

Detailed subject content

These learning outcomes (LO) define the content of the whole qualification. Please see the glossary provided in *Appendix 1* of this specification for exemplification of terms and abbreviations used.

It is important to note that the learning outcomes are *not* of equal weighting and the amount of time that should be dedicated to each will depend on its content.

The student should be able to:

ICT Systems			Assessed in
Code	Learning outcome	Content	
LO1	Know about different types of ICT systems and be able to give examples of where and how they are used	<p>Types of ICT systems: PCs, laptops and other portable devices, main frame and super computers, embedded computers, games consoles</p> <p>Uses: retail, banking, administration, manufacturing, education, entertainment, communication, number crunching, simulations, modelling, stock control, logistics</p>	Paper 1
LO2	Understand that an ICT system is made up hardware and software	<p>Hardware</p> <p>Input devices: for example keyboard, mouse, tracker ball, joystick, graphics tablet, scanner, digital camera, webcam, microphone, touch screen, OMR, OCR, bar code scanner, biometric scanner, magnetic stripe reader, chip and pin, sensors</p> <p>Processing: processor, memory, ROM, RAM</p> <p>Storage: for example hard disks, optical discs, flash memory, magnetic tape</p> <p>Output devices: for example monitor, printer, plotter, data projector, speakers, control devices</p> <p>Software</p> <p>Systems software: for example operating system, system software tools</p> <p>Applications software: for example office productivity tools, web authoring, image and sound editing, presentation software, control software, project management software</p>	Paper 1

ICT Systems (<i>continued</i>)			Assessed in
Code	Learning outcome	Content	
LO3	Understand data storage capacity terminology	<p>Storage capacity terms: bit, byte and multiples of these (kbytes, mbytes, gbytes, tbytes)</p>	Paper 1
LO4	Be able to select appropriate ICT systems to meet specified needs	<p>User needs: for example business, entertainment, education, communication</p> <p>Hardware: type/speed of processor, amount of memory, capacity of hard drive, external storage devices, type of monitor, type of printer, additional requirements, for example graphics card, sound card</p> <p>Software: operating system, applications software</p> <p>Settings: window size, mouse settings, icon size, screen resolution, desktop contrast, sound volume</p> <p>Other considerations: range of facilities, versatility, speed of transmission, compatibility, performance</p>	Paper 1
LO5	Understand that ICT devices can be linked together to form networks	<p>Networks: wired, wireless; LAN, WAN</p> <p>Network components: cable, router, booster, wireless enabled devices (for example wi-fi, Bluetooth), media streaming devices</p> <p>IP address</p>	Paper 1
LO6	Understand the benefits of establishing a network	Benefits: shared peripherals, shared data, flexible access, media streaming, communication, control of user access rights, centralised administration, simultaneous access to the internet	Paper 1
LO7	Understand how data can be secured on a network	Network security: log-ins and passwords, firewall, WEP/WPA, encryption, file access rights, transaction logs, backups	Paper 1

ICT Systems (<i>continued</i>)			
Code	Learning outcome	Content	Assessed in
LO8	Understand requirements for connecting to the internet	Hardware: modem, router, gateway, communication link Software: web browser, communication software Type of connection: broadband, dial-up, wi-fi, VPN	Paper 1
LO9	Understand features of common internet services and be able to give examples of their use	Sources of services: internet service provider (ISP) Services: worldwide web, email, news groups, forums, chatrooms, instant messaging, search engines, filter software Uses: e-commerce, advertising, news, education, entertainment, communication, socialising, customer support, software distribution	Paper 1
LO10	Understand the facilities and services available on an intranet	Intranet: network of computers within a single organisation Facilities and services: company wide, noticeboards, central repository for information such as staff directory, forms	Paper 1

Impact of ICT			
Code	Learning outcome	Content	Assessed in
LO11	Understand the impact of ICT on individuals, organisations and society	Impact on individuals Positive effects: flexible/mobile working, better access to information and services, new job opportunities, new skills requirements, new ways of learning, wider range of entertainment and leisure opportunities Negative effects: potential job losses, less social interaction, reduced physical activity Impact on organisations: improved communication, access to global markets, changes in the way information is managed and used, security issues Impact on society: social and moral effects of unrestricted internet access, widening gap between information rich and information poor	Paper 1
LO12	Understand legal issues relating to use/misuse of ICT and the constraints placed on individuals	Legal issues: data protection, computer crime, fraud, copyright	Paper 1
LO13	Know about legal constraints on the use of information	Constraints: use of personal data, music downloads, acknowledgement of sources, avoiding plagiarism, getting permission	Paper 1

