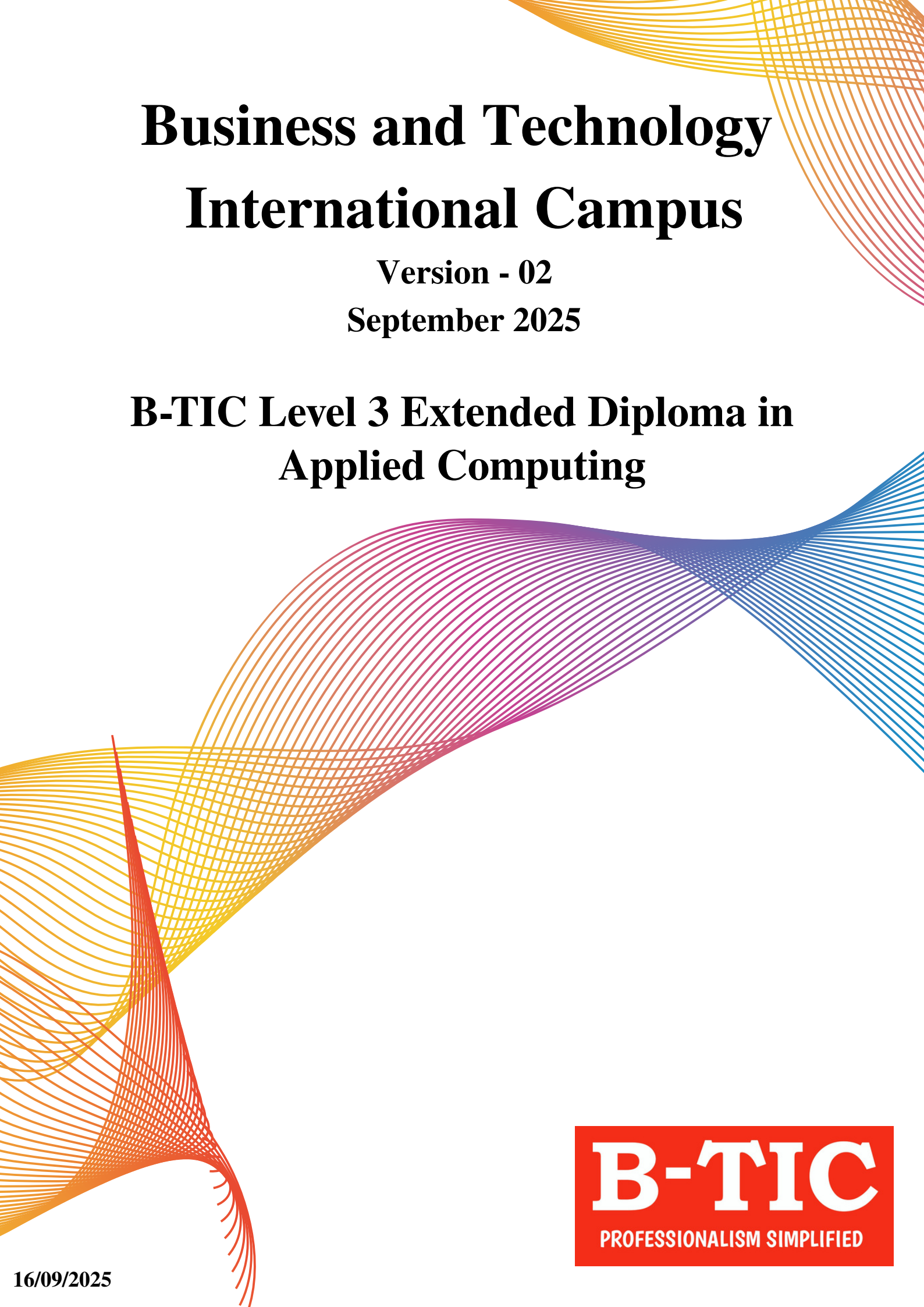


Business and Technology International Campus

**Version - 02
September 2025**

B-TIC Level 3 Extended Diploma in Applied Computing



B-TIC
PROFESSIONALISM SIMPLIFIED

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Changes of Specification with Previous Version

Previous Version Number	01	Current Version Number	02
Summary of changes			Page number
N/A			N/A

