	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2
8.4	REVISION: Past Questions (continued)	Revise past questions papers in preparation for Mock Examination 2
9.1	REVISION: Past Question Papers	Advanced Theory
9.2	REVISION: Past Question Papers	Advanced Theory
9.3	REVISION: Past Question Papers	Advanced Practical
9.4	REVISION: Past Question Papers	Advanced Practical
10.1	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
10.2	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2

WEEK	TOPIC	TOPIC DETAILS
10.3	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
10.4	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
11.1	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
11.2	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
11.3	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2
11.4	A LEVEL MOCK EXAMINATIONS 2	A LEVEL MOCK EXAMINATIONS 2

IT SCHEME OF WORK

FORM 7 - TERM 3

WEEK	TOPIC	TOPIC DETAILS