Unit 1 – Practical Problem Solving in the Digital World.   14 week programme (Week 15 – 28)

Topic	Learning Objectives	AQA Specification Reference		Week Number	Resources
Input	What forms can data input take? What input devices are available and what media do they use? How do I choose an input method?	3.1.4	Data types Input, input devices and media Input devices - Manual input - *Keyboard* - *Mouse* - Touch-sensitive devices - *Concept keyboards* - *Touch screens* - *Graphics tablets* - Speech recognition - Automated input - *Card readers* - *Radio frequency ID* - Scanners - *Optical mark recognition* - *Optical character recognition* - *Bar-code readers* - *Magnetic ink character recognition* - Sound input - Video input - *Webcams* - *Digital cameras* - Special-purpose input devices - *Input devices for people with disabilities* - *Games controllers* Choosing an input device	15	For all resources: refer to blog http://kerryturner.wordpress.com Textbooks: 1. Mott,Leeming & Williams. 2. Doyle.
Output	What forms can output information take? What output methods are available and what devices and media do they use? How do you choose the best output method?	3.1.6	Information types Output, output devices and media Output devices - Visual output - *Screens and monitors* - *Large displays* - *Small displays* - Printers - *Laser printers* - *Inkjet printers* - *Multi-function printers* - *Dot-matrix printers* - *Plotters* - *Professional printers* - *Photo printing* - Speakers - Special-purpose output devices - *Outputs for people with disabilities* Choosing an output device Monitors and screens - What kind of image needs to be viewed? - Where is it going to be	15	

			viewed? - Who is going to view the image? - Internet access Printers - What is to be printed? - How many documents? - What kind of media? - Who is to use the printer?		
Storage	What storage devices and media are available? How do I choose the most appropriate one?	3.1.5	Storage devices and media - Reasons for storing data - File compression Types of storage - Internal and external storage - Magnetic storage - *Hard disks* - *Floppy disks* - *DAT tapes* - Optical storage - Flash memory - Online storage Choosing a storage device - Hard disks – fixed storage - Removable storage - *Archive storage* - *Transferring files* - *Backup*	16	

| Software | What is systems software and why is it needed?

What types of application software are available?

How do I decide which software to use? | 3.1.7 | Systems software
Applications software
Text
- Word processing
- *Templates and wizards*
- *Proofing tools*
- *Styles*
- *Layout tools*
- *Shared projects/track changes*
- *On-screen forms*
- Desktop publishing
- Database management software
- *Data types*
- *Validation*
- *Sorts*
- *Queries*
- *Forms*
- *Reports*
- *Relational database management systems*
Numbers
- Spreadsheets
Pictures
- Bitmap software
- Vector software
Moving images
- Video-editing software
- Animation software
Sound
- Sound editing
- Music composition
- *Input method*
- *Editing*
Multimedia
- Presentation software
- Web authoring software
- E-mail software
- Web browsers
Choosing applications software
Producing documents
Analysing data
Image production
Working with sound
Multimedia | 17 | |
| Health and safety | What hazards are ICT users faced with?

What risks do these hazards pose?

How can the risks be controlled and reduced? | 3.1.1 | Health and safety of ICT systems
Health and Safety at Work Act
Display Screen Equipment Regulations
- Back pain and spinal damage
- *Workstation design*
- *Job design*
- *Training*
- Repetitive strain injury (RSI)
- *Keyboard*
- *Mouse*
- Eye strain and headaches
Health and safety of software
- Software design
- Stress | 18 | |

| Analysis and design | What problem does the client have?

What does the solution have to produce?

What input, processing and output will be needed? | 3.1.2;
3.1.3 | Analysis

Identifying problems

Identifying user/client requirements
- Interview
- Questionnaire
- Existing paperwork
- Observation

Writing a requirements specification
- Limits
- Detail
- *Data capture*
- *Function – what the system actually has to do*
- *Function – how it will do it – the processes*
- *User interface*
- *Output*
- *Storage*
- *Security*
- Writing the requirements specification

Approving the user requirements

Identifying input, processing and output
- Talking photo album
- College enrolment system

Design of solutions

Selecting design tools and techniques

Input – design of data entry
- Data capture devices
- Validation
- Verification
- Data capture forms
- Designing a computer-based data-entry form
- *Things to think about*
- Design user interfaces
- *Things to think about*

Processing design
- *Spreadsheet*
- *Database management systems*
- *Webpages or interactive presentations*

Output design
- Training
- Test planning
- Client approval | **19-21** | |

Implementation and testing	How do you go about implementing your solution? How do you document what you've done? What needs to be tested? What test data needs to be used? How should test results be documented?	3.1.8; 3.1.9	Planning for implementation - Identifying sub-tasks Time planning Implementing a solution - Follow your time plan - Follow your design plans - Document what you do Test planning - Test strategy - Test data - Test plan - *Validation* - *Accuracy of output* - *Presentation of output* - Client requirements - *End-user requirements* - *Audience requirements* - Testing	**22-25**	
Evaluation	Does the solution match the client's requirements? Is the solution effective? How could I make it better?	3.1.10	Does the solution do what it was supposed to do? Does it do it in the way it was supposed to do it? Is the solution an effective one? If it isn't then what is wrong with it and what would make the solution an effective one? - How long does it take? - How efficient are the controls? - How intuitive is the solution? - How accurate is the input data? - How efficient is the processing? - How appropriate are the outputs? - How robust is the solution? Summing up	26	