

# Basic Computer Science

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## Reference material

For all the modules except the advanced one, use one of the ECDL 5 book (Cheltenham, springer, or libreoffice). For the advanced topics, use my notes.

## Module 1 – Concepts of Information and Communication Technology (ICT)

The following is the Syllabus for Module 1, *Concepts of Information and Communication Technology (ICT)*, which provides the basis for the theory-based test in this module.

### Module Goals

**Module 1** *Concepts of Information and Communication Technology (ICT)* requires the candidate to understand the main concepts of ICT at a general level, and to know about the different parts of a computer.

The candidate shall be able to:

- Understand what hardware is, know about factors that affect computer performance and know about peripheral devices.

- Understand what software is and give examples of common applications software and operating system software.
- Understand how information networks are used within computing, and be aware of the different options to connect to the Internet.
- Understand what Information and Communication Technology (ICT) is and give examples of its practical applications in everyday life.
- Understand health and safety and environmental issues in relation to using computers.
- Recognize important security issues associated with using computers.
- Recognize important legal issues in relation to copyright and data protection associated with using computers.

CATEGORY	KNOWLEDGE AREA	Knowledge Item
1.1 Hardware	1.1.1 Concepts	<p>Understand the term hardware.</p> <p>Understand what a personal computer is. Distinguish between desktop, laptop (notebook), tablet PC in terms of typical users.</p> <p>Identify common handheld portable digital devices like: personal digital assistant (PDA), mobile phone, smartphone, multimedia player and know their main features.</p> <p>Know the main parts of a computer like: central processing unit (CPU), types of memory, hard disk, common input and output devices.</p> <p>Identify common input/output ports like: USB, serial, parallel, network port, FireWire.</p>
	1.1.2 Computer Performance	<p>Know some of the factors that impact on a computer's performance like: CPU speed, RAM size, graphics card processor and memory, the number of applications running.</p> <p>Know that the speed (operating frequency) of the CPU is measured in megahertz (MHz) or gigahertz (GHz).</p>
	1.1.3 Memory and Storage	<p>Know what computer memory is: RAM (random-access memory), ROM (read-only memory) and distinguish between them.</p> <p>Know storage capacity measurements: bit, byte, KB, MB, GB, TB.</p> <p>Know the main types of storage media like: CD, DVD, USB flash drive, memory card, internal hard disk, external hard disk, network drive, online file storage.</p>
	1.1.4 Input, Output Devices	<p>Identify some of the main input devices like: mouse, keyboard, trackball, scanner, touchpad, stylus, joystick, web camera (webcam), digital camera, microphone.</p> <p>Know some of the main output devices like: screens/monitors, printers, speakers, headphones.</p> <p>Understand some devices are both input and output devices like: touchscreens.</p>
1.2 Software	1.2.1 Concepts	<p>Understand the term software.</p> <p>Understand what an operating system is and name some common operating systems.</p>

CATEGORY	KNOWLEDGE AREA	Knowledge Item
		<p>Identify and know the uses of some common software applications: word processing, spreadsheet, database, presentation, e-mail, web browsing, photo editing, computer games.</p> <p>Distinguish between operating systems software and applications software.</p> <p>Know some options available for enhancing accessibility like: voice recognition software, screen reader, screen magnifier, on-screen keyboard.</p>
<b>1.3 Networks</b>	<i>1.3.1 Network Types</i>	<p>Understand the terms local area network (LAN), wireless local area network (WLAN), wide area network (WAN).</p> <p>Understand the term client/server.</p> <p>Understand what the Internet is and know some of its main uses.</p> <p>Understand what an intranet, extranet is.</p>
	<i>1.3.2 Data Transfer</i>	<p>Understand the concepts of downloading from, uploading to a network.</p> <p>Understand what transfer rate means. Understand how it is measured: bits per second (bps), kilobits per second (kbps), megabits per second (mbps).</p> <p>Know about different Internet connection services: dial-up, broadband.</p> <p>Know about different options for connecting to the Internet like: phone line, mobile phone, cable, wireless, satellite.</p> <p>Understand some of the characteristics of broadband: always on, typically a flat fee, high speed, higher risk of intruder attack.</p>
<b>1.4 ICT in Everyday Life</b>	<i>1.4.1 Electronic World</i>	<p>Understand the term Information and Communication Technology (ICT).</p> <p>Know about different Internet services for consumers like: e-commerce, e-banking, e-government.</p> <p>Understand the term e-learning. Know some of its features like: flexible learning time, flexible learning location, multimedia learning experience, cost effectiveness.</p> <p>Understand the term teleworking. Know some of the advantages of teleworking like: reduced or no commuting time, greater ability to focus on one task, flexible schedules, reduced company space requirements. Know some disadvantages of teleworking like: lack of human contact, less emphasis on teamwork.</p>
	<i>1.4.2 Communication</i>	<p>Understand the term electronic mail (e-mail).</p> <p>Understand the term instant messaging (IM).</p> <p>Understand the term Voice over Internet Protocol (VoIP).</p> <p>Understand the term Really Simple Syndication (RSS) feed.</p> <p>Understand the term web log (blog).</p> <p>Understand the term podcast.</p>