QUALIFICATION TITLE			LEVEL 3 EXTENDED DIPLOMA IN APPLIED COMPUTING		
Qualification Number (QN)			L3 - 250822		
Level			Level 3		
Duration			1 Year		
Grading System			Pass / Fail		
Awarding Organization			Business and Technology International Campus LTD		
Credit Value			120		
Total Qualification Time (TQT):	1200	Guided Learning Hours (GLH)	600	Independent Learning Hours (ILH)	600
Entry Requirements:			Learners must be at least 15 years old. A level 2 qualification in IT or Equivalent		
Mode of Delivery			Full Time, Blended, Distanced without any unlawful or unfair discrimination to any learner		
Assessment Method			Course work and appropriate methods		
Language of Instruction & Assessment			English		
Placement requirements			N/A		

About this Qualification

The B-TIC Level 3 Extended Diploma in Applied Computing is designed to provide learners with a strong foundation in essential computing concepts, practical skills, and industry-relevant knowledge. This qualification is ideal for individuals seeking to pursue a career in the digital and IT sector or progress to higher education in computing-related fields.

Through a combination of theoretical learning and hands-on practice, learners will develop key competencies in areas such as programming, web development, multimedia production, computer systems, and digital marketing. The curriculum is structured to encourage problem-solving, critical thinking, and the ability to apply technical solutions in real-world scenarios.

Qualification Objectives:

1. To provide knowledge, skills and understanding to achieve high performance.
2. To assist every learner, a successful completion of qualifications meets learner needs through a variety of delivery modes with location freedom.
3. To allow every learner a successful completion of qualification at their own pace with time freedom
4. To make opportunities to enter employment or to progress in current employment
5. To make eligible to progress to higher education qualifications in related fields
6. To provide navigation map for professional body memberships

How to meet these objectives:

1. Teaching & assessing an up-to-date skill, knowledge and understanding for higher performance.
2. Assisting a range of delivery, learning and assessment modes
3. Allowing flexible timeframes and duration to complete the qualifications.
4. Help to ground in employment or to progress in current employment as learners apply to divers roles and responsibilities in the relevant industry
5. Developing university partnerships & Developing academic skills for learners and helping appropriate unit selection to advanced entry progression to higher education in universities
6. Assisting progression to professional qualifications from professional bodies

To Develop Transferable Skills

Transferable skills (employability skills) are core to improving the career prospects and personal professional development of learners.

B-TIC qualifications intend to develop the following skills:

Problem-solving skills

- Critical thinking
- Creative skill to solve routine & non-routine problems
- Digital technology skills and

Independent skills

- Self-awareness and self-management
- Adaptability and resilience
- Reflection, planning and
- Prioritising.

Interpersonal skills

- Leadership skills
- Communication skills & Presentation Skills
- Team-ability skills
- Negotiating skills

Commercial skills

- Awareness of the relevant industry sector
- Understanding customer needs
- Finance & Budgets
- Management Skills

Qualification Framework

B-TIC commits all the necessary actions to design its qualification in accordance with the Framework for Higher Education Qualifications (FHEQ) in England, Wales and Northern Ireland, the Regulated Qualifications Framework (RQF), the Quality Assurance Agency (QAA) Subject Sector Benchmarks and the European Qualification Framework. Further, B-TIC sought to design the qualification in accordance with the relevant professional body's requirements.

Equivalences

Level 3 diploma have been designed equivalent to Level 3 of the Regulated Qualifications Framework (RQF), which is at the same level as the diploma.

Collaboration in Qualification Design

Learners completing B-TIC qualifications may enter employment or progress to higher education. Thus, our qualifications are designed in collaboration with employers, universities, higher education institutes, professionals, professional bodies, businesses and educational institutions, learners and centres to ensure that qualifications meet the needs and expectations of stakeholders.

Progression

B-TIC develops articulation arrangements with universities locally and internationally that provide advanced entry for B-TIC learners from Level 3 to Level 8. However, university admission criteria may change from time to time and remain at their discretion.

On successful completion of the B-TIC qualifications, learners may:

- Progress to University with advanced entry
- Find an employment
- Continue current employment with progressive competencies
- Commit to Continuing Professional Development (CPD) and
- Start a business

Prior Learning Assessment and Recognition (PLAR)

PLAR is where learners can meet entry criteria to entire a course or unit assessment requirements through Skill, knowledge and understanding which they already possess.

