SECTION 3

OVERVIEW OF CONTENT AND SCOPE PER TOPIC

3.1 Solution Development

Solution development is the actions and processes involved in developing a computer-based solution by utilising appropriate tools such as application packages to solve a variety of problems represented by real-life scenarios. For Computer Applications Technology these applications are end-user applications which include word-processing, spreadsheet, database and presentation applications.

	Word Processing	Spreadsheets	Databases	Other
Grade 10	• Documents • Basic file management • Basic document layout • Page Layout • Tables • View options • Introduction to review and proofing functions • Text and paragraph manipulation • Graphics, shapes and diagrams • Formatting and editing • Introduction to integration • Basic troubleshooting • Lists and columns • Existing styles • Table of Contents • Basic referencing	• Basic skills and core concepts of spreadsheets • Basic file management • Cell reference • Cell ranges: range names • Basic calculations using basic operators • Data types • Workbooks and worksheets • Formatting and editing • Introduction to formulae and functions • Introduction to calculations • Basic functions • Basic formulas • Introduction to charts/graphs • Types of Graphs • Problem-solving techniques ▪ Basic error indicators ▪ Basic troubleshooting		**Presentations** • Slide design and layout elements • Editing and formatting • Text and lists • Charts, illustrations and tables • Slide manipulation • Basic custom animation • Slide show • Basic integration techniques **HTML (basic)** • What is HTML? • Structure of a simple HTML page • HTML syntax • Basic HTML tags • Basic text and text formatting • Attributes • Basic Troubleshooting
Grade 11	• File management • Advanced document layout • Customising • Reviewing tools and proofing functions • Electronic forms – Legacy tools • Mail merge • Styles • Sections • Reference functions • Editing – Paste special • Page Layout Design – Themes	• Advanced formulas and functions • Basic computational thinking (Building blocks) • Conditional formatting • Relational operators • Print options • Error indicators • Extend Graphs/charts • Manipulate worksheets • Import/export data • Integration techniques • Troubleshooting • Subtotal feature	• Basic skills and basic knowledge in working with: tables, records, fields and data types • Records manipulation • Basic field properties • Formatting and editing • Create tables • Create Forms • Basic queries • Basic reports • Report headers and footers • Calculations in reports and queries • Import/export data	**Creating forms** using online application software **HTML / Web design** • HTML: tables • HTML lists • HTML images • Attributes • HTML Comments • Cite tag (PAT only) • Links • Troubleshooting

	Word Processing	Spreadsheets	Databases	Other
	• Document Layout – Sections, Section Breaks, Header and Footers, • Advanced Page Numbering • Customise Paragraphs • Templates • Integration techniques • Troubleshooting		• Integration techniques • Troubleshooting	
Grade 12	• Advanced file handling • Customise templates • Data sources • Professional documents • Use/reinforce word processing skills • Integration techniques • Import/Export • Troubleshooting • Problem solving	• Complex functions • Text functions • Date and time calculations • Named ranges • Advanced graphs/charts • Validation of data • Integration techniques • Troubleshooting • Problem solving	• Advanced Reports • Changing the source of a report • Advanced Queries • Grouping information • Calculation fields in queries and reports • Data validation techniques • Troubleshooting • Problem solving • Integration techniques	**HTML / Web design (refer to HTML tag sheet)** • Border Attributes • Table Formatting • Good webpage design

Note:

The various techniques, tools and features of the respective application packages should be taught to develop a computer-based solution, as an end-user, within different scenarios and using a variety of applications effectively and efficiently.

Applications packages share common features that are reinforced when working with the different applications.

It is important that learners are also taught the underlying knowledge and understanding of the skills and the applications they are studying. It should be taught in a way that learners will be able to transfer the skills and knowledge to new versions of the applications as well as other similar applications.

3.2 Systems Technologies

Systems technologies refer to the physical and non-physical components of a computer system. The components of the system are independent units which are designed to perform a particular function. These components which include hardware, peripherals and software components are connected as a unit to perform the basic functions of a computing system, which include input, processing, output, storage, communication and transfer of data in an electronic format.

	Introduction to Concepts of Computing	Hardware (Systems Unit)	Software	Device Management
Grade 10	• General model of a computing device • Types of computing devices • Role of computing devices, ICTs • Introduction to data and information • GUI • File Organisation and Compressions	• Definition of hardware • Hardware components • Ports and connectors • Input and Output • Storage and Media • Peripherals • Hardware configuration • Scanning and reading devices • Processing	• Definition of software • Types of software • Software components • Definition and overview of system and application and utility software • Categories of software • Purpose and use of software • Introduction to operating system concepts	• Introduction to using computing devices – working environment (GUI) and keyboarding • Introduction to files and folders • File Manager • Print management • Adding hardware
Grade 11	• Information processing cycle • Role of ICTs • Types of computing devices • Computer categories	• Extend input, output, processing and storage • Mobile technology • Portable devices • Devices for users with disability • Alternative I/O and storage devices • Interpret adverts • Influence of hardware on software • Input and Output device: application/use • Basic troubleshooting	• Application software • Software updates • Software compatibility • System software • Installing software • File management • Web applications • Software for users with disability • Cloud based applications and storage • System requirements	• Software installation • File management • System properties • Basic troubleshooting • Factors influencing performance
Grade 12	• Computer systems for different users/uses • Reasons for using computers • Case studies/scenarios regarding use of ICTs • Use of computers in a variety of contexts	• Appropriate use of devices • Buying decisions • Productivity issues • Factors influencing performance • Case studies • New technology	• Productivity issues • Role of operating system • Utilities • Buying decisions • Human error potential • Case studies • New technology • Upgrades • File Management: Extract a password protected .exe file	• File properties, attributes and metadata • Housekeeping • Case studies • Troubleshooting

***Note**:*

Hardware and software should be dealt with at a non-technical level, but such that will enable the learner to:

- *understand the concepts that make up a computer system*
- *demonstrate knowledge and understanding of the functions and uses of the main hardware and software components of a computer system*
- *select appropriate software for a task*
- *troubleshoot at an elementary level or select the most appropriate hardware for a given scenario*
- *know whether to upgrade or buy new equipment*
- *be aware of new trends and developments and how to integrate these with existing or new equipment*
- *know how technology can benefit the user in specific contexts*
- *understand the operations involved in the management and optimal utilisation of a computer system*

It is important that a clear distinction is made between the disadvantages and limitations of concepts

Content in this focus area should be taught from a basis of familiar contexts to unfamiliar contexts (new trends and developments). This focus area lends itself meaningfully to integrate content from the Social Implications and Internet and Network Technologies focus areas, and should be taught in this way.

3.3 Network Technologies

Network technologies include various technologies to facilitate the management and distribution of digital data from one point to another. Network technologies are electronic systems that allow people to share information with each other, whether they are in one place or spread out in different places.

	Networks
Grade 10	• Overview of basic concepts and introduction to networks: • What is a network? • Aims and objectives of networks (Facilitating communications and sharing hardware, software, data and information) • Basic security and privacy issues • Examples of common networks: ▪ Internet ▪ Personal area network (PAN) o Wearables ▪ Home area network (HAN) ▪ Local area networks (LAN) • Network device: Modem, router and switch • Communication channel/media (incl. Wi-Fi, Bluetooth and NFC) • Pairing devices • Obtaining Internet access • ISP – Definition and purpose
Grade 11	• Local area networks (LAN and WLAN) • Basic components of a network – Overview and concepts • Basic network security (passwords, usernames and access rights) • Connection (Type, speed, usage)
Grade 12	• Wide area networks (WAN) ▪ Internet as an example of a WAN • Internet services (uses/purpose, advantages, disadvantages, limitations, examples): ▪ Instant messaging ▪ Voice over Internet Protocol (VoIP) ▪ File sharing ▪ Concept of grid computing and cloud computing • Government Internet services and information • Streaming and downloading (definition and comparison) • Make buying and informed decisions regarding Internet connection and access ▪ Modem/router, types of connections, e.g./Fibre, wireless technologies, including their advantages, disadvantages and limitations ▪ ISP, Internet services offered by ISP ▪ Throttling and Shaping ▪ Consideration of access points, coverage (wireless) ▪ Data transmission speed – measured –megabits per second (mbps) ▪ CAP, bundle • Concept of broadband and bandwidth

Note:

Internet Technologies should be dealt with at a non-technical level, but such that will enable the learner to:

- *understand the role that the Internet and the WWW play as part of the global information superhighway and the contribution towards the digital age*
- *introduce the software involved to render the Internet as a service*
- *understand the concepts of the technologies and standards implemented to enable electronic communication*
- *troubleshoot at an elementary level and find the most workable ways to approach Internet problems*
- *understand how technology can benefit specific scenarios*
- *be aware of new trends and developments*

3.4 Internet Technologies

Internet technologies include the WWW and all interrelated processes in the digital presentation of multimedia data on a web page. Internet technologies are defined as a set of related and interconnected technologies which enable the establishment of global networks, for various purposes such as collaboration, electronic data interchange, electronic commerce, electronic communication and social networking.

	Internet and WWW	Electronic Communications
Grade 10	• Internet ▪ What is the Internet? ▪ Internet addresses • Overview of the World Wide Web (WWW) ▪ Describe the WWW ▪ Web address/uniform resource locater (URL), URL shortener ▪ Web page, website, hyperlink ▪ Types of websites, their purpose/what they offer and examples ▪ Weblog/Vlog (blog), Wiki, social network, educational, web application • Browsers ▪ What is it? / Purpose ▪ Examples ▪ Tabbed browsing • Search engines ▪ What is it? / Purpose ▪ Common/generic examples • Concept of downloading and uploading	• What is e-communication? • What is a communication device? ▪ Overview of applications to facilitate e-communications: e-mail, web browser, instant messaging, text, picture and video messaging, online meetings (examples) (What it is?) • E-mail as a form of e-communication ▪ Taxonomy of e-mail addresses • Register a web-based e-mail address • Basic use of the Internet, e-mail and social media platforms • Hyperlinks • Apply netiquette rules such as spelling check, messages, being courteous and concise, not gossiping, reducing the size of attachments and not typing in capital letters • Basic e-mailing, how to: ▪ Compose messages ▪ Send and receive, forward, reply to, reply to all
Grade 11	• Explore web pages/websites and evaluate aspects: Readability, navigation, consistency, layout, typography – link to word processing documents and forms • Internet of Things (IoT) • Fourth Industrial Revolution (4IR) • Uses of computer communications: social websites • Overview of portable and mobile Internet access (basic concepts – What is it? Where is it used? Examples)	• Managing e-mail: ▪ Organise using e-mail folders ▪ Sort by, flag, prioritise ▪ Distribution lists, message rules ▪ E-mail software features such as Cc and Bcc fields, attachments and address books
Grade 12		• Types of digital communications: video conferencing: ▪ Advantages and disadvantages ▪ Good practices and bad practices • Typical features of web browsers: ▪ Bookmarks ▪ History and favourites ▪ Home page settings ▪ Blocking websites ▪ Caching ▪ Browser Extensions ○ What are they? Why are they needed? ○ Examples: Pop-up blocker/Ad blocker, toolbar extension ▪ Private browsing - Incognito and In private • Uses of computer communications: ▪ Blogs/vlogs ▪ Podcast/vodcast ▪ Wikis

	Internet and WWW	Electronic Communications
		▪ GPS, Geo-tagging ▪ Social networks • Communication devices: Personal mobile devices - smart phones, tablets and wearables

Note:

Internet Technologies should teach learners to:

- *understand the role that the Internet and the WWW plays as part of the global information super-highway and the contribution towards the digital age*
- *introduce the software involved to render the Internet as a service*
- *understand the concepts of the technologies and standards implemented to enable electronic communication*
- *troubleshoot at an elementary level and to find the most workable ways to approach Internet problems*
- *understand how technology can benefit specific scenarios*
- *be aware of new trends and developments*

3.4 Information Management

Information management refers to the techniques and technologies involved in the collection, storage, processing of data into information that leads to knowledge and decision-making. It includes the use of appropriate communication and presentation tools to communicate new knowledge and recommendations.