CATEGORY	KNOWLEDGE AREA	Knowledge Item
	1.4.3 <i>Virtual Communities</i>	<p>Understand the concept of an online (virtual) community. Recognize examples like: social networking websites, Internet forums, chat rooms, online computer games.</p> <p>Know ways that users can publish and share content online: web log (blog), podcast, photos, video and audio clips.</p> <p>Know the importance of taking precautions when using online communities: make your profile private, limit the amount of personal information you post, be aware that posted information is publicly available, be wary of strangers.</p>
	1.4.4 <i>Health</i>	<p>Understand the term ergonomics.</p> <p>Recognize that lighting is a health factor in computer use. Be aware that use of artificial light, amount of light, direction of light are all important considerations.</p> <p>Understand that correct positioning of the computer, desk and seat can help maintain a good posture.</p> <p>Recognize ways to help ensure a user's wellbeing while using a computer like: take regular stretches, have breaks, use eye relaxation techniques.</p>
	1.4.5 <i>Environment</i>	<p>Know about the option of recycling computer components, printer cartridges and paper.</p> <p>Know about computer energy saving options: applying settings to automatically turn off the screen/monitor, to automatically put the computer to sleep, switching off the computer.</p>
<b>1.5 Security</b>	1.5.1 <i>Identity/Authentication</i>	<p>Understand that for security reasons a user name (ID) and password are needed for users to identify themselves when logging on to a computer.</p> <p>Know about good password policies like: not sharing passwords, changing them regularly, adequate password length, adequate letter and number mix.</p>
	1.5.2 <i>Data Security</i>	<p>Understand the importance of having an off-site backup copy of files.</p> <p>Understand what a firewall is.</p> <p>Know ways to prevent data theft like: using a user name and password, locking computer and hardware using a security cable.</p>
	1.5.3 <i>Viruses</i>	<p>Understand the term computer virus.</p> <p>Be aware how viruses can enter a computer system.</p> <p>Know how to protect against viruses and the importance of updating anti-virus software regularly.</p>
<b>1.6 Law SKIP</b>	1.6.1 <i>Copyright</i>	<p><del>Understand the term copyright.</del></p> <p><del>Know how to recognize licensed software: by checking product ID, product registration, by viewing the software licence.</del></p> <p><del>Understand the term end-user license agreement.</del></p> <p><del>Understand the terms shareware, freeware, open source.</del></p>

CATEGORY	KNOWLEDGE AREA	Knowledge Item
	<del>1.6.2 Data Protection</del>	<del>Identify the main purposes of data protection legislation or conventions: to protect the rights of the data subject, to set out the responsibilities of the data controller.</del>  <del>Identify the main data protection rights for a data subject in your country.</del>  <del>Identify the main data protection responsibilities for a data controller in your country.</del>

## Module 2 – Using the Computer and Managing Files

The following is the Syllabus for Module 2, *Using the Computer and Managing Files*, which provides the basis for the theory and practice-based test in this module.

### Module Goals

**Module 2** *Using the Computer and Managing Files* requires the candidate to demonstrate competence in running and managing a personal computer.

The candidate shall be able to:

- Use the main features of the operating system including adjusting the main computer settings and using built-in help features.
- Operate effectively around the computer desktop and work effectively in a graphical user environment.
- Know about the main concepts of file management and be able to efficiently organize files and folders so that they are easy to identify and find.
- Use utility software to compress and extract large files and use anti-virus software to protect against computer viruses.
- Demonstrate the ability to use simple text editing and print tools available within the operating system.

CATEGORY	SKILL SET	Task Item
2.1 Operating System	2.1.1 First Steps	Start the computer and log on securely using a user name and password.  Restart the computer using an appropriate routine.  Shut down a non-responding application.  Shut down the computer using an appropriate routine.  Use available Help functions.
	2.1.2 Setup	View the computer's basic system information: operating system name and version number, installed RAM (random-access memory).  Change the computer's desktop configuration: date & time, volume settings, desktop display options (colour settings, desktop background, screen pixel resolution, screen saver options).  Set, add keyboard language.

CATEGORY	SKILL SET	Task Item
		Install, uninstall a software application.
		Use keyboard print screen facility to capture a full screen, active window.
	2.1.3 <i>Working with Icons</i>	Identify common icons like those representing: files, folders, applications, printers, drives, recycle bin/wastebasket/trash.
		Select and move icons.
		Create, remove a desktop shortcut icon, make an alias.
		Use an icon to open a file, folder, application.
	2.1.4 <i>Using Windows</i>	Identify the different parts of a window: title bar, menu bar, toolbar or ribbon, status bar, scroll bar.
		Collapse, expand, restore, resize, move, close a window.
		Switch between open windows.
<b>2.2 File Management</b>	2.2.1 <i>Main Concepts</i>	Understand how an operating system organizes drives, folders, files in a hierarchical structure.
		Know devices used by an operating system to store files and folders like: hard disk, USB flash drive, CD-RW, DVD-RW, network drives.
		Know how files, folders are measured: KB, MB, GB.
		Understand the purpose of regularly backing up data to a removable storage device for off-site storage.
		Understand the benefits of online file storage: convenient access, ability to share files.
	2.2.2 <i>Files and Folders</i>	Open a window to display folder name, size, location on a drive.
		Expand, collapse views of drives, folders.
		Navigate to a folder, file on a drive.
		Create a folder and a further sub-folder.
	2.2.3 <i>Working with Files</i>	Identify common file types: word processing files, spreadsheet files, database files, presentation files, portable document format files, image files, audio files, video files, compressed files, temporary files, executable files.
		Open a text editing application. Enter text into a file, name and save the file to a location on a drive.
		Change file status: read-only/locked, read-write.
		Sort files in ascending, descending order by name, size, type, date modified.
		Recognize good practice in folder, file naming: use meaningful names for folders and files to help with recall and organization.
		Rename files, folders.