PLAR can be referred by different institution as follows:

- Accreditation of Prior Learning (APL)
- Accreditation of Prior Experiential Learning (APEL)
- Accreditation of Prior Achievement (APA)
- Accreditation of Prior Learning and Achievement (APLA)

B-TIC has developed a PLAR policy that allows learners to skip formal learning which learners already know with appropriate demonstration as per the B-TIC PLAR Policy.

Equality and Diversity

B-TIC provide equal opportunity for every learner without any disadvantage in terms of age, disability, gender, marital status, civil partnership, pregnancy, maternity, race, colour, nationality, ethnicity, national origins, religion, sexual orientation or any other grounds in accordance with the B-TIC Equality and Diversity Policy.

Where a feature of a specific qualification disadvantage group of learners we provide explicit clarification In this regard in the qualification specification.

Qualification Structure

The Level 3 Diploma in Applied Computing consists of 6 compulsory units.

Unit Number	Compulsory Units	Credit	TQT	GLH	ILH
3APC1	Computer Systems	20	200	100	100
3APC2	Graphics and Multimedia	20	200	100	100
3APC3	Web Design and Development	20	200	100	100
3APC4	Introduction to JAVA Programming	20	200	100	100
3APC5	Digital Marketing	20	200	100	100
3APC6	Networking Fundamentals	20	200	100	100

Total Qualification Time (TQT)

Total Qualification Time (TQT) is the total count of hours a learner would commit to complete on all varieties of activities demonstrating learning outcome achievements of a specific whole qualification.

TQT consists of “Guided Learning Hours” (GLH) activities and all the other forms of “Independent Learning Hours” (ILH) activities.

Guided Learning Hours (GLH)

Guided Learning Hours (GLH) are the estimated time duration that the learner is guided to learn in facilitation of Lecturers, Supervisors, Tutors, Trainers and facilitated workshops (hereafter called “FACILITATORS”) etc. for learners enabling to complete module learning outcomes at the appropriate standard.

GLH counts real time activities completed by the learner under direct instruction, supervision and / or immediate guidance) via Physical or Virtual Attendance such as,

- Supervised induction sessions
- Class room lecturers
- Class room discussions
- Assignments Reviews
- Personal meetings
- Learner feedback with a teacher in real time
- Supervised independent learning
- Supervised Literature Review
- Classroom-based learning supervised by a teacher
- Work-based learning supervised by a teacher
- Question and answer sessions
- Presentation and Feedback
- Live webinar or telephone tutorial with a teacher in real time
- E-learning supervised by a teacher in real time
- E-mail conversations
- Formative assessment and feed back
- Summative assessment and feed back
- Professional Discussions
- Interview
- Reviewing cases with lecturers
- Building a poster with facilitator
- Invigilated examinations or assessments.

All other forms of learning activities under immediate guidance, Instruction, observation or Supervision of a facilitator may be counted into Guided Learning Hours (GLH).

Independent Learning Hours (ILH)

“Independent Learning Hours” (ILH) are hours of learning activities that learners undertake without direct instruction, supervision or immediate guidance.

The verity of independent learning activities in absence of direct instruction, supervision or Immediate Guidance of facilitator may happen depending on the qualifications and level of qualification, such as

- Independent preparation for classes
- Independent reading
- Independent research

- Independent work on projects
- Independent compilation of a portfolio of work experience
- Independent e-learning
- Independent e-assessment
- Independent coursework
- Independent watching a pre-recorded podcast or webinar
- Independent work-based learning
- Independent discussion
- Independent voluntary work

Any other form of learning, education or training, in the absence of direct instruction, supervision or immediate guidance of a facilitator, may be counted as Independent Learning Hours (ILH).

Credit

The credit value specifies the awarded number of credits to a learner who has covered and assessed the learning outcomes of a unit at a specific level standard of a qualification.

The awarded credits are recorded in a credit transcript that can lead to a qualification that supports your entry to the next progress of higher education.

Each credit represents 10 hours of learning time, which is equivalent to 10 hours of “TOTAL QUALIFICATION TIME”.

