AS/A Level Applied Information and Communication Technology 9713
Unit 9: Communication

Recommended Prior Knowledge
Students will require a basic knowledge of the internet and e-mail systems, from the theory Unit 4 (Networks). It is important that students understand the importance of security in computer systems. In preparation for this module the following topics should be covered:

- the language of communication
- sending and receiving of e-mails and attachments
- locating and downloading information from the internet using URLs, search engines, advanced search techniques, file compression, virus protection and other security measures.

In preparation for this module you could cover the following topics: handling passwords to gain access to the operating system, applications software and data. They will also require a basic knowledge of file management techniques including:

- creating, renaming, deleting and access to directories/folders
- browsing a directory or folder
- creation of different file types

Context
This sub-unit can be studied on its own, or in conjunction with other practical units. It is recommended that the practical skills of sending and receiving e-mail messages and file attachments are used for reinforcement in subsequent units. Likewise, further internet searching can also be incorporated into other modules.

Outline
This sub-unit covers the following areas:

The use of e-mail to:
- receive messages
- send messages and files using facilities such as reply, forward, copy, create new messages
- receive files as attachments and save them
- send files as attachments
The use of the Internet to:
- locate information on a specified website
- search for information using a search engine
- download and save information

An evaluation of internet sources relating to:
- if an internet search is the most appropriate method of gathering the required information
- identifying the depth of search required
- the need to refine or expand the search criteria
- the most appropriate search methods
- the validity of data found
- bias and mis-information in internet based data
- plagiarism using the internet
- the security of personal information

AO	Learning outcomes	Suggested Teaching activities	Learning resources
9a	Use e-mail	Revision of the language specific to communication, including mail box, address book, address line, carbon copy, blind carbon copy, address, send, reply, forward, file attachments, browser, URL, search engine. Revision of e-mail netiquette and salutations. Revision and practice sending and receiving e-mails with the correct address, subject line, file attachments and compressed (zipped) file attachments, including the use of carbon copies and blind carbon copies. Revision of forwarding e-mail messages to other recipients.	**Supporting files - Exercise 1** Tutor preparation required: • set up e-mail addresses • prepare e-mail message to be sent to the students • check the connection to e-mail host system. • prepare a list of e-mail addresses so that students can send files to the teacher and/or other students • prepare files (with a variety of different file types) to be used as practice attachments • provide CLEAR instructions showing what the students have to do. Host system for e-mail messages, which could be internal to the

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AO	Learning outcomes	Suggested Teaching activities	Learning resources
			centre or globally known hosts like: http://www.hotmail.com http://www.yahoo.com **Supporting files - Exercise 2** **Supporting files - Exercise 3**
		Revision of common file formats such as .rtf, .txt and .csv and be able to import or load these into their preferred and appropriate software package. Students may need to practise locating files from a variety of network drive locations as well. Revision of embedded viruses within emails and file attachments. Discuss the type of file attachments that may contain viruses, the use of anti-virus software, the importance of regular updates, disinfection of files and quarantining files. Revision of mailbox storage limits and good housekeeping relating to e-mails. Discuss the need for security of personal information when using e-mail, including giving out personal details (such as bank details). Discuss the interception of data during transmission. Phishing sites discussed.	
9b(i)	Use the internet	Revise the features of a web browser, searching for and logging in to websites, advanced search features, Boolean searches, use of the address bar and URL, home pages, site maps, uploading and downloading, file compression (zipping).	Tutor preparation required: • check internet connection • check connection to the websites to be used and the location of files for download by candidates • know what is on any specified website

AO	Learning outcomes	Suggested Teaching activities	Learning resources
			• be aware of any Internet search results set for the students • ensure firewall and anti-virus software is functioning with the latest updates. • provide instructions showing what the students have to do. Web browser software with live internet connection. A variety of different online search engines like: http://www.google.com http://www.yahoo.com http://www.ask.co.uk http://www.dogpile.com http://www.altavista.com Other websites like: http://www.hothouse-design.co.uk http://www.dygitell.com **Supporting files - Exercise 4** **Supporting files - Exercise 5**
		Revise viruses, pop-ups, data miners, Trojans etc. that can be downloaded with Internet use. Discuss prevention of these using firewalls, anti-virus scanners etc. Carry out a research project to compare different anti-virus software and present a report using appropriate software. Revise the difference between the internet and an intranet. Revise system storage limits and good housekeeping when managing received files.	http://www.about-the-web.com/shtml/scams.shtml