	Find and Access Data and Information	Process Data and Information	Present Solution
Grade 10	• Data vs. information • Understanding of the problem/task ▪ Role of questions and questioning ▪ Using questions • Utilising a plan to solve the problem/carry out the task • Types of information sources • Information and data gathering ▪ Using a questionnaires / interviews ▪ Using one other source	• Information vs. knowledge • Sifting of information • Find and access information and data • Processing data: • Engaging with information • Tools and techniques for manipulating information ▪ Make notes and summarise • Ethical use of information • Processing data • Utilising data questions • Data handling – the role of the spreadsheet and the database	• Knowledge vs. insight / decision making • Utilising specific software tools to communicate findings • Simple report • Personal understandings • Organise information into logical groupings and flow • Findings/conclusions • Copyright and plagiarism • Acknowledgement
Grade 11	• Task definition in different contexts – understanding the problem/task • Questions and questioning ▪ Utilising main question ▪ Formulating other questions ▪ Quality control of questions • Identifying appropriate sources • Information and data gathering ▪ Add questions to questionnaire ▪ Using one other source • Role of AI: ▪ Ethical use of AI • Quality control of information	• Extracting appropriate information • Utilising appropriate tools and techniques to process data/organise and manipulate information • Processing data • Adding data questions • Data handling – the role of the spreadsheet and the database • Analysis of data and information ▪ Trends and patterns	• Utilising appropriate software tools to communicate findings • Report • Interpreted knowledge and understanding • Cohesive and logical organisation and flow of content and recommendations/conclusions • Communication using supporting texts and graphics • Copyright and plagiarism issues • Appropriate referencing
Grade 12	• Reformulation of problem/task into a complete statement • Questions and questioning ▪ Formulate main question ▪ Formulating other questions ▪ Quality control of questions • New questions and discarding irrelevant questions as investigation develops • Identifying appropriate sources • Finding information and gathering data ▪ Set a questionnaire ▪ Using two other sources • Advanced searching techniques • Quality control of information ▪ Information evaluation ▪ Website evaluation • Manage volumes of information	• Using a variety of information • Using the most appropriate information and data for processing • Effective manipulation of information ▪ Rework and/or combine • Processing data correctly into useful information using a variety of tools and techniques leading to a solution • Use correct software for processing and manipulation • Formulating data questions • Data handling – the role of the spreadsheet and the database • Meaningful analysis of data and information – trends and patterns	• Utilising best software tools in an integrated fashion to communicate findings • Comprehensive report • Interpreted knowledge and new understanding • Present information in logical grouping and flow supported by appropriate texts and graphics to enhance understanding • Cohesive and logical recommendations /conclusions • Complete referencing using variety of tools and techniques • Quality control of report • Clear link between original task/problem, discussion and conclusion

The learner should:

- *understand the role and uses of data and information*
- *know how to determine what information/data is needed to complete a task/solve a problem*
- *know where to find information to complete a task/solve a problem*
- *know how to access and gather data and information*
- *know how to evaluate the authenticity of information*
- *know how to process data/manipulate information to assist interpretation thereof or in generating new understanding*
- *be able to make informed conclusions/recommendations based on interpretation of knowledge and new understanding*
- *be able to present and communicate the solution/findings in appropriate presentation media*

Most of this content can be taught and reinforced through the Practical Assessment Task (PAT).

3.5 Social Implications

Social implications refer to issues relating to the digital age and bridging the digital divide and include issues that lead to the responsible use of ICTs. This section of the CAT curriculum should consider the impact the use of computer technology has on everyday life.

	Impact on Society	Legal and Ethical and Security Issues	Health and Ergonomic Issues	Environmental Issues
Grade 10	• ICTs in everyday life • ICT influence on life and life styles • Economic reasons for using computing devices • Communication etiquette • Safe Internet and e-mail use	• Ethical use of computing devices • Basic security concepts • Software piracy • Intellectual property • Licensing • E-mail threats, issues and remedies • Computer criminals	• Ergonomics to promote health and well-being	• Green computing issues • Environmental issues relating to the use of ICTs
Grade 11	• Enhancing accessibility • Computer and human error • Impact of ICTs in the workplace and employment practices • Social engineering tricks • Online safety and protection issues • Protecting oneself when online	• Hardware theft and vandalism • Ethical use of networks • Unauthorised access • Network safety and security • Privacy issues • Information accuracy • Data protection • Computing devices misuse • Currency of protective software • Verification and validation • Authorising permission • AI ethical use and academic integrity	• Factors that influence health • Health risks	• Power settings and savings • Protection against power failures
Grade 12	• Distributed computing power • Impact and use of social networking sites and technologies • Information overload • Different scenarios and case studies • Making recommendations • Impact of technology on the global community	• Computer criminals and crimes • Fraud scams • Internet attacks • Misuse of personal information • Malware and safeguards • Different scenarios and case studies • Making recommendations • Impact of AI	• User-centred design in software • Usability and functionality issues • Interpret adverts • Interpret scenarios • Making recommendations • Buying decisions	• Interpret scenarios • Make recommendations

Note:

Learners should be able to:

- *provide an overview and understanding on how ICTs impact modern-day living*
- *be aware of computer related threats*
- *use ICTs responsibly*

Most of the content of Social Implications should be dealt with and integrated with other topics. The time scheduled for this topic could therefore be added to other topics.

3.6 Suggested teaching plan

The suggested teaching plan indicates the minimum content to be covered per term. The sequence of the content or topics listed per term **is not prescribed.** Teachers should design their own work schedules (or use/adapt the work schedule provided in their textbook) to teach the content per term in **appropriate sequence** and pace.

The sub-topics presented in the term plans should not be seen as stand-alone topics. Relevant sub-topics or content could be presented in an integrated manner. Integrating the topics in the lesson presentation should flow naturally due to the nature, links and 'overlap' of the content. Some content from one sub-topic may strengthen and underpin the content of another. This approach should be applied throughout the three-year curriculum.

It is important that the specific technologies in the teaching plans are revised at regular intervals to phase out old technologies and to include new technologies. Teachers must also be aware of variations of technologies mentioned in the teaching plan, e.g. USB (micro USB, USB-C). The level of depth of knowledge required for these variations is in terms of understanding what these variations represent and a basic understanding of their application in an ICT context.

As the length of terms varies from one year to the next, the teaching plan/work schedules should be adapted accordingly on a year-to-year basis.

3.7.1 Grade 10

Content (Grade 10 / Term 1)	NOTES

Systems Technologies: Introduction to Concepts of Computing – (Theory) (± ½ week / 2 hours)
• Explain what a computer is:
  ▪ Overview of a general model of a computer in relation to the information processing cycle: input, processing, output, storage as well as communication
• Overview of the different types of computing devices. (Definition of a computing device and examples only)
  ▪ Multi-purpose devices: Desktop (incl. all-in-one), laptop, tablet, server, (including convertible/detachable, 2-in-1 concept), smartphone
  ▪ Concept of convergence
  ▪ Dedicated devices: examples (ATMs, cameras, printers, fitness tracker, factory robots and electronic appliances (embedded computers))
• Overview and concepts of the main components of a computer system:
  ▪ Hardware and software
  ▪ Devices: Input, output, storage and communication
• ICTs used in everyday life:
  ▪ Define and explain the term Information and Communication Technology (ICT)
  ▪ Overview of a general model of an ICT system: Convey, manipulate and store data
  ▪ Example of an ICT system in a familiar context such as a point of sales system or a cell phone system
• Concepts of data and information:
  ▪ Explain the difference between data and information and the importance of each
  ▪ Give examples of uses of data and information within a familiar organisation such as the school	

Systems Technologies: Device Management – (Practical) (2 weeks / 8 hours)
• Start-up – switch on the computer, log on (concept of access control)
• Desktop (GUI): First looks, icons and shortcuts
• Introduce the desktop (GUI):
  ▪ Features such as: Start button, task bar, My Documents, Recycle Bin, file manager – Windows Explorer
  ▪ Accessing Apps
• Introduction and layout of keyboard
• Enhancing keyboarding skills
• Basic file operations: open, save, close and basic printing
	• Keyboarding drills – learners should be able to use the correct fingers on the correct keys
	• Dealing with correct posture provides a learning opportunity to introduce ergonomics and health issues

Systems Technologies: Device Management – (Theory and practical) (±½ week / 2 hours)
• Describe file organisation
• Basic concepts and introduction to file organisation: drives, folders and files
  ▪ Examples of different types of files
  ▪ File extensions (association) – common/generic extensions such as
  – archived/compressed, forms of text files, web pages
  – applications like word processor, spreadsheet, database and presentations
  – graphics, movie, sound, animation
  – PDF
• File specification: Drive, path, filename and file extension
• Files: File naming, conventions and properties – types and size
• File manager, e.g. This PC, hierarchy
• Organise, copy, rename, delete, restore, move, search, view and sort files and folders
	• Introduce file organisation when busy with keyboarding skills
	• Reinforce file organisation when dealing with word processing, spreadsheets and presentations

Systems Technologies: Hardware – (Theory) (±½ week / 2 hours)
• What is hardware?
• Overview of basic concepts relating to hardware:
  ▪ Identify hardware components
  ▪ Identify ports and connectors, e.g. USB, HDMI
  ▪ Extend ports using a convertor/adapter
• Input**:**
  ▪ What is input?
  ▪ Types of input:
  – Data – unprocessed text, numbers, images, video and audio	

Content (Grade 10 / Term 1)	NOTES
– Instructions – programs, commands and user response ▪ What is an input device? ▪ Generic/common input devices: Keyboard and mouse (cable, wireless) • Output**:** ▪ What is output? Types of output: text, graphics, audio and video ▪ Hard copy vs. soft copy ▪ What is an output device? ▪ Generic/common output devices: monitors (size, quality) and printers (ink, laser and 3D: purpose) • Storage**:** ▪ What is storage? ▪ What is a storage device? What is storage media? ▪ Examples of generic/common storage devices (Fixed vs portable) – Fixed: Hard Disk Drive (HDD) & Solid State Drive (SSD) – Portable: External HDD/SSD, flash drives & memory cards – Measuring capacity (KB, MB, GB and TB) of storage media – Robustness, volatility, speed, physical size of storage media • Definition of peripheral devices • Methods for connecting peripheral devices (cabled and wireless)	
Systems Technologies: Software – (Theory) (±½ week / 2 hours) • Overview of the basic concepts and introduction to software used on computing devices: ▪ What is software? ▪ Concept of a graphical user interface (GUI) ▪ Identifying and using typical components of a basic GUI for desktops/laptops, tablets, smartphones ▪ Minimising, restoring, resizing, moving and closing of a window ▪ System software vs. Application software • Application Software (Apps) – Overview of basic concepts and introduction ▪ What is application software? ▪ Common/generic examples such as Office suites ▪ Basic applications/features for computing devices (calculator, clock, calendar, snipping tool/cropping/ screenshot) • System Software – Overview of basic concepts and introduction ▪ What is system software? ▪ Operating system – basic function/purpose, typical features of a GUI ▪ Examples of operating systems on computing devices: Windows, MacOS (Linux), Android, IOs • Basic security (PC/laptop/tablet/smartphone) – Concept of authentication (username and verification (password, pattern, pin, face recognition))	
Social Implications – (Theory) (±½ week / 2 hours) • Social issues linked to content taught in this term: Ergonomics, green computing (recycling, e-waste), health (posture) and authentication (user ID, passwords) • Economic reasons for using computers: Saving paper, labour, communication costs, efficiency, accuracy and reliability	• Social implications should be taught as they relate to hardware, software and applications
Solution Development: Word Processing – (Practical and theory) (±5½ weeks / 22 hours) • First looks: Workspace features such as ribbons, tabs and menus • Structure/elements of the word processing documents: pages, paragraphs, lines/texts and objects • File management in word processor: Create, open, close, save, save as and print documents • Select data using keyboard and/or mouse • Text: entering, editing and deleting text, special characters (symbols) • Basic punctuation: one space after all punctuation, including full stops • Formatting marks • Formatting ▪ Font type, style, size, colour, highlight and effects ▪ Paragraph: spacing (paragraph and lines within paragraph), alignment, borders, shading and indents (simple, increase and decrease) ▪ Using existing quick styles in gallery (simple)	• Reinforce keyboarding skills when working with word processing content – allocate time for keyboarding drills • Motivate learners to persist with correct keyboarding techniques when dealing with the word processor • Upper case implies capital letters and lower case implies small letters. The Shift key is used for one capital letter and the Caps Lock key is used for consecutive capital letters.