The credit value of the unit is constant in all contexts regardless of result (Pass or Fail), the assessment method or the mode of delivery.

Learners will only be awarded credits for the successful completion of the whole unit.

Specific requirement of individual learners and the differing delivery styles may cause variation in the actual time to complete a qualification; thus, Values for Total Qualification Time, Guided Learning Hours, and Credit are estimates

Unit Specification Level 03

Computer Systems

Unit Title	Computer Systems
Unit Code	3APC1
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This module covers the principles and components of computer systems. Students learn about hardware, software, operating systems, and system architecture, gaining skills to analyze, configure, and maintain efficient, reliable computing environments.

Unit Objectives

- To understand the functions and roles of computer hardware components
- To describe the purpose and types of software and operating systems
- To demonstrate the ability to configure and set up computer systems
- To understand data storage methods and backup solutions
- To carry out routine maintenance and troubleshooting procedures

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners. Centre assess all the units internally and B-TIC externally verify for quality assurance

On completion assessment of this module the learner should:

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to understand the key hardware components	1.1 Describe the functions of internal components of a computer system.	Central processing unit (CPU), Motherboard, RAM (Random Access Memory), Storage devices, Power supply unit (PSU), Graphics processing unit (GPU), Cooling systems, Expansion cards, Internal cables; Buses, CMOS battery
	1.2 Explain the use of external peripherals and common ports/connectors.	Input devices, Output devices, Common ports and Connectors: USB (Universal Serial Bus); HDMI (High Definition Multimedia Interface); Ethernet port (RJ-45); Audio jack (3.5mm TRS); Power connector; VGA / DVI / DisplayPort; SD card Slot / Reader; Thunderbolt / USB-C
	1.3 Compare different types of computer systems with their use	Desktop computer systems, Laptop / Notebook computers, Tablet devices, Smartphones (as computing devices), Servers, Gaming consoles, Embedded Systems
LO 2 Be able to explain the functions of software systems in computing.	2.1 Explain different types of software with examples	What is software?, System software (Operating Systems (OS); Utility software; Device drivers; Firmware;), Application software (General-Purpose Applications; Specialized software; Mobile applications; Web-based applications)
	2.2 Explain the core functions of an operating system	What is an operating system (OS)?, File management, Memory management, Process management;
	2.3 Analyze different types of user interfaces.	What is a user interface (UI)?, Graphical user interface (GUI): Description; examples; advantages; Limitations, Command-line Interface (CLI): Description; Examples; Advantages; Limitations
LO 3 Be able to assemble, configure, and install a computer system.	3.1 Assemble functional computer system	Identify key hardware components (Core Internal Components like Motherboard; CPU (Processor); RAM (Memory); Storage devices; Power Supply Unit (PSU); Cooling System), Understand Peripheral Devices (External) like (Monitor; Keyboard & Mouse; Speakers/Headphones; Printers, webcams, USB drives), Component Compatibility and Selection, Assembling the System – Step-by-Step, BIOS Setup & Basic Testing

Learning Outcomes	Assessment Criteria	Unit Teaching Content
	3.2 Install an operating system with correct system drivers	Introduction to BIOS and UEFI (What is BIOS/UEFI; Key BIOS/UEFI Functions), Prepare and Install an Operating System (e.g., Windows or Linux), Installing System Drivers, Post-Installation Tasks
	3.3 Test assembled computer system for functionality	Testing the Assembled System (Initial Power-On Test (POST); Check Core Hardware Functionality; Booting into BIOS; Post-OS Installation Test), Troubleshooting Basic Hardware Issues, Troubleshooting Basic Software Issues
LO 4 Be able to understand data storage methods and maintenance practices.	4.1 Describe different types of data storage and their uses in computing systems	What is Data Storage, Hard Disk Drive (HDD), Solid State Drive (SSD), Optical Storage, Cloud Storage, Other Storage Types (USB Flash Drives; Memory Cards (e.g., SD cards); Network Attached Storage (NAS))
	4.2 Explain common data backup methods and storage optimization techniques.	What is data backup, Common backup methods (Full Backup; Incremental backup; Differential backup), When and how to use each backup type, Storage optimization techniques (Compression; Deduplication; Archiving; Cloud backup and sync)
	4.3 Carry out computer maintenance tasks for computer system performance	Disk cleanup (purpose; Types of files cleaned; tools; demonstrate how to), Antivirus Scans (purpose; Types of antivirus scans; Examples of antivirus software; Importance of keeping antivirus software updated), Software Updates (Importance of updating; Types of updates; How to; Risks of ignoring updates)