Use ICT Systems			
Code	Learning outcome	Content	Assessed in
LO14	Be able to select and use interface features and system facilities effectively to meet needs	Interface features: desktop, windows, dialogue box, menu, sub-menu, toolbar, scrollbar, drag and drop, zoom, minimise, maximise System facilities: template, wizard	Paper 2
LO15	Be able to manage files and folder structures to enable efficient information retrieval	Files: create, open, save, save as, print, close, delete, view, move/copy, name appropriately Folders: create folders and sub-folders, name appropriately	Papers 1 and 2
LO16	Understand the need to create a safe working environment	Health issues: ergonomic furniture, adjustable seating, appropriate lighting, taking breaks, wrist rests and other devices Safety issues: arrangement of hardware and cables, avoid hazards	Paper 1
LO17	Understand potential risks to data and personal information	Risks: accidental deletion, deliberate damage, for example viruses, unauthorised access	Paper 1
LO18	Understand methods available to secure data and personal information	Data security: create backups, keep copies safe, keep password/PIN secret, regularly change password Virus protection: use virus-checking software, treat files from unknown sources with caution Prevention of unauthorised access: for example firewalls, encryption, adware, spyware	Paper 1
LO19	Understand the need to stay safe and respect others when using ICT-based communication	Staying safe: avoid inappropriate disclosure of personal information/disclosure to unauthenticated sources, avoid misuse of images, use appropriate language, respect confidentiality, use copy lists with discrimination, use social networking sites with caution	Paper 1

Find and Select Information			
Code	Learning outcome	Content	Assessed in
LO20	Be able to select and use appropriate sources of ICT-based and other forms of information which match requirements	ICT-based: CDs, DVDs, text messages, podcasts, web logs, web-based reference sites Others: newspapers, books, images, maps, conversations	Papers 1 and 2
LO21	Be able to select information that matches requirements from a variety of sources and evaluate fitness for purpose	Fitness for purpose: recognise intention and authority of provider, currency of the information, relevance, bias	Papers 1 and 2
LO22	Be able to use appropriate search techniques and queries to locate and select relevant information	Techniques: multiple search criteria, quotation marks, search within results, relational operators, logical operators, 'find' or search tool including wildcards	Papers 1 and 2

Develop, Present and Communicate Information			Assessed in
Code	Learning outcome	Content	
LO23	Be able to select and use software applications to meet needs and solve problems	Software applications: word processing, spreadsheet, database, graphics, web authoring, presentation, audio and video editing software	Papers 1 and 2
LO24	Be able to enter, organise, develop, refine and format information, applying editing techniques to meet needs	Organise: structure of information, document layout, headings, sub-headings, lists, tables, use of templates Edit: highlight, drag and drop, find, replace, undo, redo, templates	Paper 2
LO25	Be able to use appropriate page layout	Layout: columns, margins, header, footer, portrait, landscape, page breaks, page numbering	Paper 2
LO26	Be able to enter and format text and tables to maximise clarity and enhance presentation	Format text: bullets, numbering, sub-numbering, alignment, tabs, line spacing, colour, font, style, size, tables Format tables: horizontal and vertical text alignment, merge and split cells, gridlines, borders, shading	Paper 2
LO27	Be able to obtain, insert, size, crop, alter and position images	Images: clipart, photographs, scanned images, borders	Paper 2
LO28	Be able to enter, format, develop and analyse numerical information	Data types: text, number Format: currency, %, number of decimal places, date, time, text wrap, row height, column width, gridlines, merged cells, cell borders Formulae: single operator, formulae with multiple operators, absolute and relative cell referencing Functions: SUM, AVG, IF THEN Additional features: linked tables, macros Graphs and charts: pie chart, bar chart, single line graph, scattergram, appropriate format, titles, axis labels, legends	Paper 2

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Develop, Present and Communicate Information (continued)			Assessed in
Code	Learning outcome	Content	
LO29	Be able to enter, organise and sort structured information	Data types: logical/Boolean, alphanumeric/text, numeric (real and integer), date Structure: record, field, table, primary key/key field, related tables Validation: range check, presence check, type check, length check Sort: single field, multiple fields, ascending/descending order Input: tables, forms Search: single criterion, multiple criteria, search within results, relational operators, logical operators Output: report, mail merge documents	Paper 2
LO30	Be able to bring together and organise different types of information to achieve a purpose	Types of information: image, chart, text alignment, captions Organise: text wrap, use of text boxes, behind, in front, grouping, animation, slide transition Purpose: poster, newsletter, web page, leaflet, multi-media presentation	Paper 2
LO31	Be able to work accurately and proofread, using software facilities where appropriate for the task	Software facilities: spellcheck, grammar check, print preview	Paper 2
LO32	Be able to produce information that is fit for purpose and audience using accepted layouts and conventions as appropriate	Layouts: letter, memo, report, newsletter, leaflet, poster, web page, information sheet, multimedia presentation Conventions: salutation, complimentary close on letters, page numbers, headers and footers on reports, columns, date, issue number on newsletters	Paper 2
LO33	Know how to create, access, read and respond to email and other ICT-based communication	Email: open, read, reply, forward, to, cc, bcc, add and open attachments	Paper 2
LO34	Be able to evaluate the effectiveness of solutions	Effectiveness: assessing fitness for purpose, suggesting improvements	Papers 1 and 2