Content (Grade 10 / Term 1)	NOTES

• Editing: cut, copy, paste, find and replace
• Reviewing: proofing, spelling and grammar
• Autocorrect and basic word processing typography: Quotes, dashes
• Page layout: page setup, margins, orientation, size and page border
• Document layout: page numbers and page breaks
• View options – print layout and preview
• Insert and manipulate illustrations and text
  ▪ Objects: Pictures, Shapes, WordArt, basic SmartArt, Screenshot/Snipping
  ▪ Text box
	• All font styles and effects in the Font Dialog should be taught.
	• GIGO principle
	
	• All Illustration objects - can include Icons, 3D Models

Assessment (PoA): 1 Theory test Content covered as per CAPS teaching plan, to be administered before the end of Term 1. **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting	

Content: (Grade 10 / Term 2)	Notes
Systems Technologies: Hardware – (Theory) (±½ week / 2 hours) **Extend hardware concepts** • Input (Basic concepts, features and uses) ▪ Pointing devices – Touch pad, touch screen, stylus and joystick ▪ Scanning and reading devices – Scanning devices e.g. scanning as part of multifunction printer, handheld and smartphone camera – Radio-frequency identification (RFID), magnetic strip, bar code and QR code – Optical character recognition (OCR) ▪ Video input: webcam ▪ Audio input: microphone (including voice recognition) ▪ Biometric input, e.g. fingerprint, iris and facial scanner • **Output** (Basic concepts, features and uses) ▪ Audio output: What is an audio output device? – Headsets and speakers ▪ Other output – Multifunction devices, data projector, visualizer • Storage **media and devices** (Basic concepts, features and uses) – Memory cards: size matches computing device, transfer speeds (basic knowledge) – Card reader: built-in, external multi-card reader • Processing ▪ Overview of and introduction to the basic processing concepts, i.e.: – Motherboard, CPU and memory (RAM, ROM) (what is it, what is it used for) – Measuring speed in GHz	
Systems Technologies: Software - Extend software concepts – (Theory) (±½ week / 2 hours) • Categories of software: Proprietary software, Open-source software (definition, advantages and disadvantages) • Licensing and licensing agreements including end-user, site license agreements and Creative Commons • System software ▪ Drivers: What is a driver? ▪ Auto configuration of devices – what is it? ▪ Utility programs: What is it? / Purpose / Examples of generic/common utility programs	
Systems Technologies: Device Management – (Practical and theory) (±½ week / 2 hours) • Creating shortcuts • Adding new peripherals (printer, mouse) • Changing the default printer • Basic printing and printer queue management on computing devices • Compressing/decompressing files and folders	
Network Technologies: Networks – (Theory) (±½ week / 2 hours) Overview of the basic concepts and introduction to networks: • What is a network? • Aims and objectives of networks ▪ Facilitating communications and sharing hardware, software, data and information ▪ Basic security and privacy issues • Examples of networks: Internet, PAN, HAN, LAN	
Social Implications – (Theory) (±½ week / 2 hours) • Social issues applicable to the above content: ▪ Ethical use of content covered (hardware, software, device management and networks) ▪ Software piracy, licensing, copyright and intellectual property	
Solution Development: Word Processing – (Practical and theory) (±3 weeks/12 hours) • Paragraphs (basic) ▪ Bullets (pictures, symbols font size and colour) and numbering (font size and colour) ▪ Indents (first line, hanging) ▪ Tabs (position, alignment, leader)	Though teaching and practising the mechanical/technical skills and functions of applications are important for the learner to become familiar with the tool that

<table>
<tr><th>Content: (Grade 10 / Term 2)</th><th>Notes</th></tr>
<tr><td>
• Document and page layout
▪ Customising margins
▪ Headers and footers (simple edit and remove; automatic page numbers) alignment, add your own text)
▪ Insert cover page
• Tables
▪ Insert, Table tools, Table design, Table properties
▪ Design: Table styles, borders and shading
▪ Layout: Rows and columns, header rows
▪ Cells: size, distribution (rows and columns), merging and splitting
▪ Text alignment and direction
▪ Table: split, autofit, gridlines
▪ Working with data: sorting, convert to text
▪ Working with formulae (sum and average)
• View options
▪ Work with more than one document/window, zoom
▪ Document views: Draft and full screen reading
</td><td>he/she uses, it is important to do so within the paradigm of computational thinking.

It is important that learners are also taught the underlying knowledge and understanding of these skills and the applications they are working with. It should be taught in a way that learners will be able to transfer the skills and knowledge to new versions of the applications as well as other similar applications.</td></tr>
<tr><td colspan="2">
Solution Development: Spreadsheets – (Practical and theory) (±2 weeks / 8 hours)
• Overview of the basic skills and core concepts of spreadsheets
• Uses of spreadsheet
• First looks: Workspace
▪ Rows, columns, cells, sheets and workbook
• Cell reference
▪ The importance of using cell references rather than constant values in cells and formulae
• Cell ranges: range names
• Basic calculations using basic operators including +, -, *, /, order of precedence and the use of brackets
• Data types such as General, Number, Currency, Text, Date and Time
• Values and cell references
• Format cells: Data type, borders, shading, alignment, wrapping, merge, text direction, <s>split</s> and Autofill (default option)
• Formatting rows, columns and sheets
▪ Size (width and height), insert, delete, hide, unhide, borders and styles
• Reinforce generic/common concepts such as formatting and editing, page layout, illustrations, search (find and select) and proofing as in word processor
• File options: open, save, save as, new and print
• Formulae vs. functions
• Basic functions (SUM, AVERAGE, COUNT, MIN, MAX)
• Error indicators:
▪ #######, #NAME!, #DIV/0!, #REF!
▪ #VALUE!, #NUM!
</td></tr>
<tr><td>
Information Management
(Practical and theory) (±½ week / 2 hours)
• Data vs. information
• Understand the problem/task
▪ Problem solving steps
▪ Role of questions and questioning to determine information needs/directs solution
• Information sources and data gathering tools (including advantages and disadvantages)
▪ Electronic reference works - Wikipedia and Internet articles
▪ Printed media - books
▪ Surveys: questionnaires/interviews
</td><td>Introduction and management of the PAT

Understand the problem:
• State in own words; determine what needs to be done/found;
• What is known?
• What information is missing or needed?
• Find information and data: where and how?</td></tr>
</table>

Content: (Grade 10 / Term 2)	Notes
Assessment (PoA): • A Practical test to be administered during the term • Mid-year examination (1 practical paper + 1 theory paper). Content covered as per CAPS teaching plan. **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting	

Note:

It is important to note that application packages share common features (formatting, editing, page layout, illustrations, etc.) that are reinforced when dealing with the different packages and as these features may take more time with the first application taught, they take up less time when teaching subsequent packages.

Content: (Grade 10 / Term 3)	Notes

Network Technologies: Networks – (Theory) (±½ week / 2 hours)
• Personal area network (PAN)/ Home area network (HAN)
  ▪ What is it? / What is it used for?
  ▪ PAN vs HAN
• Overview of Network devices: modem, switch and router.
• Communication channel/media (incl. Wi-Fi, Bluetooth and NFC)
• Pairing devices
• Obtaining Internet access:
  ▪ Identify hardware and software needed for connecting to the Internet using a PC/mobile device
• ISP – definition and purpose
	A limitation is inherent in the design of the technology that causes a restriction

Internet Technologies: Internet and WWW – (Theory) (±½ week / 2 hours)
• What is the Internet?
• Internet addresses
• Overview of the World Wide Web (WWW)
  ▪ Describe the WWW
  ▪ Web address/uniform resource locater (URL), URL shortener
  ▪ Web page, website, hyperlink
  ▪ Types of websites, their purpose/what they offer and examples
  – Weblog/Vlog (blog), Wiki, social network, web applications (Google docs, OneDrive, Google drive, Office 365)
• Internet vs WWW
• Browsers
  ▪ What is it? / Purpose
  ▪ Basic browsing
  ▪ Advantages of tabbed browsing
• Search engines
  ▪ What is it? / Purpose
  ▪ Common/generic examples
• Concept of downloading and uploading	

Internet Technologies: Communication – (Theory) (±½ week / 2 hours)
• E-communication using computing devices
• What is e-communication?
• What is a communication device?
  ▪ Overview of applications to facilitate e-communications: e-mail, web browser, instant messaging, text, picture and video messaging, online meetings (examples) (What it is?)
• E-mail as a form of e-communication
  ▪ Taxonomy of e-mail addresses
  ▪ Register a web-based e-mail address
• General netiquette rules on e-mail and social media platforms	

Internet Technologies: Communications – (Practical) (±½ week / 2 hours)
• Basic use of the Internet, e-mail and social media platforms
• Hyperlinks
• Basic e-mailing
  ▪ Compose messages
  ▪ Send and receive, forward, reply to, reply to all
• Attachments
• Apply netiquette rules such as spelling check, messages, being courteous and concise, not gossiping, reducing the size of attachments and not typing in capital letters	

Social Implications – (Theory) (±½ week / 2 hours)
Link to content taught in this term
  ▪ Digital citizenship (What it is)
  ▪ Digital footprint (What it is, what does it mean – basic understanding)	

Content: (Grade 10 / Term 3)	Notes
▪ POPI Act (basic understanding) • Recognise and acknowledge the ownership of electronic material • Appropriate communication etiquette (Basic) • Safe e-mail and Internet use – dangers, multi-level authentication, one-time passwords (OTP) and tips to ensure safe use	
Solution Development: Presentations (for PAT only) – (Practical) (±1 weeks / 4 hours) • Uses of Presentations • First looks: Slides, designs, layouts • Overview of the basic skills and core concepts • Rules/best practice for creating a presentation • Formatting, editing, reviewing and proofing, objects – transfer from Word • Page setup: Orientation, size • Design tips/ideas from the application (built-in) • Slides: Insert, delete, numbers, headers and footers • View options – normal, slide sorter, notes, slide show • Custom animations (basic) • Slide transitions (basic) • Adding videos, voice recordings, etc. • Navigation, e.g. Hyperlinks • Printing options: Notes, handouts, etc. • Basic integration techniques (e.g. inserting graph from spreadsheet) • Start slide show • Set up slide show • Saving options: Video, presentation, show	*Presentation skills are taught in conjunction with the completion of the Practical Assessment Task (PAT)* Reinforce transfer of word processing skills such as: • Formatting: • Editing • Objects • Reviewing/proofing Integration techniques implies integration with other applications, e.g. Spreadsheet graphs
Solution Development: Spreadsheets – (Practical and theory) (±2½ week / 6 hours) • Extend the use of basic functions: ▪ TODAY, RANDBETWEEN, MODE, MEDIAN, COUNTA, COUNTBLANK, COUNTIF ▪ Use of relational operators (>, <, <=, >=, <>, =) • Reduce the number of decimal places using cell formatting • Basic Sorting • Work with sheets ▪ Rename, tab colour, hide/unhide ▪ Headers and footers • Basic printing	
Solution Development: Word Processing – (Practical and theory) (±1½ weeks / 6 hours) • Reviewing ▪ Comments ▪ Styles (basic) linked to Table of Contents ▪ Referencing (basic) • Document layout ▪ Page setup – Columns (line between), hyphenation ▪ Watermark, page colour ▪ Integration – Hyperlinks	Apply to Practical Assessment Task (PAT)
Solution Development: HTML / Web design – (Practical and theory) (±1 week / 6 hours) • Reinforce the concepts: ▪ Websites, web pages, hyperlinks and URLs • What is HTML? • What is an HTML editor? • HTML syntax/order of tags • Basic HTML tags: Opening tag and closing tag List of tags:	• The section on web design should be done in an HTML editor or text editor such as Notepad++ • Learners are taught the basics of HTML to create and link web pages

<table>
<tr><th>Content: (Grade 10 / Term 3)</th><th>Notes</th></tr>
<tr><td>
<table>
<tr><th></th><th>Opening tag</th><th>Closing tag</th></tr>
<tr><td>Basic document tags</td><td><html>
<head>
<title>
<body></td><td></html>
</head>
</title>
</body></td></tr>
<tr><td>Heading elements</td><td><h1>
:
<h6></td><td></h1>
:
</h6></td></tr>
<tr><th></th><th>Opening tag</th><th>Closing tag</th></tr>
<tr><td>Text elements</td><td>

<hr></td><td> </td></tr>
<tr><td>Text formatting</td><td>

<u></td><td>

</u></td></tr>
</table>

Plain text and text formatting
Attributes as a concept
Font tag, face, colour & size attribute
Width & size (hr/)
Body background colour
Underline tag
Structure and design of a simple HTML page

</td><td>

Closing tags not necessary for some tags, e.g., <br> and <hr>

</td></tr>
<tr><td>
Information Management and Practical Assessment Task – (Practical) (±1½ week / 6 hours)

Information vs. knowledge
Find and access information and data

Surveys and questionnaires (Functions and differences)

Sifting information
Process of keeping only gathered information that meets the criteria/will solve the problem

</td><td>

Practical Assessment Task – Information Management culminates in the PAT
Start with the PAT where learners will apply the theoretical and practical content, concepts and skills of Information Management and the use of applications in an integrated fashion
Commence with tasks related to PAT Phase 1