Essential Reading and Resource List:

Textbooks:

Cisco Networking Academy. (2010). *IT essentials: PC hardware and software companion guide*. Cisco Press.
Andrews, J. (2019). *A+ guide to IT technical support: Hardware and software*. Cengage.
Bryant, R. E., & O'Hallaron, D. R. (2015). *Computer systems: A programmer's perspective*. Pearson.
Floyd, T. L. (2014). *Digital fundamentals*. Pearson.

Journals & Newspapers:

Journal of Systems and Software (Elsevier)
Future Generation Computer Systems (Elsevier)
ACM Computing Surveys
ACM Transactions on Computer Systems (TOCS)
Data Backup System with No Impact on Business Processing Utilizing Storage and Container Technologies
FASTEN: Towards a Fault-tolerant and Storage Efficient Cloud: Balancing Between Replication and Deduplication
Dependability Analysis of Data Storage Systems in Presence of Soft Errors

Websites:

<https://pcpartpicker.com/>
<https://www.logicalincrements.com/>
<https://computer.howstuffworks.com/pc.htm>
<https://www.geeksforgeeks.org/operating-systems/>
<https://linuxjourney.com/>
<https://www.tomshardware.com/>
<https://www.computerhope.com/>
<https://www.backblaze.com/blog/>
<https://www.techspot.com/guides/>
<https://www.intel.com/content/www/us/en/support.html>

Graphics and Multimedia

Unit Title	Graphics and Multimedia
Unit Code	3APC2
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This unit introduces learners to the principles and practices of digital graphics and multimedia. Students will explore image, audio, video, and animation creation, using industry tools to produce engaging content. Emphasis is placed on design principles, file formats, and multimedia integration for effective digital communication across various platforms.

Unit Objectives

- To understand digital imaging principles and apply image editing techniques.
- To create and edit vector and raster graphics using design tools.
- To plan and edit video content with basic production skills.
- To develop interactive multimedia products with file management and compression.

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners. Centre assess all the units internally and B-TIC externally verify for quality assurance

On completion assessment of this module the learner should:

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to understand the concepts and components of multimedia in computing	1.1 Explain elements of multimedia	Introduction to multimedia, Key multimedia elements (text; images; audio; video; animation), Comparing multimedia elements
	1.2 Explain the importance of multimedia in computing and digital communication	Definition and scope of multimedia, why multimedia is important in computing (improves User experience; supports different learning styles; enables interactivity; facilitates better communication), importance in digital communication, examples of multimedia use, Consequences of not using multimedia
	1.3 Compare different types of multimedia applications used in various fields	What are multimedia applications, multimedia applications by field (education; gaming; web Application; mobile application; business and marketing), user experience (ux) in different Fields, platform-specific design (web vs mobile), media balance based on audience needs, Engagement level required in each application, real-world purpose (learning, entertainment, Information, interaction)
LO 2 Be able to demonstrate knowledge of digital imaging and graphics formats	2.1 Differentiate between raster and vector graphics	Definition of raster and vector graphics (raster graphics; vector graphics), key characteristics comparison, where each is used (raster graphics examples; vector graphics Examples), tools commonly used, advantages & disadvantages
	2.2 Describe common image file formats	What is an image file format, common image file formats to teach (jpeg (or jpg – joint photographic experts group); png (portable network graphics); svg (scalable vector graphics); bmp (bitmap)), transparency support, web vs print usage, scalability and resolution dependence, file size implications
	2.3 Explain how factors affect image quality and performance	What is image resolution, what is dpi (dots per inch), what is file size, how they all interact, real-world examples, trade-off between quality and performance, why web developers compress images, why printers ask for high-dpi files, impact on download speed, Storage, and rendering time