CATEGORY	SKILL SET	Task Item
	2.2.4 <i>Copy, Move</i>	<p>Select a file, folder individually or as a group of adjacent, non-adjacent files, folders.</p> <p>Copy files, folders between folders and between drives.</p> <p>Move files, folders between folders and between drives.</p>
	2.2.5 <i>Delete, Restore</i>	<p>Delete files, folders to the recycle bin/wastebasket/trash.</p> <p>Restore files, folders from the recycle bin/wastebasket/trash.</p> <p>Empty the recycle bin/wastebasket/trash.</p>
	2.2.6 <i>Searching</i>	<p>Use the Find tool to locate a file, folder.</p> <p>Search for files by all or part of file name, by content.</p> <p>Search for files by date modified, by date created, by size.</p> <p>Search for files by using wildcards: file type, first letter of file name.</p> <p>View list of recently used files.</p>
<b>2.3 Utilities</b>	2.3.1 <i>File Compression</i>	<p>Understand what file compression means.</p> <p>Compress files in a folder on a drive.</p> <p>Extract compressed files from a location on a drive.</p>
	2.3.2 <i>Anti-Virus</i>	<p>Understand what a virus is and the ways a virus can be transmitted onto a computer.</p> <p>Use anti-virus software to scan specific drives, folders, files.</p> <p>Understand why anti-virus software needs to be updated regularly.</p>
<b>2.4 Print Management</b>	2.4.1 <i>Printer Options</i>	<p>Change the default printer from an installed printer list.</p> <p>Install a new printer on the computer.</p>
	2.4.2 <i>Print</i>	<p>Print a document from a text editing application.</p> <p>View a print job's progress in a queue using a desktop print manager.</p> <p>Pause, re-start, delete a print job using a desktop print manager.</p>

## Module 3 – Word Processing

The following is the Syllabus for Module 3, *Word Processing*, which provides the basis for the practice-based test in this module.

### Module Goals

## Module 3

**Word Processing** requires the candidate to demonstrate the ability to use a word processing application to create everyday letters and documents.

The candidate shall be able to:

- Work with documents and save them in different file formats.
- Choose built-in options such as the Help function to enhance productivity.
- Create and edit small-sized word processing documents that will be ready to share and distribute.
- Apply different formats to documents to enhance them before distribution and recognize good practice in choosing the appropriate formatting options.
- Insert tables, images and drawn objects into documents.
- Prepare documents for mail merge operations.
- Adjust document page settings and check and correct spelling before finally printing documents.

CATEGORY	SKILL SET	Task Item
3.1 Using the Application	3.1.1 <i>Working with Documents</i>	Open, close a word processing application. Open, close documents.
		Create a new document based on default template, other available template like: memo, fax, agenda.
		Save a document to a location on a drive. Save a document under another name to a location on a drive.
		Save a document as another file type like: text file, Rich Text Format, template, software specific file extension, version number.
		Switch between open documents.
	3.1.2 <i>Enhancing Productivity</i>	Set basic options/preferences in the application: user name, default folder to open, save documents.
		Use available Help functions.
		Use magnification/zoom tools.
		Display, hide built-in toolbars. Restore, minimize the ribbon.
3.2 Document Creation	3.2.1 <i>Enter Text</i>	Switch between page view modes.
		Enter text into a document.
		Insert symbols or special characters like: ©, ®, ™.
	3.2.2 <i>Select, Edit</i>	Display, hide non-printing formatting marks like: spaces, paragraph marks, manual line break marks, tab characters.
		Select character, word, line, sentence, paragraph, entire body text.
		Edit content by entering, removing characters, words within existing text, by over-typing to replace existing text.
		Use a simple search command for a specific word, phrase.
		Use a simple replace command for a specific word, phrase.
Copy, move text within a document, between open documents.		



CATEGORY	SKILL SET	Task Item
3.3 Formatting	3.3.1 Text	Delete text.
		Use the undo, redo command.
		Change text formatting: font sizes, font types.
		Apply text formatting: bold, italic, underline.
		Apply text formatting: subscript, superscript.
		Apply different colours to text.
	3.3.2 Paragraphs	Apply case changes to text.
		Apply automatic hyphenation.
		Create, merge paragraph(s).
		Insert, remove soft carriage return (line break).
		Recognize good practice in aligning text: use align, indent, tab tools rather than inserting spaces.
		Align text left, centre, right, justified.
		Indent paragraphs: left, right, first line.
3.3.3 Styles	Set, remove and use tabs: left, centre, right, decimal.	
	Recognize good practice in paragraph spacing: apply spacing between paragraphs rather than use the Return key.	
	Apply spacing above, below paragraphs. Apply single, 1.5 lines, double line spacing within paragraphs.	
	Add, remove bullets, numbers in a single level list. Switch between different standard bullet, number styles in a single level list.	
3.4 Objects	3.4.1 Table Creation	Add a box border and shading/background colour to a paragraph.
		Apply an existing character style to selected text.
		Apply an existing paragraph style to one or more paragraphs.
	3.4.2 Table Formatting	Use copy format tool.
		Create a table ready for data insertion.
		Insert, edit data in a table.
	3.4.3 Graphical Objects	Select rows, columns, cells, entire table.
		Insert, delete, rows and columns.
		Modify column width, row height.
		Add shading/background colour to cells.
		Insert an object (picture, image, chart, drawn object) to a specified location in a document.