</td></tr>
<tr><td colspan="2">
Assessment (PoA):

1 Practical test
1 Theory test /Alternative Assessment.

PAT Phase 1 to be completed before the end of Term 3 and the commencement of PAT Phase 2
Refer to Section 4 for:

Mark and time allocation
SBA weighting
Term reporting

</td></tr>
</table>

Content: (Grade 10 / Term 4)	Notes
Solution Development: Spreadsheets – (Practical and theory) (±1½ weeks / 6 hours) • Charts/Graphs – Create/Insert, format ▪ Pie, line, column and bar ▪ Purpose of each/when to use ▪ Create, format and edit ▪ Interpretation of information presented in a graph • Basic integration techniques • Solve problems using spreadsheets • Troubleshoot basic spreadsheet problems	
Information Management and PAT – (Practical) (±2 weeks / 8 hours) • Knowledge vs. insight/decision making • Manipulating information ▪ Extract core meaning and ▪ Summarise using own words • Processing data • Presentation of information: ▪ Graphs, tables, techniques and tools in applications ▪ Report writing – elements of a report: Introduction, body, conclusion, bibliography/references, copyright/plagiarism issues and intellectual property ▪ Summarising information/report using presentation software • Finalise PAT Phase 2	Continuation of PAT Phase 2
Social Implications **(Theory) (±½ week / 2 hours)** • Impact on society ▪ Identify how ICTs influence one's life and life styles (Private) ▪ ICTs influence on business and education use • Computer crime – types (information theft, data theft and identity theft)	Popi Act extended
Solution Development: Word Processing – f(Practical and theory) (±1/2 week / 2 hours) • Accessing online help including FAQs (frequently asked questions) • Integration techniques (e.g. hyperlink files, copy and paste between applications) • Solve problems using word processor Troubleshoot basic word processing problems	
Solution Development: Working with Documents – (Practical and theory) (±1/2 week / 2 hours) (Word processor, spreadsheet and presentations) • Reproduce and create documents that incorporate text, graphics and data • Support communication with appropriate features such as images and symbols • Integrate text and graphics to form meaningful message • Balance text and graphics for visual effect Use media, visual literacy and technology skills to create products that express understanding	
Content using case studies – (Practical and theory) (±1 week / 4 hours) • Consolidate content, concepts and skills using case studies to: ▪ Identify the basic hardware configuration of a computer in terms of: – the processor – memory and – hard drive size ▪ Understand computers and their uses ▪ Understand how technology helps one to operate more efficiently, effectively and more accurately ▪ Know how to use computers as tools to access information and to communicate with others around the world ▪ Make better buying decisions – interpret advertisements and make judgements about quality and usefulness when buying equipment and software ▪ Know how to fix ordinary computer problems and deal with challenges that arise from utilising computers (and know when to call for help) ▪ Know how to use the Internet and e-mail	

Content: (Grade 10 / Term 4)	Notes
▪ Make informed decisions and choices in selecting communication devices and proper modes of communications for a given scenario ▪ Know what kind of computer uses benefit or advance work place and career path opportunities ▪ Know how to protect oneself against online villains and threats ▪ Know how to apply digital tools to: – communicate – find and gather – analyse – use, manipulate and process information and – solve problems ▪ Understand technology concepts, systems and operations Recommend specific hardware/software for a specific scenario	
Assessment (PoA): • Examination (1 practical paper + 1 theory paper). **Practical Assessment Task:** Phase 2 to be completed before the commencement of end of year examinations. **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting	

3.7.2 Grade 11

Content: (Grade 11 / Term 1)	Notes

Systems Technologies: General Concepts – (Theory) (±½ week / 2 hours)
• Information processing cycle: Input, output, processing, storage and communication
• Types of computing devices and their typical features:
  ▪ Dedicated devices such as ATMs and electronic appliances
  ▪ Mobile computers and devices such as smart phones
• Categorise computers according to
  ▪ Portable (mobile) / non-portable
  ▪ Processing power/usage (Super computer, server, desktop/laptop, mobile device, wearable/smart sensors)
• The role of ICTs in the workplace e.g. collaboration, office/remote office and communication	

Systems Technologies: Hardware – (Theory) (±1 week / 4 hours)
Extend from Grade 10
• Input devices
  ▪ Purpose / When to use
  – Biometric input
  – Bar code scanner
  – Microphone
  – Touch screens
  – Virtual keyboards
  – Wireless technology – mouse and keyboard
• Output devices
  ▪ Purpose / When to use
  ▪ What determines the quality of:
  – monitors (resolution, aspect ratio, colour depth)
  – printers (resolution, dpi, ppm, duty cycle)
• Input and Output devices used with Point of Sales, ATM	

Social Implications – (Theory) (±½ week / 2 hours) • Input and output devices for users with disabilities (from System Tech - Hardware) (e.g. Trackball) • Wearables – uses and etiquette • Device: theft and tracking/protection • Power settings/saving • Protection against power failures (UPS/inverters) • Factors influencing health and health risks • Career options and impact on other careers/field of study	

Solution Development: Word Processing – (Practical and theory) (±2 weeks / 8 hours)
• Reinforce content, knowledge concepts and skills with activities that include Grade 10 skills
• File management
  ▪ Printing (including options such as range of pages, odd or even, number of copies, print quality, pages per sheet)
  ▪ Export/Print to File (Print to PDF)
  ▪ Send to/Share (e-mail, cloud)
• Templates:
  ▪ Purpose
  ▪ Create documents from/using templates
  ▪ Save documents as templates
• Input data from different file formats - text files, csv file, rtf
• Editing: Paste special, find and replace (extend to more options)
• Page layout/Design:
  ▪ Themes and background
  ▪ Cover page and content controls
• Document layout
  ▪ Section breaks and sections, including linking and delinking
  ▪ Headers and footers (Fields: date, author, path and filename and document title)
  ▪ Page numbers: Different first page, odd, even, starting from a specific number and numbering formats	

Content: (Grade 11 / Term 1)	Notes
▪ Columns: column break, spacing between columns and size of columns • Paragraph: ▪ Customise bullets and numbering ▪ Outline numbering/multi-level lists ▪ Customise spacing ▪ Drop Cap • Tables ▪ Revise basic concepts from gr 10 ▪ Working with formulae (revise sum and average from grade 10, add count, max, min + combinations) • Forms (Legacy tools only) • Import/export data • Using/Accessing help features/facilities	
Solution Development: Spreadsheet – (Practical and theory) (±2 weeks / 8 hours) • Reinforce content, knowledge concepts and skills with activities from Grade 10 • Conditional formatting • Absolute cell referencing • Using spreadsheet functions such as ROUND, SMALL, LARGE, and POWER • Rounding off numbers and the difference between rounding and formatting • Interpreting error indicators: ▪ Circular reference, #######, #NAME!, #DIV/0!, #REF!, #VALUE!, #NUM! • Using/Accessing help features/facilities	
Solution Development: Database – (Practical and theory) (±2 weeks / 8 hours) • Uses of Database • First looks: ▪ Objects: Table, form, query, report • Tables: Records, fields and field names ▪ Basic field properties: size/length, default value, decimal places and required • Data types ▪ Short Text, number, date and time, currency, auto number, Yes/No and Long text • Database structure • Primary key • Create tables ▪ Add and delete records, fields, sorting, basic data validation techniques, filters, enter data (records) • Create forms ▪ Adding existing fields, textboxes, labels, buttons, pictures, formatting, design and layout and enter data (records) ▪ Properties (Control wizard, images, pictures, title date/time and add existing fields) ▪ Change fields order in forms • Work with different views - design and table view • Using/Accessing help features/facilities	
Assessment (PoA): • 1 Practical test • 1 Theory test **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting	

Note:

It is important to note that application packages share common features (formatting, editing, page layout, illustrations, etc.) that are reinforced when dealing with the different packages and as these features may take more time with the first application taught, they take up less time when teaching subsequent packages.

Content: (Grade 11 / Term 2)	Notes

Systems Technologies: Hardware and Software – (Theory) (±½ week / 2 hours)
• Processing
  ▪ Understand the role/function of basic components of the system unit
  – Motherboard – houses components
  – CPU – processing
  – RAM – holds data and instructions during processing/execution
  – ROM – stores start-up instructions
• Storage
  ▪ What is it? Purpose / When to use
  ▪ Primary storage (memory) vs. secondary storage
  ▪ Suitable storage for backup
• Cloud storage (Software as a Service (SaaS))
  ▪ What it is?
  ▪ Advantages and disadvantages
• Interpret adverts relating to hardware and cloud storage
• Basic troubleshooting – processing and storage
	Cloud storage is categorised as **Software (**Software as a Service (SaaS)), though it incorporates elements from hardware and networks

Network Technologies: Networks – (Theory) (±1 week / 4 hours)
• Local area networks (LAN and WLAN)
  ▪ Definition, purpose, role, uses
  ▪ Advantages, disadvantages and limitations
• Basic components of a network – Overview and concepts
  ▪ Workstations and servers (client and peer-to-peer)
  ▪ Network interface card (wired and wireless NIC)
  ▪ Network devices for connection (modem, switch, router, access point)
  ▪ Communication medium (Wired – UTP, fibre optics; Wireless – radio waves)
• Connection
  ▪ Wired vs. wireless
  ▪ Data transmission speed
  ▪ Interpret adverts regarding connectivity
• Basic network security such as passwords, usernames and access rights	

Social Implications (Theory) – (±½ week / 2 hours)
● Social issues applicable to the above content: hardware and software as well as networks
● Unauthorised access including authentication (username and password)
● Ethical use of networks
● Acceptable use policies of schools
  ▪ BYOD
● Impact of AI on education – What is AI in simple terms?
  ▪ Benefits (automation of tasks/quizzes with immediate feedback for learning and lesson planning. performance data analysis to identify support)
  ▪ Challenges (digital divide, reliability, privacy)
  ▪ Concerns (over-reliance, academic integrity, critical thinking)
● Big data:
  ▪ In simple terms: What is Big data?
  ▪ Role of databases
  ▪ How does big data relate to AI?	

Solution Development: Word Processing (Practical and theory) – (±1 week / 4 hours)
• Styles (heading/paragraph)
  ▪ Quick style gallery (reinforce)1
  ▪ Change/edit a style
  ▪ Create a new style	

Content: (Grade 11 / Term 2)	Notes
Solution Development: Spreadsheets – (Practical and theory) (±1½ week / 6 hours) • Use of relational operators (>, <, <=, >=, <>) – including use in simple IF functions • Simple IF function • COUNTIF, SUMIF • Charts/graphs: Create, format and edit ▪ Meaningful titles and labels ▪ Gridlines ▪ Legends ▪ Options appropriate to the graph type chosen ▪ Integration with Word (e.g. adding/linking graph/chart to word processing/presentation document)	
Solution Development: Database – (Practical and theory) (±1 week / 4 hours) • Design database tables • Choosing appropriate data types ▪ Short Text, Number, Date and Time, Currency, Auto Number, Yes/No, Long Text, OLE Object/ Attachment, Hyperlink, Lookup • Reinforce and extend the use of field properties: size/length, default value, decimal places, required, input mask, format, validation rule, validation text and alignment • Queries: ▪ Design basic queries using AND, OR, NOT and sorting options ▪ Selecting which fields to display in a query	
Solution Development: HTML / Web design – (Practical and theory) (±½ week / 2 hours) • Reinforce the concepts from Gr 10: ▪ Websites, web pages, text formatting • Cite tag (PAT only) • Comments • Attributes ▪ Align paragraphs and headings ▪ Align text right, centre ( ), left • HTML tables: Syntax: Table tags, table headers, table rows and table cells • Troubleshooting	
Information Management – (Practical) (±1 week / 4 hours) • Reinforce content, knowledge, concepts and skills with activities from Grade 10 • Artificial intelligence (AI) as convergent technology to aid information discovery and insights, considering its limitations and verification needs. ▪ What it is? How to use • Task definition, data and information gathering • Quality control of information: ▪ Evaluate questions (types/levels/variety) – Questions that can be answered explicitly by facts, e.g. questions starting with words such as - What? When? Where? Who? How many? – Questions that will help you to examine, explore, query, e.g. questions starting with Why? How? – Questions that will help you to adjust alter or predict, e.g. questions starting with If? What if? – Questions that will help you to make a judgment, critique, review or find meaning of some sort, e.g. questions starting with: Would it be better if? What recommendation? How can I determine? What would be the best way? ▪ Evaluate information of sources) – Authority (who created it?) – Accuracy (are the facts substantiated?) – Currency (is it up-to-date/still relevant?) – Objectivity (any bias?) – Coverage (how well does it cover the topic?)	AI is software that learns from data to make decisions or create outputs. It is made of code and trained computer models, not physical intelligence. Evaluate AI as a source Ethical use, academic integrity of AI