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9b(ii)	Evaluate internet sources	Introduce the idea that the internet is not always the most appropriate (or fastest) method of finding the required information – other online searches and manual methods including: • contacting experts • libraries • other resource centres • discussion groups / forums may be more effective / efficient / produce correct results.	Tutor preparation required: • check internet connection • check connection to the chosen websites to be used and the location of files for download by candidates • know what is on any specified website • be aware of any Internet search results set for the students • ensure firewall and anti-virus software is functioning with the latest updates. • provide instructions showing what the students have to do.
		Develop the idea of using the most appropriate search string to find information using internet search engines. Include the use of a thesaurus to find alternatives with the same or similar meanings to use as search strings. Provide a list of suitable and relevant search topics, possibly with local impact.	Web browser software with live internet connection.
			Thesaurus, either online or in paper format.
		Evaluate the advantages of using Advanced search features to refine searches to produce manageable results. Utilise other advanced search features like returning only materials or images which can be freely used without infringing copyright law.	A variety of different online search engines like: http://www.google.com http://www.yahoo.com http://www.ask.co.uk http://www.dogpile.com http://www.altavista.com
			Prepare a list of websites and pre tested searches to show searches for copyright free material / images.
		Teach the need to refine search results. This will include narrowing or expanding the search criteria as	A variety of different online search engines like: http://www.google.com

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AO	Learning outcomes	Suggested Teaching activities	Learning resources
		appropriate. Students could compare the results of the same search using different search engines; this could be number of hits, relevance, date of source etc.	http://www.yahoo.com http://www.ask.co.uk http://www.dogpile.com http://www.altavista.com Prepare a list of websites and pre tested searches to show expanded and refined search strings.
		Develop students to think critically about 'Do I really need to search?' Sometimes, other alternatives like trying to work out (or even guess) the URL from information already known about the company or institution. Can trial and error give the required results? Students to try guessing URLs of well known companies or organisations.	A variety of pre-tested websites with URLs that can be guessed / worked out by students with extensions like: http://www.product.com http://www.product.co.uk http://www.product.com.au http://www.institution.org.uk http://www.department.gov.uk http://www.college.edu (US) http://www.college.ac.uk (UK) NB These are not existing websites and are only included as possible examples.
		Students should be taught to establish the depth of search required, is it just an overview or in-depth information required? This should lead to informed choices about the search method to be used.	
		Teach the validity of the data found, identify clues from the URL and sources identified on the webpage. Identify the author/provider and bibliography within the website.	Pre-set web pages on the intranet or in printed form which contain fake material and bibliography. The fake bibliography should give the students clues to the lack of validity of the data. http://www.andoverhs.anoka.k12.mn.us/IMC/bogus.html this is one source of bogus web sites. Teachers can use a search engine to find others.

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AO	Learning outcomes	Suggested Teaching activities	Learning resources
		Teach students to try to use sources that offer as much of the following information as possible: author's name, author's title or position, author's organizational affiliation, date of page creation or version, author's contact information.	http://www.virtualsalt.com/evalu8it.htm This provides students with the CARS Checklist (Credibility, Accuracy, Reasonableness, Support).
		Test the CARS checklist by asking students to search for information on the author Robert Harris. The task could be to find out what he is and details of some of his work.	
		Discuss the evaluation of the quality of websites, look at the suggested websites for ideas, develop/design (or use from website) checklists for evaluation	A good starting point is; http://library.albany.edu/usered/eval/eresources.html which also has numerous links to other relevant sites. Also: http://eduscapes.com/tap/topic32.htm which also has links to sample exercises.
			Prepare a list of websites and pre tested searches to show validity and mis-information.
		Teach the bias of the data found, identify clues from the URL and sources identified on the webpage. Determine whether the document / resource provide the user with factual information or is designed for mis-information. Identify the author/provider and	A variety of pre-tested websites with URLs that can be used to determine bias like: http://www.manutd.com http://www.cricket.com.au/ http://www.absupporters.com/