CATEGORY	SKILL SET	Task Item	
		Select an object.	
		Copy, move an object within a document, between open documents.	
		Resize, delete an object.	
3.5 Mail Merge	3.5.1 Preparation	Open, prepare a document, as a main document for a mail merge.	
		Select a mailing list, other data file, for use in a mail merge.	
		Insert data fields in a mail merge main document (letter, address labels).	
	3.5.2 Outputs	Merge a mailing list with a letter, label document as a new file or printed output.	
		Print mail merge outputs: letters, labels.	
3.6 Prepare Outputs	3.6.1 Setup	Change document orientation: portrait, landscape. Change paper size.	
		Change margins of entire document, top, bottom, left, right.	
		Recognize good practice in adding new pages: insert a page break rather than using the Return key.	
		Insert, delete a page break in a document.	
		Add, edit text in headers, footers.	
			Add fields in headers, footers: date, page number information, file name.
			Apply automatic page numbering to a document.
		3.6.2 Check and Print	Spell check a document and make changes like: correcting spelling errors, deleting repeated words.
			Add words to a built-in custom dictionary using a spell checker.
			Preview a document.
	Print a document from an installed printer using output options like: entire document, specific pages, number of copies.		

## Module 3AD Advanced Word Processing

Reference material: m3 word advanced.pdf

- How to Use Word Outline View
- Spellcheck for Two Languages
- How to Add a Table of Contents
- Add footnotes and endnotes in Word
- Add, format, or delete captions in Word
- Add a citation and create a bibliography
- Create An Index In a Word Document
- Create a Master Document from Multiple Documents

## Module 4 – Spreadsheets

The following is the Syllabus for Module 4, *Spreadsheets*, which provides the basis for the practice-based test in this module.

### Module Goals

**Module 4** *Spreadsheets* requires the candidate to understand the concept of spreadsheets and to demonstrate an ability to use a spreadsheet to produce accurate work outputs.

The candidate shall be able to:

- Work with spreadsheets and save them in different file formats.
- Choose built-in options such as the Help function within the application to enhance productivity.
- Enter data into cells and use good practice in creating lists. Select, sort and copy, move and delete data.
- Edit rows and columns in a worksheet. Copy, move, delete and appropriately rename worksheets.
- Create mathematical and logical formulas using standard spreadsheet functions. Use good practice in formula creation and will be able to recognize error values in formulas.
- Format numbers and text content in a spreadsheet.
- Choose, create and format charts to communicate information meaningfully.
- Adjust spreadsheet page settings and check and correct spreadsheet content before finally printing spreadsheets.

CATEGORY	SKILL SET	Task Item
4.1 Using the Application	4.1.1 Working with Spreadsheets	Open, close a spreadsheet application. Open, close spreadsheets.  Create a new spreadsheet based on default template.  Save a spreadsheet to a location on a drive. Save a spreadsheet under another name to a location on a drive.  Save a spreadsheet as another file type like: template, text file, software specific file extension, version number.  Switch between open spreadsheets.
	4.1.2 Enhancing Productivity	Set basic options/preferences in the application: user name, default folder to open, save spreadsheets.  Use available Help functions.  Use magnification/zoom tools.  Display, hide built-in toolbars. Restore, minimize the ribbon.
4.2 Cells	4.2.1 Insert, Select	Understand that a cell in a worksheet should contain only one element of data, (for example, first name detail in one cell, surname detail in adjacent cell).  Recognize good practice in creating lists: avoid blank rows and columns in the main body of list, insert blank row before Total row, ensure cells bordering list are blank.

CATEGORY	SKILL SET	Task Item
		Enter a number, date, text in a cell.
		Select a cell, range of adjacent cells, range of non-adjacent cells, entire worksheet.
	4.2.2 <i>Edit, Sort</i>	Edit cell content, modify existing cell content.
		Use the undo, redo command.
		Use the search command for specific content in a worksheet.
		Use the replace command for specific content in a worksheet.
		Sort a cell range by one criterion in ascending, descending numeric order, ascending, descending alphabetic order.
	4.2.3 <i>Copy, Move, Delete</i>	Copy the content of a cell, cell range within a worksheet, between worksheets, between open spreadsheets.
		Use the autofill tool/copy handle tool to copy, increment data entries.
		Move the content of a cell, cell range within a worksheet, between worksheets, between open spreadsheets.
		Delete cell contents.
4.3 <b>Managing Worksheets</b>	4.3.1 <i>Rows and Columns</i>	Select a row, range of adjacent rows, range of non-adjacent rows.
		Select a column, range of adjacent columns, range of non-adjacent columns.
		Insert, delete rows and columns.
		Modify column widths, row heights to a specified value, to optimal width or height.
		Freeze, unfreeze row and/or column titles.
	4.3.2 <i>Worksheets</i>	Switch between worksheets.
	Insert a new worksheet, delete a worksheet.	
	Recognize good practice in naming worksheets: use meaningful worksheet names rather than accept default names.	
	Copy, move, rename a worksheet within a spreadsheet.	
4.4 <b>Formulas and Functions</b>	4.4.1 <i>Arithmetic Formulas</i>	Recognize good practice in formula creation: refer to cell references rather than type numbers into formulas.
		Create formulas using cell references and arithmetic operators (addition, subtraction, multiplication, division).
		Identify and understand standard error values associated with using formulas: #NAME?, #DIV/0!, #REF!.
		Understand and use relative, absolute cell referencing in formulas.
	4.4.2 <i>Functions</i>	Use sum, average, minimum, maximum, count, counta, countblank functions.