Content: (Grade 11 / Term 2)	Notes
Assessment (PoA): • Mid-year examination (1 practical paper + 1 theory paper). Content covered as per CAPS teaching plan. **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Completion of PAT Phase 1**	

Content: (Grade 11 / Term 3)	Notes
Systems Technologies: Software – (Practical and theory) (±½ week / 2 hours) • The role of application software • Function/purpose/role of different types: Collaboration and communication software • Compatibility issues • Updating of software • Software for users with disabilities – screen readers and voice recognition software • Explore cloud-based applications – G Suite (Google apps) and Office 365 ▪ Uses of cloud-based applications ▪ Advantages and disadvantages	
Internet Technologies: Internet, WWW and Communications – (Practical and theory) (±1½ weeks / 6 hours) • Types of digital communications: Voice over Internet Protocol (VoIP) and video conferencing ▪ Advantages and disadvantages ▪ Good practices • Overview of online services (banking, shopping and booking/reservations) • Internet of Things (IoT) – Basic concepts ▪ What it is? – Internet connected devices data (input (sensing), processing (analysis), output (feedback or automatic actions based on analysis)) purpose ▪ Where is it used? Examples (e.g. Smart Homes, Health care (wearable fitness trackers/medical devices), Transport (fleet tracking, sensors in cars to prevent accidents, Agriculture (soil moisture and irrigation, livestock monitoring)) ▪ Other technologies involved – big data (collection of data over time), artificial intelligence (decisions), notification/communication • Fourth Industrial Revolution (4IR) – What it is? ▪ Virtual reality (VR) and augmented reality (AR) (basic definitions, real-world uses, simple examples) • Uses of computer communications: social network websites ▪ Advantages and disadvantages ▪ Bad practices (fake news) and good practices (apps verifying content) ▪ Examples • Overview of portable and mobile Internet access (basic concepts – What it is? Where it is used? Examples) ▪ Wi-Fi Hotspots (personal and public), Bluetooth and NFC ▪ Portable and mobile – 4G / 5G ▪ Cellular data service – Mobile phone as a router (Hotspot) • Browser and e-mail software	
Internet and WWW – (±½ weeks / 2 hours) • Internet vs WWW – reinforce from Grade 10 • Usability of web pages/websites: • Explore web pages/websites and evaluate aspects - readability, navigation, consistency, layout, typography – link to word processing documents and forms	
Systems Technologies: Hardware, Software and Device Management (Practical and theory) (±½ week / 2 hours) • Basic system requirements / Impact of hardware on software ▪ CPU, GPU, RAM, HDD/SSD (Definition and function) Software installation ▪ From portable storage medium ▪ Internet download/mobile app installation ▪ Activation: (serial numbers, codes, online) • Management of files: ▪ File types ▪ Properties ▪ File attributes such as read-only and hidden ▪ Import and export ▪ Search	System utilities can be done in an integrated manner when hardware and other concepts are taught, e.g. ● Install and uninstall when software and hardware is taught ● Disk Clean-up, and compression when hard drive capacity is taught

Content: (Grade 11 / Term 3)	Notes

Social Implications – (Theory) (±½ week / 2 hours)

- Social issues linked to content taught in this term:
  - Computer and human error and the effects thereof such as accuracy and validity – data input (GIGO)
  - Verification and validation of data – database
  - Software bugs
  - Hardware failure
- Social Engineering – What is it?
  - Privacy issues including obtaining and using personal information obtained through social engineering/deception.
- Deception-based attacks (phishing and pharming)
- Options available for enhancing accessibility such as speech recognition, screen readers and magnifiers, on-screen keyboards, screen, mouse and keyboard settings
- Technologies enabling IoT devices and their impact on society
  - AI (Ethical use and academic integrity)
- How ICTs impact on the workplace and employment practices
  - Remote office, and office automation
  - Gig economy (Decentralisation of labour, job creation)

Solution Development: Database – (Practical and theory) (±1 weeks / 4 hours)

- Reports:
  - Design basic reports using a wizard
  - Basic calculations - SUM, AVG, COUNT, MIN and MAX
  - Page headers and footers (design view)
  - Report headers and footers
  - Import and export data

Solution Development: Spreadsheets – (Practical and theory) (±1 week / 4 hours)

- Import/export data
- Work with sheets: Move, copy, delete, insert, headings, protect, gridlines and freeze panes
- Use different print options - page breaks, titles, scale to fit, print gridlines and print area
- Linking cells, formulas between sheets and graphs

Solution Development: Word Processing – (Practical and theory) (±1 week / 4 hours)

- Mailings – Mail Merge (source – spreadsheet and word processing table)
  - Letters
  - Labels
- Select options in the Editing group in the Home tab
- References
  - Table of contents/figures
  - Footnotes and endnotes
  - Captions
  - Citations and Bibliography
  - Index

Solution Development: HTML / Web design – (Practical and theory) (± 1 weeks / 4 hours)

- Good website/page design – consider
- Use of colour (basic)
- HTML lists
  - Numbered list: <ol>
  - Bulleted list: <ul> (disc, square and circle)
  - List items: <li>
- HTML images
  - Syntax
  - Attributes: source and alternate text, border around image
- HTML links (Anchor tags <a>)
  - Link syntax
  - Links to bookmarks (id attribute), websites and files
  - Target location (create and link, target attribute)

Content: (Grade 11 / Term 3)	Notes
Information Management and Practical Assessment Task (±2 week / 8 hours) • Role of AI: ▪ Ethical use and academic integrity • Role of spreadsheet and database to process and manipulate data to provide information • Reinforce content, concepts and skills through application packages and PAT	
Assessment (PoA): • 1 Practical test • 1 Theory test /Alternative Assessment: Closed or Open Book or Case Study or Survey **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Completion of PAT Phase 2 and commencement of PAT Phase 3.**	

<table>
<tr><th>CONTENT: (Grade 11 / Term 4)</th><th>NOTES</th></tr>
<tr><td colspan="2">Internet Technologies: Communications – (Practical) (±½ week / 2 hours)
• Managing e-mail:
▪ Organise using e-mail folders
▪ Sort by, flag, prioritise
▪ Distribution lists, message rules
▪ E-mail software features such as Cc and Bcc fields, attachments and address books</td></tr>
<tr><td>Social Implications – (Theory) (±½ week / 2 hours)
Social issues linked to content taught in this term:
• Information accuracy – why is it important?
• Computer misuse: illegal, unethical, or unauthorised use of computer systems, networks, or data, e.g. online harassment (stalking and bullying, unauthorised access, stealing/selling/distributing unauthorised data/information, hacking into systems, distributing malware
• Malware – What it is (broad categories only: Viruses, Spyware, Ransomware, Worms) common infection methods
• Protecting oneself when online
▪ Security software (anti-malware, including anti-virus and anti-spyware)
▪ Multi-step verification
▪ E-commerce and e-banking – (e.g. secure socket layer (SSL/ https:// or lock symbol)
▪ Authorising app permissions
▪ Why anti-malware programs need to be updated and how they function
● Data protection such as backup</td><td>Learners need to understand that malware is any software specifically designed to damage, disrupt, or gain unauthorised access to computer systems, networks, or devices.

Common malware infection methods:
• Email attachments and links
• Infected software downloads
• Compromised websites
• USB drives
• Peer-to-peer file sharing
• Social engineering tactics</td></tr>
<tr><td colspan="2">Solution Development: Word Processing – (Practical and theory) (±½ week / 2 hours)
• Integration with spreadsheet (paste options, linking)</td></tr>
<tr><td colspan="2">Solution Development: Spreadsheets – (Practical and theory) (±½ week / 2 hours)
• Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills)
• Plan and design own documents for specific scenarios and inquiries
• Integration with other packages
• Problem solving using spreadsheets
• Troubleshooting spreadsheets</td></tr>
<tr><td colspan="2">Solution Development: Database (Practical and theory) (± ½ week / 2 hours)
• Integration with other packages (import and export)
• Design a database table for a specific scenario, including forms, queries and reports
• Problem solving using databases
• Troubleshooting databases</td></tr>
<tr><td>Solution Development: Documents (Practical and theory) (Word processor, spreadsheet, HTML, database) – (±1 week / 4 hours)
• Use integrated software effectively and efficiently to reproduce and create documents that incorporate text, graphics and data
• Manipulate graphics and text within documents
• Use integrated software to create and design documents for specific purposes
• Apply general principles of layout and design to a document process
• Emphasise information using techniques such as placement and colour
• Create documents by customising templates
• Use media, visual literacy and technology skills to create products that express understanding</td><td>Learners should apply a combination of techniques, knowledge and skills learned to new situations to complete a task/solve a problem or achieve an objective.

Learners should complete integrated practical tasks that encourage thinking and decision - making.</td></tr>
<tr><td colspan="2">Information Management and Practical Assessment Task – (Practical) (±2 weeks / 8 hours)
• Reinforce content, concepts and skills in finalising PAT</td></tr>
<tr><td colspan="2">Content using case studies (Practical and theory) (±½ week / 2 hours)
• Consolidate content, concepts and skills using case studies to:
▪ Identify general hardware configuration of a computer in terms of the processor, memory and storage options</td></tr>
</table>

CONTENT: (Grade 11 / Term 4)	NOTES
▪ Understand computing devices and their uses ▪ Understand how technology helps one to operate more efficiently, effectively and more accurately ▪ Know how to use computing devices as tools to access information and to communicate with others around the world ▪ Make better buying decisions – interpret advertisements and make judgements about quality and usefulness when buying equipment, software and internet services ▪ Know how to fix ordinary computer problems and deal with challenges that arise with utilising computing devices ▪ Know how to use the Internet and e-mail as well as convergent technologies such as AI ▪ Make informed decisions and choices in selecting communication devices and modes of communications for a given scenario ▪ Know what kind of computer uses benefit and advance work and career path opportunities ▪ Know how to protect one against online threats. ▪ Know how to apply digital tools and services to communicate, gather, analyse, use information and solve problems ▪ Understand technology concepts, systems and operations ▪ Recommend specific hardware/software for a specific scenario	
Assessment (PoA): • Final examination (1 practical paper + 1 theory paper) **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Practical Assessment Task - Phase 3 to be completed before the start of end of year examinations**	

3.7.3 Grade 12

Content: (Grade 12 / Term 1)	Notes

Systems Technologies: General Concepts – (Theory) (±½ week/ 2 hours)
• Types of computer systems for different uses:
  ▪ Personal, SOHO, mobile and power users
• Role and use of data, information, knowledge, conclusion/decision as part of information management
• Reasons for using computers:
  ▪ saving paper, time, labour
  ▪ communication costs
  ▪ efficiency
  ▪ accuracy
  ▪ reliability
  ▪ effect on time and distance
  ▪ global communication including social networks and web tools – blogs, vlogs and wikis	

Systems Technologies: Hardware – (Theory) (±1½ weeks /6 hours)
• Consolidate and reinforce hardware and software regarding uses, extend to advantages and limitations of common/generic input, output, storage and communication devices
• Integration of input modes/methods to enhance productivity/efficiency
• Making buying decisions:
  ▪ What to buy? / Why? / Fit for purpose
• Keyboard and mouse:
  ▪ Ergonomic considerations
  ▪ Wired vs Wireless
• Webcams, scanners, monitors: uses, advantages and limitations
  ▪ Resolution and image quality
  ▪ Software to use with these devices
  ▪ Scanning with smartphone camera vs scanning by a multifunction printer
• Printers
  ▪ Which printer is best for task/purpose? (Why?)
  ▪ Budget, speed, colour, cost per page, graphics capability, photo printing, paper type and size, system compatibility, future needs, wireless capability, mobility
  ▪ Resolution, economic and environmental considerations
• Storage:
  ▪ Capacity, robustness, backup, appropriate for purpose
• Processing:
  ▪ Making informed decisions regarding the basic components of the system unit e.g. buying a system that will be suitable for running particular software (system requirements) regarding processor and RAM
  ▪ Interpret specifications regarding CPU and RAM (basic)
• Productivity, efficiency, accuracy, accessibility issues
• Suggest input, output, storage, communication devices as well as CPU, GPU and RAM including specifying basic specifications in terms of processor, memory and storage for:
  ▪ Home / SOHO / power user
  ▪ mobile user
  ▪ user with disability
• Fix ordinary problems referring to:
  ▪ scanning
  ▪ disk errors
  ▪ resolution
  ▪ non-responding programs (e.g. hanging programs, drivers)
  ▪ printing problems
  ▪ checking amount of used or free space on storage medium
  ▪ connections and non-responsive hardware	