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		bibliography within the website.	A variety of spoof websites with URLs that can be used to determine bias and misinformation like: The True but Little Known Facts about Women and AIDS http://www.ithaca.edu/library/research/AIDSFACTS.htm Feline Reactions to Bearded Men http://www.improb.com/airchives/classical/cat/cat.html Dream Technologies International (CLONES-R-US) http://www.d-b.net/dti/
		Teach students to identify if the information provided in a website is current or out of date.	Prepare a list of websites and pre test searches to identify if the material is current. An alternative is to prepare intranet web pages giving current and out of date information on the same topic.
		Teach students how to detect plagiarism from the internet, and how to avoid plagiarising from the internet. How this can be avoided by adhering to copyright legislation and by identifying full references where work is copied.	The following might be useful resources on anti-plagiarism: Anti-Plagiarism Strategies for Research Papers http://www.virtualsalt.com/antiplag.htm What Is Plagiarism? http://gervaseprograms.georgetown.edu/hc/plagiarism.html Plagiarism Stoppers: A Teacher's Guide http://www.ncusd203.org/central/html/where/plagiarism_stoppers.html

AO	Learning outcomes	Suggested Teaching activities	Learning resources
		Discuss the need for security of personal information on the internet, especially when asked for personal information in web based forms.	Select sample web based forms such as: Banks Registering for software download Local examples- such as driving licence online application
		Explain how to identify secure websites, the need for secure servers, and use of secure servers to protect personal details (such as bank details).	
		Briefly explain the need for encryption of data to ensure that packets of 'sensitive' data cannot be read if intercepted during transmission.	

EXERCISE 1

Discuss the language of electronic communication and the concepts of the Internet and e-mail. Examine prepared e-mails sent to the students (waiting in their Inbox).   Prepared e-mails should be in a variety of styles – including written prose and note format. Discuss sending e-mails to multiple users, speed of access and cost comparisons with other forms of global communications. Read the e-mail, learn how to identify the sender and any attachments.
Practice moving file attachments from within the e-mail to disc storage for later use.

EXERCISE 2

Prepare the following as a text document and copy this into each student's user area.

Your company carries out business with companies in a number of other countries. In order that your communication is carried out at the correct time of day in that country, it is advisable to know the time difference for such cities.

This table shows the time difference between London and the countries/cities shown:

COUNTRY	CITY	TIME
Australia	Sydney	+ 10
USA	New York	- 5
Japan	Tokyo	+ 9
Brazil	Rio de Janeiro	- 3
Portugal	Lisbon	+ 1
Pakistan	Islamabad	+ 5

Look up and complete the table for the difference between London and your (nearest) city.

Extract this information and send it to your tutor. The tutors e-mail address must be available.

EXERCISE 3

Using the file from Exercise 2, reply to your tutor that you have got the information about time differences and will be sending it as an attachment with your e-mail.

Send the message to your tutor, making sure that you attach a copy of the document with the message.

EXERCISE 4

You work for Global Enterprises and are considering using Hothouse Design to produce some graphic design work. Enter the Hothouse website using the URL which is www.hothouse-design.co.uk and find information about Graphic Design. Copy this information and send this to your tutor.
When the exercise has been completed a discussion about methods of solving this problem should prove useful. It is likely candidates will either copy and paste into the e-mail editor, or save the information as a file attachment. The merits of both systems should be discussed. This would also give a good lead in to discussion of data protection and copyright, both in general terms and relating to the moral and legal issues specific to your country/region.

EXERCISE 5

You work for Global Enterprises and need to find information on car hire. Search the Internet and find details of car hire companies on three different continents. Send brief details of your findings to your tutor, indicating with each piece of information the URL of the site where you found the information.

This exercise would be better adapted to information that is of interest to the students. An extension of this work would be for the students to extract text, graphics, tables, charts etc from websites but the source sites will need careful research and the search criteria will need careful checking.

This exercise could be given in a controlled situation with each student being asked to search for the same information using three different search engines. When the task has been completed discussion on the different data matches from the different search engines could take place.