CATEGORY	SKILL SET	Task Item
		Use the logical function if (yielding one of two specific values) with comparison operator: =, >, <.
4.5 Formatting	4.5.1 Numbers/Dates	Format cells to display numbers to a specific number of decimal places, to display numbers with, without a separator to indicate thousands.
		Format cells to display a date style, to display a currency symbol.
		Format cells to display numbers as percentages.
	4.5.2 Contents	Change cell content appearance: font sizes, font types.
		Apply formatting to cell contents: bold, italic, underline, double underline.
		Apply different colours to cell content, cell background.
		Copy the formatting from a cell, cell range to another cell, cell range.
	4.5.3 Alignment, Border Effects	Apply text wrapping to contents within a cell, cell range.
		Align cell contents: horizontally, vertically. Adjust cell content orientation.
		Merge cells and centre a title in a merged cell.
Add border effects to a cell, cell range: lines, colours.		
4.6 Charts	4.6.1 Create	Create different types of charts from spreadsheet data: column chart, bar chart, line chart, pie chart.
		Select a chart.
		Change the chart type.
	4.6.2 Edit	Move, resize, delete a chart.
		Add, remove, edit a chart title.
		Add data labels to a chart: values/numbers, percentages.
		Change chart area background colour, legend fill colour.
		Change the column, bar, line, pie slice colours in the chart.
		Change font size and colour of chart title, chart axes, chart legend text.
4.7 Prepare Outputs	4.7.1 Setup	Change worksheet margins: top, bottom, left, right.
		Change worksheet orientation: portrait, landscape. Change paper size.
		Adjust page setup to fit worksheet contents on a specified number of pages.
		Add, edit, delete text in headers, footers in a worksheet.
		Insert and delete fields: page numbering information, date, time, file

CATEGORY	SKILL SET	Task Item
		name, worksheet name into headers, footers.
	4.7.2 Check and Print	<p>Check and correct spreadsheet calculations and text.</p> <p>Turn on, off display of gridlines, display of row and column headings for printing purposes.</p> <p>Apply automatic title row(s) printing on every page of a printed worksheet.</p> <p>Preview a worksheet.</p> <p>Print a selected cell range from a worksheet, an entire worksheet, number of copies of a worksheet, the entire spreadsheet, a selected chart.</p>

## Module 4AD Advanced Spreadsheets

Reference material: m4 excel-advanced.pdf

- Text functions (join, left, right, mid ...)
- Text to Columns
- Remove Unwanted Characters
- Excel VLOOKUP
- Find Quick Answers With Excel Goal Seek
- Paired Sample t Test
  - How to perform paired t-test with Data analysis tool excel

## Module 5 – Using Databases

The following is the Syllabus for Module 5, *Using Databases*, which is the basis for the theory and practice-based test in this module.

### Module Goals

**Module 5** *Using Databases* requires the candidate to understand the concept of a database and demonstrate competence in using a database.

The candidate shall be able to:

- Understand what a database is and how it is organized and operated.
- Create a simple database and view the database content in various modes.
- Create a table, define and modify fields and their properties; enter and edit data in a table.
- Sort and filter a table or form; create, modify and run queries to retrieve specific information from a database.
- Understand what a form is and create a form to enter, modify and delete records and data in records.
- Create routine reports and prepare outputs ready for distribution.

CATEGORY	SKILL SET	Task Item
5.1 Understanding Databases	5.1.1 Key Concepts	<p>Understand what a database is.</p> <p>Understand the difference between data and information.</p>

CATEGORY	SKILL SET	Task Item
		Understand how a database is organized in terms of tables, records and fields.
		Know some of the common uses of large-scale databases like: airline booking systems, government records, bank account records, hospital patient details.
	<i>5.1.2 Database Organization</i>	Understand that each table in a database should contain data related to a single subject.
		Understand that each field in a table should contain only one element of data.
		Understand that field content is associated with an appropriate data type like: text, number, date/time, yes/no.
		Understand that fields have associated field properties like: field size, format, default value.
		Understand what a primary key is.
		Understand what an index is. Understand how it allows for faster data access.
	<i>5.1.3 Relationships</i>	Understand that the main purpose of relating tables in a database is to minimize duplication of data.
		Understand that a relationship is built by matching a unique field in one table with a field in another table.
		Understand the importance of maintaining the integrity of relationships between tables.
	<i>5.1.4 Operation</i>	Know that professional databases are designed and created by database specialists.
		Know that data entry, data maintenance and information retrieval are carried out by users.
		Know that a database administrator provides access to specific data for appropriate users.
		Know that the database administrator is responsible for recovery of a database after a crash or major errors.
<b>5.2 Using the Application</b>	<i>5.2.1 Working with Databases</i>	Open, close a database application.
		Open, close a database.
		Create a new database and save to a location on a drive.
		Display, hide built-in toolbars. Restore, minimize the ribbon.
		Use available Help functions.
	<i>5.2.2 Common Tasks</i>	Open, save and close a table, query, form, report.
		Switch between view modes in a table, query, form, report.
		Delete a table, query, form, report.
		Navigate between records in a table, query, form.