Systems Technologies: Software – (Theory) (±½ week / 2 hours) • Software that enhances accessibility, efficiency, productivity - (Which software to use where/when and by whom):	

Content: (Grade 12 / Term 1)	Notes
▪ Cloud application ▪ Voice recognition software (uses, advantages and limitations) ▪ Keyboarding skills ▪ Note-taking software • Uses of common applications – (Which software to use where and when and by whom): ▪ Applications dealt with practically (word processing, spreadsheet, database, presentations) ▪ E-mail software ▪ Web browsers • Web-based applications vs. installed applications ▪ Advantages, disadvantages, examples and what they offer (purpose) • Interpret system requirements and compare to system properties such as hard disk space, memory and processor • Software maintenance and importance ▪ Patches vs updates vs versions • File properties ▪ Read-only, hidden – when to use ▪ Permissions and Sharing Properties (link to cloud storage) • Revise file management, including compressing/ decompressing files/folders password with compression (e.g.7-Zip)	
Social Implications – (Theory) (±½ week/ 2 hours) • Social issues linked to content taught in this term: ▪ environmental issues ▪ user-centred design in software applications – website – database form – presenting documents/information ▪ AI in education as tool to enhance teaching and learning (revise and extend from Grade 11) ▪ Challenges and concerns (e.g. over reliance and impact on critical thinking) ▪ How to position AI to strengthen/support human capabilities, not a substitute,	
Solution Development: Database – (Practical and theory) (± 2½ weeks / 10 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Reports ▪ Design reports – grouped ▪ Group headers and footers ▪ Calculations in groups (SUM, AVG, COUNT, MAX, MIN) • Query ▪ Queries using and, or, not, wildcards (*), IS Null operator ▪ Add fields with calculations in queries ▪ Total, Group By (SUM, AVERAGE, MIN, MAX, COUNT)	Learners should solve problems, i.e. apply a combination of techniques, knowledge and skills learned to new situations. Teach learners to use and combine information, data and ideas to solve the problems to discover and explain relationships or trends and predict behaviour/events. Tasks given to learners should also involve procedural skills and encourage computational thinking.
Solution Development: Spreadsheet – (Practical and theory) (±2 weeks / 8 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • More complex functions such as: ▪ Variations of known functions, ROUNDUP, ROUNDDOWN, COUNTIFS, SUMIFS ▪ Nested IF ▪ AND, OR ▪ LOOKUP functions, including error indicator #N/A • Subtotal outline feature (AVERAGE, COUNT, SUM, MIN, MAX) • Basic date and time calculations (YEAR, MONTH, DAY, DAYS, HOUR, MINUTE, SECOND, TIME, TODAY, NOW)	
Solution Development: Word Processing – (Practical and theory) (±1½ week/6 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Links (bookmark, hyperlink, cross-reference)	

Content: (Grade 12 / Term 1)	Notes

• Reviewing
  ▪ Proofing (spelling & grammar, comments and word count)
  ▪ Tracking changes, including accepting and rejecting changes
• Line breaks (pagination issues such as widow/orphan control)	

Information Management and Practical Assessment Task – (Practical) (±1 week / 4 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Gather information and data / collected & Import data via electronic forms • Discuss the writing of professional/formal reports • Discuss the use of spreadsheet and database in professional reports	
Assessment (PoA): • 1 Practical test • 1 Theory test **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Practical Assessment Task (PAT) Phase 1 to be completed before the end of term 1.**	

CONTENT: (Grade 12 / Term 2)	NOTES

Network Technologies: Networks – (Theory) (±1 week / 4 hours)
• Wide area networks (WAN)
  ▪ Definition, purpose and role
  ▪ Internet as an example of a WAN
• Internet services (uses/purpose, advantages, disadvantages, limitations and examples):
  ▪ Instant messaging
  ▪ Voice over Internet Protocol (VoIP)
  ▪ File sharing
  ▪ Concept of grid computing and cloud computing
• Government Internet services and information: passport, smart card applications, and online tertiary applications
• Streaming and downloading (definition and comparison)
• Make buying and informed decisions regarding Internet connection and access
  ▪ Modem/router, types of connections, e.g. wireless technologies, including their advantages, disadvantages and limitations
  ▪ ISP, Internet services – throttling, shaping and fair use policy
  ▪ Consideration of access points, coverage (wireless)
  ▪ Data transmission speed – measured in megabits per second (mbps)
  ▪ CAP, bundle
• Concept of broadband and bandwidth	

Social Implications – (Theory) (±½ week / 2 hours)
• Social issues linked to content taught in this term:
  ▪ Computer crimes in relation to hardware, software, information, identity, bandwidth theft, theft of time and services
  – Internet-related fraud scams
  – Internet attacks – DDoS attacks
  – Taking over PCs – bots and zombies
  – Right to access vs. right to privacy
  – Misuse of personal information
  ▪ Security issues: Malware: (What it is & What it does)
  – Viruses, Trojans, Ransomware, Spyware, Adware, Keyloggers
  – Basic/common warning signs that may indicate infection
• Avoiding security threats (see notes section)
• Safeguards against criminals, viruses and threats
  ▪ Impact of technology on the global community: Distributed computing power.
	Include/revise a range of solutions used to help keep data safe from security threats, e.g. including:
	• access levels
	• anti-malware
	• authentication (username and password, biometrics, two-step verification)
	• automating software updates
	• checking the spelling and tone of communications
	• checking the URL attached to a link
	• firewalls
	• privacy settings
	• (SSL security protocol

Solution Development: HTML/Web Design – (Practical and Theory) (± 1 weeks / 4 hours) • Reinforce content, concepts and skills as well as good website/page design • Reinforce HTML tables: ▪ Syntax: Table tags, table headers, table rows and table cells, Attributes: border, cell padding and cell spacing • Formatting: horizontal and vertical alignment of cells, merging rows and columns • Develop a web page for a specific scenario according to the tag sheet provided	
Solution Development: Spreadsheets (practical and theory) – (±1 weeks / 4 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Text functions: LEFT, RIGHT, MID, CONCATENATE, LEN, VALUE and FIND	

Solution Development: Word Processing (practical and theory) – (± 1 week / 4 hours)
• Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills)
• Mail Merge: different data sources – word processing table, spreadsheet, database, csv file and e-mail list
• Objects
  ▪ Reinforce manipulation (tables, graphics)
  ▪ Linking and embedding	

Solution Development: Database – (± ½ week / 2 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Changing the source of a report • Design a database for a specific scenario	

CONTENT: (Grade 12 / Term 2)	NOTES

Information Management and Practical Assessment Task – (± 2 weeks / 8 hours)
• Practical Assessment Task
  ▪ Setting questionnaires
  ▪ Collect data via electronic forms
  ▪ Reinforce Information Management skills
  ▪ Use information and data gathered: Processing and analysing
  ▪ Role of AI – Ethical use and academic integrity	

Assessment (PoA): 1 Theory test /Alternative Assessment: Closed or Open Book or Case Study, interpreting advertisements or a Survey Mid-year examination (1 practical paper + 1 theory paper). Content covered as per CAPS teaching plan **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Practical Assessment Task (PAT) Phase 2 to be completed before the end of term 2.**	

Content: (Grade 12 / Term 3)	Notes

Systems Technologies: System Software and Device Management – (Theory) (±1 week / 4 hours)

- Role of the operating system:
  - Starting the computer
  - Provide user interface
  - Manage programs
    - Concept of single user vs. multiple users including examples
    - Concept of multitasking including examples
    - Concept of Task Manager (Windows)
- Management of files: File types, properties, file attributes (read-only and hidden), metadata (author and title properties of documents), import, export, search and conversion
- Operating system utilities (what is it? why is it needed?):
  - File management
  - Schedule/update
  - Coordinate tasks – Concept of spooling when printing
  - Security features – access control, control of spyware, adware and firewall, VPN
  - Backup
- Anti-virus software
- General troubleshooting
  - Disk clean up, wizards (fixing connection and printing problems)
- Factors that influence performance such as:
  - RAM
  - Type of processor, processor speed
  - Number of applications running and caching
  - Disk optimisation
  - Influence of malware – Basic concepts (non-technical)

Internet Technologies: Electronic Communications – (Practical and theory) (±1 week / 4 hours)

- Types of digital communications - video conferencing:
  - Advantages and disadvantages
  - Good practices
- Typical features of web browsers:
  - Bookmarks
  - History and favourites
  - Home page settings
  - Blocking websites
  - Caching
  - Browser extensions
    - What are they? Why are they needed?
    - Examples: Pop-up blocker/Ad blocker and toolbar extensions
  - Private browsing – Incognito and In private
- Uses of computer communications:
  - Blogs/vlogs
  - Podcast/vodcast
  - Wikis
  - GPS, Geo-tagging
  - Social networks
- Communication devices: Personal mobile devices - smart phones, tablets and wearables

Content: (Grade 12 / Term 3)	Notes

Social Implications – (Practical and theory) (±½ week / 2 hours)
• Social issues linked to content taught in this term:
• Impact and use of social networking sites and technologies:
  ▪ Social media platforms
  ▪ Cyber profile / digital footprint
  ▪ Crowdfunding
  ▪ Fake news / misinformation / disinformation
• Legal and ethical issues on the use of social media
  ▪ Confidentiality/Privacy
  ▪ Copyright, plagiarism and intellectual property
  ▪ Identity theft
  ▪ Misrepresentation/Fake news
  ▪ Cybercrimes/cyber-hacking
  ▪ Online harassment: defamation and cyberbullying
• Remote access (incl. VPN) creating opportunity for e-commuting, e-working, e-learning
• How technology can benefit or harm society
• Information overload	

Solution Development: Spreadsheets – (Practical and theory) (±1 week / 4 hours)
• Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills)
• Identify appropriate functions learnt to suit scenario and solve problems
• Use more advanced combinations of functions and formulas
• Edit, format and change charts including
  ▪ Working with the axes
  ▪ Minimum and maximum values
  ▪ Re-labelling axes
  ▪ Creating stacked bar and column graphs using a graphic
  ▪ Trendline
• Appropriate graphs for a given scenario	

Solution Development: Word Processing – (Practical and theory) (±½ week / 2 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Documents using styles • Page layout that includes advanced word processing techniques • Techniques of integration with other software including linking objects	
Solution Development: Database – (Practical and theory) (±½ week / 2 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Create a database for a given scenario • Techniques of integration with other software	
Solution Development: HTML/Web Design – (Practical and Theory) (± ½ week / 2 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include Grade 10 and 11 knowledge and skills) • Applying good website/page design	

Information Management – (Practical) (± 2 weeks / 8 hours)
• Practical Assessment Task
  ▪ Reinforce Information Management skills
  ▪ Use information and data gathered: Present solution	

Assessment (PoA): Prelim examination (1 practical paper + 1 theory paper) **Refer to Section 4 for:** • Mark and time allocation • SBA weighting • Term reporting **Practical Assessment Task - Phase 3 to be completed before the prelim examination.**	

Content: (Grade 12 / Term 4)	Notes
Consolidation of Documents (Word processor, spreadsheet, database and web page) **(Practical and theory) (±1½ weeks / 6 hours)** • Reinforce content, concepts and skills from Grade 10 and 11 (activities to include content form Grade 10 and 11) • Use integrated software effectively and efficiently to reproduce and create documents that incorporate text, graphics and data • Manipulate graphics and text within documents • Use integrated software to create and design documents for specific purposes • Apply general principles of layout and design to a document process • Emphasise information using techniques such as placement and colour • Create documents by customising templates • Use media, visual literacy and technology skills to create products that express understanding	
Consolidation of content using case studies – All Topics – (Practical and theory) (±1½ weeks / 6 hours) • Reinforce content, concepts and skills from Grade 10 and 11 (activities should include content from Grade10 & 11): ▪ Identify general hardware configuration of a computer in terms of: – the processor – memory – storage type and size ▪ Understand computing devices and their uses ▪ ICTs as tools to access information and to communicate with others around the world ▪ Make better buying decisions: – interpret advertisements and make judgements about quality and usefulness when buying equipment and software ▪ Know how to deal with ordinary end-user computer problems and deal with challenges that arise from using computing devices ▪ Know the appropriate use the Internet and e-mail as well as convergent technologies such as AI. ▪ Know the appropriate use of application packages ▪ Make informed decisions and choices in selecting communication devices and modes of communication for a given scenario ▪ Know what kind of computing device uses benefit and advance work and career path opportunities ▪ Know how to protect oneself against online threats ▪ Know how to apply digital tools and technologies to: – Communicate – Gather – Analyse – Use information – Solve problems ▪ Understand technology concepts, systems and operations and how it operates efficiently, effectively and accurately ▪ Recommend specific hardware/software for a specific scenario ▪ Know about upgrading and how to integrate equipment with new products/technology ▪ Understand when to upgrade, when to buy new equipment or software and make informed decisions	
External examination (±7 weeks / 24 hours) • Practical examination (Paper 1) • Theory examination (Paper 2) • Practical Assessment Task (Paper 3) **School Based Assessment (SBA)** • Refer to Section 4 for SBA weightings	 **25%** **25%** **25%** **25%**

SECTION 4

ASSESSMENT IN COMPUTER APPLICATIONS TECHNOLOGY

4.1 Introduction

Assessment is a continuous planned process of identifying, gathering and interpreting information about the performance of learners, using various forms of assessment. It involves four steps: generating and collecting evidence of achievement; evaluating this evidence; recording the findings and using this information to understand and thereby assist the learner's development to improve the process of learning and teaching.

Assessment involves activities that are undertaken throughout the year. In grades 10 – 12 assessment comprises 2 different but related activities: informal daily assessment (assessment for learning) and formal assessment (assessment of learning).

Assessment in CAT should encourage computational thinking practices that are integrating the power of human thinking with the capabilities of ICTs and application packages.

4.2 Informal or daily assessment

Assessment for learning has the purpose of continuously collecting information on a learner's achievement that can be used to improve their learning.

Informal assessment is the daily monitoring of learners' progress. This is done through observations, discussions, practical demonstrations, learner-teacher conferences, informal classroom interactions, etc. Informal assessment may be as simple as stopping during the lesson to observe learners or to discuss with learners how learning is progressing. Informal assessment should be used to provide feedback to the learners and to inform planning for teaching, but need not be recorded. It should not be seen as separate from learning activities taking place in the classroom. Learners or teachers can mark these assessment tasks.

Self-assessment and peer assessment actively involves learners in assessment. This is important as it allows learners to learn from and reflect on their own performance. The results of the informal daily assessment tasks are not formally recorded unless the teacher wishes to do so. The results of daily assessment tasks are not used for promotion and certification purposes.

4.3 Formal assessment

All assessment tasks that make up a formal programme of assessment for the year are regarded as formal assessment. Formal assessment tasks are marked and formally recorded by the teacher for progression and certification purposes. All formal assessment tasks are subject to moderation for the purpose of quality assurance and to ensure that appropriate standards are maintained.

Formal assessment provides teachers with a systematic way of evaluating how well learners are progressing in a grade and in a particular subject. Examples of formal assessments include tests, examinations, practical tasks, alternative task. Formal assessment tasks form part of a year-long formal programme of assessment in each grade and subject.

The following tables provide the formal assessment requirements for Computer Applications Technology:

Grade 10 and 11

Formal Assessment			
During the Year	**End-of-Year Examination**		
40%	**60%**		
SBA tasks	**Practical Assessment Task**	**End-of-Year Exam Papers (50%)**	
40%	**20%**	**20%**	**20%**
4 tests (1 alternative form of assessment, test, open book test, case study or survey) 1 exam (mid-year)	**Project** Information management project based on providing a solution to a specific scenario by using the applications as indicated under Solution Development	**Practical exam** 2.5 - 3 hours Solution Development	**Written exam** 2.5 - 3 hours Theory aspects of all content, concepts and skills of all topics

Grade 12

Formal Assessment			
During the Year	**End-of-Year Examination**		
25%	**75%**		
SBA	**Practical Assessment Task**	**End-of-Year Exam Papers (50%)**	
25%	**25%**	**25%**	**25%**
3 tests (1 alternative form of assessment open book test or case study or survey) 2 exams (mid-year and trial)	**Project** Information management project based on providing a solution to a specific scenario by using the applications as indicated under Solution Development	**Practical exam** 3 hours Solution Development	**Written exam** 3 hours Theory aspects of all content, concepts and skills of all topics

The forms of assessment used should be age and developmental level appropriate. The design of these tasks should cover the content of the subject and include a variety of tasks designed to achieve the objectives of the subject.

4.3.1 Types of formal assessment for Computer Applications Technology

4.3.1.1 Project

The project assesses the learner's ability to apply knowledge, skills and a range of competencies in an integrated manner, many of which cannot be assessed in other ways. It has a degree of open-endedness but is focused and results in individual but similar tasks. The time to complete a project ranges from a few days to several weeks.

The project should enable a learner to apply a combination of techniques, knowledge and skills to new situations to complete the task or accomplish a goal. It should also encourage learners to use and combine information, data and ideas to solve problems, discover and explain relationships or trends and predict behaviour/events.

A project should require the learner to

- do some planning/preparation/investigation/research/data gathering to solve the identified problem/task
- perform the task/carry out instructions (according to criteria given)
- produce a product such as a report with introduction, main body, conclusion and recommendations/solutions (this could include a limited number of smaller products such

as a planning document, that builds up to the final product, which the teacher could monitor or assess informally or formally)

- demonstrate thinking and decision making skills
- demonstrate some innovation and creativity

To set and manage the project, the teacher should:

- determine the content/skills/knowledge to be addressed
- set clear criteria and give clear instructions to guide the learner (the learner should know exactly what to do and what is expected)
- keep the scope manageable
- determine which resources will be required to complete the project and ensure that learners have access to these resources
- determine the time frame/duration/due date
- determine mark distribution and compile an assessment tool
- continuously monitor the completion of the project and guide the learners

In CAT the project is the practical assessment task (PAT).

4.3.1.2 Tests

A test could be a practical test or a written test. The programme of assessment should reflect a balance between practical and written tests. Tests could include open book tests.

- A test for formal assessment should not comprise of a series of small tests, but should cover a substantial amount of content and the duration should be 45 to 60 minutes.
- Open book tests require learners to find information and apply knowledge and skills. Learners are tested on understanding and application of learning material and not on rewriting text from sources. Open book tests should not include only short questions. They must include questions/tasks that will encourage thinking and decision making.

  For written open book tests, learners are required to write longer reflective answers, such as paragraph-type responses to a given scenario, e.g. case studies. Paragraphs providing reasons and supporting evidence/arguments are essential.

  For practical open book tests learners are required to apply a combination of a series of procedures and techniques to new situations in order to provide a specific answer or accomplish a specific goal, e.g. integrated practical tasks that encourage computational thinking.
- Each test, open book test and examination must reflect different cognitive levels.

For practical tests, information sheets with HTML tags and Input mask characters will be provided for use with the questions on web development and database respectively.

4.3.1.3 Alternative types of assessment

Alternative assessment is an alternative to standard tests and exams. It provides a true evaluation of what the learner has learned, going beyond acquired knowledge and skills by looking at their application of this knowledge and skills.

An alternative type of assessment for CAT is a survey and a case study. A survey and a case study are optional assessments to a test.

Survey

The survey will assess skills and knowledge acquired for the section Information Management. It will also twin as preparation for the relevant section in the Practical Assessment Task.

The survey has two sections to this assessment task:

- Section 1

Create a questionnaire to gather responses from an indicated number of respondents to a given scenario. The findings of the survey will be presented to a target audience indicated in the instructions. This section of the task should be done under controlled conditions. At the end of the duration the questionnaire must be handed in/submitted for marking.

- Section 2

Present the questionnaire to respondents for completing. The responses must then be processed in a spreadsheet according to the instructions given. Findings of survey will be submitted together with the completed questionnaires. Section 2 to be handed in at a date stipulated in the instructions of the task.

The survey can also be presented as an integrated task (practical and theory) in which some questions/instructions will assess the theory aspects of Information Management. Skills and knowledge assessed must accommodate the required cognitive levels.

Case study

Case studies are in-depth investigations of real-life situation. Data is gathered from a variety of sources and by using several different methods. A case study involves an in-depth and detailed examination of a scenario, as well as its related contextual conditions.

The duration of a case study should be 45 to 60 minutes.

4.3.1.4 Examinations

Practical Assessment Task (25% of the total marks for the subject)

The Practical Assessment Task assesses the learner's procedural skills and individual interaction with data and information as well as the way in which he or she processes, manipulates and presents the information. The information will finally be presented in a number of documents. These must be presented in the four application programs studied.

The PAT focuses on Information Management and the use of ICTs and application software. It covers the following:

- Identifying, finding and accessing information/data
- Using, manipulating and processing information and data gathered
- Presentation of solutions/findings/recommendations

Evidence of the process must be provided in a series of draft documents.

Each task must include a declaration of authenticity.

Paper 1: Practical paper (25% of the total marks for the subject)

This will be a practically oriented paper covering questions on Solution Development.

To successfully complete this paper, each learner must have access to his or her own computer in the exam room. Provision needs to be made for sufficient computers to enable the examination to be completed in **two sittings**.

This paper assesses the practical skills pertaining to Solution Development, that is the application packages studied, namely word processing, spreadsheets and databases as well as creating a simple web page using HTML. Presentations will only be assessed in the Practical Assessment Task and NOT in the examinations. These skills will be assessed in an integrated manner based on contexts. Problem solving and aspects of file management will form part of the assessment of the application questions in this paper.

In Grades 11 and 12, the paper will comprise of questions based on contexts and will cover the following content areas in an integrated manner:

- Word processing (± 45 marks)
- Spreadsheets (± 40 marks)
- Databases (± 35 marks)
- Web development (± 15 marks)
- General (integration and application of techniques, knowledge and procedural skills to new situations) (± 15 marks)

In Grade 10 the paper will comprise of questions based on contexts and will cover the following content areas in an integrated manner:

- Word processing (± 40%)
- Spreadsheets (± 30%)
- Presentations (± 15%)
- General (integration and application of techniques, knowledge and procedural skills to new situations) (± 15%)

Information sheets with HTML tags and Input mask characters will be provided with the examination paper for use with the questions on web development and database respectively.

The learner will not be required to enter large amounts of data. The required data could be retrieved from the data disk or imported from documents such as a text file, word processing document, a database table or a spreadsheet.

Paper 2: Written paper (25% of the total marks for the subject)

The paper will cover all topics, including theory aspects of Solution Development (viz. application packages and file management). A section will also assess the understanding of the technologies studied to make informed decisions using authentic contexts, ranging from choices of technology to its responsible use.

The table below gives a breakdown of the structure of the Grades 11 and 12 question paper:

Section	Description
A	**Questions 1 – 3: Short questions (± 25 marks)** A range of short questions covering all topics that could include: ▪ Multiple choice ▪ Modified true and false ▪ Matching columns.
B	**Question 4: Systems Technologies (± 25 marks)** Questions related to the content, concepts and skills in the systems technologies topic area.
	Question 5: Internet and Network Technologies (± 15 marks) Questions related to the content, concepts and skills in the Internet and WWW, e-communication and network technology topic areas.
	Question 6: Information Management (± 10 marks) Questions related to the management of information.
	Question 7: Social Implications (± 10 marks) Questions are focused on the content, concepts and skills in the social implications focus area, namely impact of ICTs on society and health, social, legal, ethical, security and environmental issues.
	Question 8: Solution development (± 15 marks) Questions focused on the solution development topic area, namely the knowledge and understanding that supports the practical application of skills.
C	**Question 9: Integrated Scenario (± 25 marks)** This question is based on a single scenario that could integrate all topics and evaluate the ability to apply technological knowledge to real-world situations. It will require informed decision-making regarding technology selection and responsible implementation, including aspects of solution development (3 – 5 marks) should it addresses the scenario's specific requirements
	Question 10: Integrated Scenario (± 25 marks) This question is based on a single scenario that could integrate all topics and evaluate the ability to apply technological knowledge to real-world situations. It will require informed decision-making regarding technology selection and responsible implementation, including aspects of solution development (3 – 5 marks) should it addresses the scenario's specific requirements.

The above suggested mark allocation per question will differ for the Grade 10 paper as the total for the question paper may differ.

Note: The 50:50 assessment split (150 marks each) between P1 and P2 should not be confused with the 60:40 split regarding teaching time, as practical content requires more teaching time and practise. In terms of assessment, the intent is to give equal weight to both papers, even though P2 also assesses knowledge and understanding that supports the practical application of skills assessed in Solution Development.

Content to be covered

Assessment addresses the content as set out in this document. Due to the conceptual progression of the content across the grades, content and skills from Grade 10 – 12 will be assessed in the external papers at the end of Grade 12.

New and emerging technologies will be accommodated in the curriculum as the curriculum is reviewed.