CATEGORY	SKILL SET	Task Item
5.3 Tables	5.3.1 Records	Sort records in a table, form, query output in ascending, descending numeric, alphabetic order.
		Add, delete records in a table.
	5.3.2 Design	Add, modify, delete data in a record.
		Create and name a table and specify fields with their data types like: text, number, date/time, yes/no.
		Apply field property settings: field size, number format, date/time format, default value.
		Create a validation rule for number, date/time, currency.
		Understand consequences of changing data types, field properties in a table.
		Set a field as a primary key.
		Index a field (with, without duplicates allowed).
		Add a field to an existing table.
Change width of columns in a table.		
5.4 Retrieving Information	5.4.1 Main Operations	Use the search command for a specific word, number, date in a field.
		Apply a filter to a table, form.
		Remove the application of a filter from a table, form.
	5.4.2 Queries	Understand that a query is used to extract and analyse data.
		Create a named single table query using specific search criteria.
		Create a named two-table query using specific search criteria.
		Add criteria to a query using one or more of the following operators: = (Equal), <> (Not equal to), < (Less than), <= (Less than or equal to), > (Greater than), >= (Greater than or equal to).
		Add criteria to a query using one or more of the following logical operators: AND, OR, NOT.
		Use a wildcard in a query, * or %, ? or ___.
		Edit a query: add, modify, remove criteria.
Edit a query: add, remove, move, hide, unhide fields.		
Run a query.		
5.5 Objects	5.5.1 Forms	Understand that a form is used to display and maintain records.
		Create and name a form.
		Use a form to insert new records.
		Use a form to delete records.
		Use a form to add, modify, delete data in a record.



CATEGORY	SKILL SET	Task Item
5.6 Outputs	5.6.1 Reports, Data Export	Add, modify text in headers, footers in a form.
		Understand that a report is used to print selected information from a table or query.
		Create and name a report based on a table, query.
		Change arrangement of data fields and headings within a report layout.
		Present specific fields in a grouped report by sum, minimum, maximum, average, count, at appropriate break points.
	5.6.2 Printing	Add, modify text in headers, footers in a report.
		Export a table, query output in spreadsheet, text (.txt, .csv), XML format to a location on a drive.
		Change the orientation (portrait, landscape) of a table, form, query output, report. Change paper size.
		Print a page, selected record(s), complete table.
		Print all records using form layout, specific pages using form layout.
		Print the result of a query.
		Print specific page(s) in a report, print complete report.

## Module 6 – Presentation

The following is the Syllabus for Module 6, *Presentation*, which is the basis for the practice-based test in this module.

### Module Goals

**Module 6** *Presentation* requires the candidate to demonstrate competence in using presentation software.

The candidate shall be able to:

- Work with presentations and save them in different file formats.
- Choose built-in options such as the Help function within the application to enhance productivity.
- Understand different presentation views and when to use them, choose different slide layouts and designs and edit slides.
- Enter, edit and format text in presentations. Recognize good practise in applying unique titles to slides.
- Choose, create and format charts to communicate information meaningfully.
- Insert and edit pictures, images and drawn objects.
- Apply animation and transition effects to presentations and check and correct presentation content before finally printing and giving presentations.

CATEGORY	SKILL SET	Task Item
6.1 Using the Application	6.1.1 Working with Presentations	Open, close a presentation application. Open, close presentations.

CATEGORY	SKILL SET	Task Item
		Create a new presentation based on default template.
		Save a presentation to a location on a drive. Save a presentation under another name.
		Save a presentation as another file type: Rich Text Format, template, show, image file format, version number.
		Switch between open presentations.
	6.1.2 <i>Enhancing Productivity</i>	Set user preferences in the application: user name, default folder to open and save files.
		Use available Help functions.
		Use magnification/zoom tools.
		Display, hide built-in toolbars. Restore, minimize the ribbon.
<b>6.2 Developing a Presentation</b>	6.2.1 <i>Presentation Views</i>	Understand the uses of different presentation view modes: normal view, slide sorter view, outline view, slide show view.
		Recognize good practice in adding slide titles: use a different title for each slide to distinguish it in outline view, when navigating in slide show view.
		Change between presentation view modes: normal view, slide sorter view, slide show view.
	6.2.2 <i>Slides</i>	Choose a different built-in slide layout for a slide.
		Apply an available design template to a presentation.
		Change background colour on specific slide(s), all slides.
		Add a new slide with a specific slide layout like: title slide, chart and text, bulleted list, table/spreadsheet.
		Copy, move slides within the presentation, between open presentations.
		Delete slide(s).
	6.2.3 <i>Master Slide</i>	Insert a graphical object (picture, image, drawn object) into a master slide. Remove a graphical object from a master slide.
		Enter text into footer of specific slides, all slides in a presentation.
		Apply automatic slide numbering, automatically updated date, non-updating date into footer of specific slides, all slides in a presentation.
<b>6.3 Text</b>	6.3.1 <i>Handling Text</i>	Recognize good practice in creating slide content: use short concise phrases, bullet points, numbered lists.
		Enter text into a placeholder in standard, outline view.
		Edit text in a presentation.
		Copy, move text within, between presentations.
		Delete text.