4.4 Programme of assessment

Grade 10 Programme of Assessment

	TERM 1	TERM 2			TERM 3		TERM 4	
TASKS	**Task 1**	**Task 2**	**Task 3**		**Task 4**	**Task 5**	**Task 6**	
ASSESSMENT	Theory Test[1]	Practical Test	Mid-Year Practical Exam	Mid-Year Theory Exam	Practical Test	Alternative Task	Year End Practical Exam	Year End Theory Exam
TOTAL MARKS	Minimum 50	Minimum 50	100	100	Minimum 50	Minimum 50	120	120
TIME ALLOCATION	Minimum 60 Minutes	Minimum 60 Minutes	Minimum 2.5 Hours	Minimum 2.5 Hours	Minimum 60 Minutes	Minimum 60 Minutes	Minimum 2.5 Hours	Minimum 2.5 Hours
PROMOTION WEIGHT	40%						20%	20%
					Practical Assessment Task: 20%			

Grade 11 Programme of Assessment

	TERM 1		TERM 2		TERM 3		TERM 4	
TASKS	**Task 1**	**Task 2**	**Task 3**		**Task 4**	**Task 5**	**Task 6**	
ASSESSMENT	Theory Test	Practical Test	Mid-Year Practical Exam	Mid-Year Theory Exam	Practical Test	Alternative Task	Year End Practical Exam	Year End Theory Exam
TOTAL MARKS	Minimum 50	Minimum 50	120	120	Minimum 50	Minimum 50	150	150
TIME ALLOCATION	Minimum 60 Minutes	Minimum 60 Minutes	Minimum 2.5 Hours	Minimum 2.5 Hours	Minimum 60 Minutes	Minimum 60 Minutes	3 Hours	3 Hours
PROMOTION WEIGHT	40%						20%	20%
					Practical Assessment Task: 20%			

Grade 12 Programme of Assessment

	TERM 1		TERM 2			TERM 3		TERM 4	
TASKS	**Task 1**	**Task 2**	**Task 3**	**Task 4**		**Task 5**		**External Exam**	
ASSESSMENT	Theory Test	Practical Test	Alternative Task	Mid Term Practical Exam	Mid Term Exam Theory	Prelim Practical Exam	Prelim Theory Exam	Year End Practical Exam	Year End Theory Exam
TOTAL MARKS	Minimum 50	Minimum 50	Minimum 50	150	150	150	150	150	150
TIME ALLOCATION	Minimum 60 Minutes	Minimum 60 Minutes	Minimum 60 Minutes	3 Hours	3 Hours	3 Hours	3 Hours	3 Hours	3 Hours
PROMOTION WEIGHT	25%							25%	25%
	Practical Assessment Task: 25%								

[1] Theory questions based on practical content covered to be included

4.5 Recording and reporting

Recording is a process in which the teacher documents the level of a learner's performance in a specific assessment task. It indicates learner progress towards the achievement of the knowledge as prescribed in the curriculum and assessment policy statements. Records of learner performance should provide evidence of the learner's conceptual progression within a grade and her/his readiness to progress or promoted to the next grade. Records of learner performance should also be used to verify the progress made by teachers and learners in the teaching and learning process.

Reporting is a process of communicating learner performance to learners, parents, schools, and other stakeholders. Learner performance can be reported in a number of ways. These include report cards, parents' meetings, school visitations, parent-teacher conferences, phone calls, letters, class or school newsletters, etc. Teachers in all grades report in percentages against the subject.

4.5.1 SBA weighting and term reporting

Grade 10

ASSESSMENTS	TERM 1	TERM 2			TERM 3		Final SBA	
	Theory Test 1	Practical Test 2	Mid-Year Exam P1	Mid-Year Exam P2	Practical Test 3	Alternative Task: Test 4	Term 1+2+3	
SBA WEIGHT	15%	15%	40%		15%	15%	100	Converted to 40%
TERM REPORTING	Convert to 100%	Convert to 25%	Convert to 75%		Convert to 50%	Convert to 50%		
	100%	25% + 75% = 100%			50% + 50%=100%			

Grade 11

ASSESSMENTS	TERM 1		TERM 2		TERM 3		Final SBA	
	Theory Test 1	Practical Test 2	Mid-Year Exam P1	Mid-Year Exam P2	Practical Test 3	Alternative Task: Test 4	Term 1+2+3	
SBA WEIGHT	15%	15%	40%		15%	15%	100%	Convert to 40%
TERM REPORTING	Convert to 50%	Convert to 50%	Convert to 50%	Convert to 50%	Convert to 50%	Convert to 50%		
	50% + 50% = 100%		50% + 50% = 100%		50% + 50%=100%			

Grade 12

ASSESSMENTS	TERM 1		TERM 2			TERM 3		Final SBA	
	Practical Test 1	Theory Test 2	Test 3 / Alternative Assessment	Mid-Year Exam P1	Mid-Year Exam P2	Prelim Exam P1	Prelim Exam P2	Term 1+2+3	
SBA WEIGHT	10%	10%	10%	35% (17,5% + 17,5%)		35% (17.5%+17,5%)		100%	Convert to 25%
TERM REPORTING	Convert to 50%	Convert to 50%	Convert to 25%	Convert to 75%		Convert to 50%	Convert to 50%		
	50% + 50%=100%		25% + 75% = 100%			50% + 50%=100%			

Seven levels of competence have been described for each subject listed for Grades R – 12. The various achievement levels and their corresponding percentage bands are as shown in the table below:

Codes and percentages for recording and reporting

Rating Code	Description of Competence	Percentage
7	Outstanding achievement	80 – 100
6	Meritorious achievement	70 – 79
5	Substantial achievement	60 – 69
4	Adequate achievement	50 – 59
3	Moderate achievement	40 – 49
2	Elementary achievement	30 – 39
1	Not achieved	0 – 29

Teachers will record actual marks against the task by using a record sheet; and report percentages against the subject on the learners' report cards.

4.6 Moderation of assessment

Moderation refers to the process that ensures that the assessment tasks are fair, valid and reliable. Comprehensive and appropriate moderation practices must be in place for the quality assurance of all subject assessments.

4.6.1 Formal assessment (SBA)

- Grade 10 and 11 tests and examinations are internally moderated. The subject advisor must moderate a sample of these tasks during his/her school visits to verify the standard of tasks and the internal moderation
- Grade 12 tests and examinations must be moderated at provincial level. This process will be managed by the provincial education department.
- Subject advisors must moderate samples of tests and examination papers before they are written by learners to verify standards and guide teachers on the setting of these tasks.

4.6.2 Practical Assessment Task (PAT)

- Grade 10 and 11: Teachers assess the practical assessment tasks in grade 10 and 11. The subject advisor must moderate a sample of PATs during his/her school visits to verify the standard of tasks and the internal moderation
- Grade 12: Teachers assess the practical assessment tasks according to the externally set assessment tool. The subject advisor must moderate a sample of each phase of the PATs during his/her school visits to verify the interpretation of the assessment tool and the standard of marking. Completed PATs must also be moderated at provincial level. This process will be managed by the provincial education department.

4.7 Cognitive demand and levels of difficulty

Formal assessments must cater for a range of cognitive levels and abilities of learners as shown in the table below:

	Lower order *(Knowledge/remembering)*	**Middle order** *(Understanding/applying)*	**Higher order** *(Analysing/evaluating/ creating)*
Practical	30%	40%	30%
Theory	40%	40%	20%

4.7.1 Cognitive demand

Each question in these question papers is evaluated in terms of its cognitive demand and its level of difficulty.

Level	**Taxonomy**	**Description**
L1/C1	Knowledge Remembering	Recall of factual/process knowledge ***in isolation***, i.e. one step/set of basic steps/instruction/process at a time, e.g. definitions in the theory section and single procedures found in the application packages.
L2/C2	Understanding Applying	Combining isolatable bits or demonstrates **understanding** of steps/processes/ isolatable bits, such as translating from one form of representation to another, e.g. translating pictures, symbols, diagrams, screenshots, 'words'/mathematical equations into e.g. spreadsheet formulas. These questions could include reproduction of aspects of documents. It also requires using a combination of ***known routines/steps/processes*** in a familiar context to complete a task, where ***all the information required is immediately available to the learner.***
L3/C3	Analysing Evaluating Creating (Problem-solving)	Requires ***reasoning/investigation/developing a plan*** or combining different sets of steps; has some complexity where candidates need to see how parts relate to a whole and completing a task could have more than one possible approach. It could also require weighing possibilities, deciding on most appropriate solution and testing to locate errors/ troubleshooting as well as pattern recognition and generalisation. These questions will comprise actions/strategies/ procedures where candidates are required to create their own solutions to challenges **different** to those learners may have encountered in the classroom. These questions could include analysing documents or data, and decision-making.

4.7.2 Levels of difficulty

Levels of difficulty are categorised as follows:

D1: Easy for the average Grade 12 candidate to answer

D2: Moderately challenging for the average Grade 12 candidate to answer

D3: Difficult for the average Grade 12 candidate to answer

D4: Very difficult for the average Grade 12 candidate to answer. The skills and knowledge required to answer the questions at this level allow for an A-grade candidate (extremely high-achieving/ability learner) to be discriminated from other high ability/proficiency candidates.

In judging the level of difficulty of each question, both the demands that each question makes on the cognitive ability of an average Grade 12 CAT learner and the intrinsic difficulty of the question or task is considered. In making this judgement, the difficulty or ease of a particular question is identified. A four-category framework ***for thinking about question or item difficulty*** adapted from Leong (2006) has been used in this identification process. This framework comprises the following four general categories of difficulty:

- **Content difficulty**: this indexes the difficulty of the subject matter, topic or conceptual knowledge; some content is inherently more difficult than other content.
- **Stimulus difficulty**: this relates to the linguistic features of the question and the challenge that candidates face in reading, interpreting and understanding the question.
- **Task difficulty**: this refers to the difficulty that candidates face when trying to formulate or produce an answer.
- **Expected response difficulty**: this refers to difficulties because of the mark scheme or memorandum, in other words how marks are allocated.

The estimated percentages for each level of difficulty within each cognitive level are shown in the table below:

	D1	D2	D3	D4	TOTAL
C1	±10%	±10%	±10%	-	±30%
C2	±10%	±15%	±13%	±2%	±40%
C3	±10%	±10%	±7%	±3%	±30%
TOTAL	±30%	±35%	±30%	±5%	100%

Note: The difficulty levels indicated in the table above only apply to content difficulty

4.8 General

This document should be read in conjunction with:

4.8.1 *National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R – 12*; and

4.8.2 The policy document, *National Protocol for Assessment Grades R – 12.*

4.9 Annexures

Annexure A – Glossary of acronyms and abbreviations.

ANNEXURE A

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Acronym	Transcription
4IR	Fourth Industrial Revolution
5G	Fifth generation of cellular wireless
AI	Artificial Intelligence
AR	Augmented Reality
ATM	Automated Teller Machine
BYOD	Bring Your Own Device
CAT	Computer Applications Technology
CD	Compact Disk
CPU	Central Processing Unit
DDoS	Distributed Denial of Service
DLP	Digital Light Processor
DVD	Digital Versatile Disk
EFT	Electronic Funds Transfer
FAQ	Frequently Asked Questions
FOSS	Free Open Source Software
GIGO	Garbage-In Garbage-Out
GHz	Gigahertz
GPS	Global Positioning System
GPU	Graphics Processing Unit
GUI	Graphical User Interface
HAN	Home Area Network
HCI	Human Computer Interface
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
I/O	Input-Output
IoT	Internet of Things
ICT	Information and Communication Technology
IP	Internet Protocol
ISP	Internet Service Provider
LAN	Local Area Network
LTE	Long Term Evolution

MMS	Multimedia Message Service
NIC	Network Interface Card
NFC	Near Field Communication
OCR	Optical Character Recognition
OS	Operating System
OTP	One-time password
PAN	Personal Area Network
PAT	Practical Assessment Task
PC	Personal Computer
PnP	Plug-and-Play
PoA	Programme of Assessment
POS	Point of Sales
QR (codes)	Quick Response (codes)
RAM	Random Access Memory
RFID	Radio-Frequency Identification
ROM	Read Only Memory
RSI	Repetitive Strain Injury
SMS	Short Message System
SSD	Solid State Drive
SOHO	Small Office Home Office
URL	Uniform Resource Locater
USB	Universal Serial Bus
VoIP	Voice over Internet Protocol
VR	Virtual Reality
VPN	Virtual Private Network
WAN	Wide Area Network
WLAN	Wireless Local Area Network
Wi-Fi	Wireless Fidelity
WiMAX	Worldwide Interoperability for Microwave Access
WWW	World Wide Web
WYSIWIG	What You See Is What You Get