CATEGORY	SKILL SET	Task Item
		Use the undo, redo command.
	6.3.2 <i>Formatting</i>	Change text formatting: font sizes, font types. Apply text formatting: bold, italic, underline, shadow. Apply different colours to text. Apply case changes to text. Align text: left, centre, right in a text frame.
	6.3.3 <i>Lists</i>	Indent bulleted text. Remove indent from bulleted text. Adjust line spacing before and after bulleted, numbered lists. Switch between the different standard bullet, number styles in a list.
	6.3.4 <i>Tables</i>	Enter, edit text in a table slide. Select rows, columns, entire table. Insert, delete rows and columns. Modify column width, row height.
<b>6.4 Charts</b>	6.4.1 <i>Using Charts</i>	Input data to create built-in charts in a presentation: column, bar, line, pie. Select a chart. Change the chart type. Add, remove, edit a chart title. Add data labels to a chart: values/numbers, percentages. Change the background colour of a chart. Change the column, bar, line, pie slice colours in a chart.
	6.4.2 <i>Organization Charts</i>	Create an organization chart with a labelled hierarchy by using a built-in organization chart feature. Change the hierarchical structure of an organization chart. Add, remove co-workers, subordinates in an organization chart.
<b>6.5 Graphical Objects</b>	6.5.1 <i>Insert, Manipulate</i>	Insert a graphical object (picture, image, drawn object) into a slide. Select a graphical object. Copy, move graphical objects, charts within the presentation, between open presentations. Resize, delete graphical objects, charts in a presentation. Rotate, flip a graphical object. Align a graphical object relative to a slide: left, centre, right, top, bottom.

CATEGORY	SKILL SET	Task Item
6.6 Prepare Outputs	6.5.2 Drawing	Add different types of drawn object to a slide: line, arrow, block arrow, rectangle, square, oval, circle, text box.
		Enter text into a text box, block arrow, rectangle, square, oval, circle.
		Change drawn object background colour, line colour, line weight, line style.
		Change arrow start style, arrow finish style.
		Apply a shadow to a drawn object.
	6.6.1 Preparation	Group, ungroup drawn objects in a slide.
		Bring a drawn object one level forward, one level backward, to the front, to the back of other drawn objects.
		Add, remove transition effects between slides.
		Add, remove preset animation effects for different slide elements.
		Add presenter notes to slides.
6.6.2 Check and Deliver	Select appropriate output format for slide presentation like: overhead, handout, on-screen show.	
	Hide, show slides.	
	Spell check a presentation and make changes like: correcting spelling errors, deleting repeated words.	
	Change slide setup, slide orientation to portrait, landscape. Change paper size.	
	Print entire presentation, specific slides, handouts, notes pages, outline view of slides, number of copies of a presentation.	
		Start a slide show from first slide, from current slide.
		Navigate to next slide, previous slide, specified slide during a slide show.

## Module 7 – Web Browsing and Communication

The following is the Syllabus for Module 7, *Web Browsing and Communication*, which provides the basis for the theory and practice-based test in this module.

### Module Goals

**Module 7** *Web Browsing and Communication* is divided into two sections.

The first section, *Web Browsing*, requires the candidate to know about the Internet and to use a web browsing application.

The candidate shall be able to:

- Understand what the Internet is and common terms associated with it. Be aware of some security considerations when using the Internet.

- Accomplish everyday web browsing tasks including changing browser settings.
- Complete and submit web-based forms and search for information.
- Save web pages and download files from the web. Copy web content into a document.

The second section, *Communication*, requires the candidate to understand some of the concepts of electronic mail (e-mail), to know about other communication options, and to appreciate some security considerations involved in using e-mail.

The candidate shall be able to:

- Understand what e-mail is and know some advantages and disadvantages of its use. Be aware of other communication options.
- Be aware of network etiquette and security considerations when using e-mail.
- Create, spell check and send e-mail. Reply to and forward e-mail, handle file attachments and print an e-mail.
- Be aware of ways to enhance productivity when working with e-mail software. Organize and manage e-mail.

## Section 1 Web Browsing

CATEGORY	SKILL SET	Task Item
7.1 The Internet	7.1.1 <i>Concepts/Terms</i>	Understand what the Internet is.
		Understand what the World Wide Web (WWW) is.
		Define and understand the terms: Internet Service Provider (ISP), Uniform Resource Locator (URL), hyperlink.
		Understand the make-up and structure of a web address.
		Understand what a web browser is and name different web browsers.
		Know what a search engine is.
		Understand the term Really Simple Syndication (RSS) feed. Understand the purpose of subscribing to an RSS feed.
		Understand the term podcast. Understand the purpose of subscribing to a podcast.
	7.1.2 <i>Security Considerations</i>	Know how to identify a secure web site: https, lock symbol.
		Know what a digital certificate for a web site is.
		Understand the term encryption.
		Know about security threats from web sites like: viruses, worms, trojan horses, spyware. Understand the term malware.
		Understand that regularly updated anti-virus software helps to protect the computer against security threats.
		Understand that a firewall helps to protect the computer against intrusion.

CATEGORY	SKILL SET	Task Item
<b>7.2 Using the Browser</b>		<p>Know that networks should be secured by user names and passwords.</p> <p>Identify some risks associated with online activity like: unintentional disclosure of personal information, bullying or harassment, targeting of users by predators.</p> <p>Identify parental control options like: supervision, web browsing restrictions, computer games restrictions, computer usage time limits.</p>
	<i>7.2.1 Basic Browsing</i>	Open, close a web browsing application.
		Enter a URL in the address bar and go to the URL.
		Display a web page in a new window, tab.
		Stop a web page from downloading.
		Refresh a web page.
		Use available Help functions.
	<i>7.2.2 Settings</i>	Set the web browser Home Page/Startpage.
		Delete part, all browsing history.
		Allow, block pop-ups.
		Allow, block cookies.
		Delete cache/temporary Internet files.
	Display, hide built-in toolbars.	
<i>7.2.3 Navigation</i>	Activate a hyperlink.	
	Navigate backwards and forwards between previously visited web pages.	
	Navigate to the Home page.	
	Display previously visited URLs using the browser address bar, history.	
<i>7.2.4 Bookmarks</i>	Bookmark a web page. Delete a bookmark.	
	Display a bookmarked web page.	
	Create, delete a bookmark folder.	
	Add web pages to a bookmark folder.	
<b>7.3 Using the Web</b>	<i>7.3.1 Forms</i>	Complete a web-based form using: text boxes, drop-down menus, list boxes, check boxes, radio buttons.
	Submit, reset a web-based form.	
<i>7.3.2 Searching</i>	Select a specific search engine.	
	Carry out a search for specific information using a keyword, phrase.	

CATEGORY	SKILL SET	Task Item
		Use advanced search features to refine a search: by exact phrase, by excluding words, by date, by file format.
		Search a web based encyclopaedia, dictionary.
7.4 Web Outputs	7.4.1 Saving Files	Save a web page to a location on a drive.
		Download files from a web page to a location on a drive.
		Copy text, image, URL from a web page to a document.
	7.4.2 Prepare and Print	Prepare a web page for printing: change printed page orientation, paper size, printed page margins.
Preview a web page.		
		Choose web page print output options like: entire web page, specific page(s), selected text, number of copies and print.

## Section 2 Communication

CATEGORY	SKILL SET	Task Item
7.5 Electronic Communication	7.5.1 Concepts/Terms	Understand the term e-mail and know its main uses.
		Understand the make-up and structure of an e-mail address.
		Understand the term short message service (SMS).
		Understand the term Voice over Internet Protocol (VoIP) and know its main benefits.
		Understand the main benefits of instant messaging (IM) like: real-time communication, knowing whether contacts are online, low cost, ability to transfer files.
	7.5.2 Security Considerations	Understand the concept of an online (virtual) community. Recognize examples like: social networking websites, Internet forums, chat rooms, online computer games.
		Be aware of the possibility of receiving fraudulent and unsolicited e-mail.
		Understand the term phishing. Recognize attempted phishing.
	7.5.3 e-mail Theory	Be aware of the danger of infecting the computer with a virus by opening an unrecognized e-mail message, by opening an attachment.
		Understand what a digital signature is.
Understand the advantages of e-mail systems like: speed of delivery, low cost, flexibility of using a web-based e-mail account in different locations.		
		Understand the importance of network etiquette (netiquette) like: using accurate and brief descriptions in e-mail message subject fields, brevity in e-mail responses, spell checking outgoing e-mail.
		Be aware of possible problems when sending file attachments like: file size limits, file type restrictions (for example, executable files).

CATEGORY	SKILL SET	Task Item
		Understand the difference between the To, Copy (Cc), Blind copy (Bcc) fields.
<b>7.6 Using e-mail</b>	<i>7.6.1 Send an e-mail</i>	Open, close an e-mail application. Open, close an e-mail.  Create a new e-mail.  Enter an e-mail address in the To, Copy (Cc), Blind copy (Bcc) fields.  Enter a title in the Subject field.  Copy text from another source into an e-mail.  Insert, remove a file attachment.  Save a draft of an e-mail.  Use a spell checking tool and correct spelling errors.  Send an e-mail, send an e-mail with a low, high priority.
	<i>7.6.2 Receiving e-mail</i>	Use the reply, reply to all function.  Forward an e-mail.  Save a file attachment to a location on a drive and open the file.  Preview, print a message using available printing options.
	<i>7.6.3 Enhancing Productivity</i>	Add, remove message inbox headings like: sender, subject, date received.  Apply a setting to reply with, without original message insertion.  Flag an e-mail. Remove a flag mark from an e-mail.  Identify an e-mail as read, unread. Mark an e-mail as unread, read.  Display, hide built-in toolbars. Restore, minimize the ribbon.  Use available Help functions.
<b>7.7 e-mail Management</b>	<i>7.7.1 Organize</i>	Search for an e-mail by sender, subject, e-mail content.  Sort e-mails by name, by date, by size.  Create, delete an e-mail folder.  Move e-mails to an e-mail folder.  Delete an e-mail.  Restore a deleted e-mail.  Empty the e-mail bin/deleted items/trash folder.
	<i>7.7.2 Address Book</i>	Add contact details to an address book. Delete contact details from an address book.  Update an address book from incoming e-mail.



**CATEGORY**

**SKILL SET**

**Task Item**

Create, update a distribution list/ mailing list.