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 3 Be able to edit image and video using industry-standard tools	3.1 Use image editing software for enhancements	Introduction to image editing software, cropping, resizing, working with layers, adding text, Applying effects, basic selection tools (lasso, marquee, magic wand), templates and preset sizes for social media, exporting and saving
	3.2 Create vector-based design or illustration using appropriate tools and techniques	Introduction to vector graphics, vector-based software tools, creating basic shapes and paths, editing and transforming objects, working with layers, typography in vector design, path operations and effects, create a vector-based design (main task), importing raster images as references, saving and exporting
	3.3 Edit video using suitable software	Introduction to video editing, introduction to video editing software, importing media, cutting and trimming, transitions, audio editing and adjustments, adding subtitles or text, exporting the final video
LO 4 Be able to develop and present an interactive multimedia project	4.1 Plan multimedia project integrating multiple elements	Understanding multimedia projects, elements of multimedia, planning stages (define purpose and objectives; identify target audience; outline content and elements; storyboard or wireframe; technical requirements; timeline and milestones), documentation tools
	4.2 Create and present interactive multimedia product using appropriate tools	Understanding interactive multimedia products, multimedia elements recap, choosing suitable tools, key interactive features to teach, designing the product, creating the interactive multimedia product, presentation skills
	4.3 Apply file management and compression techniques to optimize the multimedia content.	Introduction to file management in multimedia (why file management is important; folder structures; file naming conventions; version control), understanding file types and sizes, Compression techniques (image compression; audio compression; video compression), Archiving and packaging files, applying file optimisation in a project, best practices for Optimisation, online vs offline compression tools

Essential Reading and Resource List:

Textbooks:

- Williams, R. (2014). *The non-designer's design book*. Peachpit Press.
- Chavez, C., & Faulkner, A. (2023). *Adobe Photoshop Classroom in a Book*. Adobe Press.
- Wood, B. (2024). *Adobe Illustrator Classroom in a Book*. Adobe Press.
- Long, B., & Schenk, S. (2014). *The digital filmmaking handbook*. Cengage Learning.
- Vaughan, T. (2013). *Multimedia: Making it work*. McGraw-Hill Education.

Journals & Newspapers:

- ACM Transactions on Graphics (TOG)
- IEEE Transactions on Multimedia
- Journal of Visual Communication and Image Representation
- Computers & Graphics: X
- Communication Arts Magazine
- Wired Magazine
- The Verge – Tech & Multimedia Section

Websites:

- <https://helpx.adobe.com/>
- <https://www.canva.com/learn/>
- <https://www.khanacademy.org/partner-content/pixar>
- <https://www.techsmith.com/learn.html>
- <https://creatoracademy.youtube.com>

Web Design and Development

Unit Title	Web Design and Development
Unit Code	3APC3
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This unit introduces learners to HTML, CSS, and web design principles, enabling them to create responsive, accessible websites through practical projects, preparing them for further study or entry-level development roles.

Unit Objectives

- To create structured web pages using HTML elements and semantic tags.
- To apply CSS styling and layout techniques to design visually appealing web pages.
- To use CSS selectors to control and enhance web content presentation.
- To plan and develop a complete static website project integrating HTML and CSS.

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners. Centre assess all the units internally, and B-TIC externally verify for quality assurance

On completion assessment of this module the learner should:

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to structure web page using semantic HTML elements	1.1 Use appropriate semantic HTML elements	What are semantic html elements, common semantic html elements and their purpose, when to use which semantic element, benefits of using semantic html
	1.2 Organize content in logical layout	Understanding logical layout, basic web page structure, content hierarchy and flow, wireframing and planning layouts, layout patterns and best practices, css for layout, accessibility and navigation
	1.3 Use correct HTML elements	Basic html syntax rules, nesting html elements properly, html element categories, indentation and formatting, html validators and debugging
LO 2 Be able to apply CSS rules to style HTML elements,	2.1 Use appropriate CSS properties to format	Introduction to css, text formatting with css, css for layout and structure, modern layout techniques (optional intro), combining css for text and layout
	2.2 Understand syntax and rule structure	Basic css rule structure, types of css selectors, correct syntax rules, comments in css, external, internal, and inline css, organizing css code, common mistakes to avoid
	2.3 Creates a visual layout using CSS	What is visual consistency, consistent use of typography, consistent color scheme, spacing and alignment, use of layout containers, styling reusable elements, basic layout techniques, styling for structure
LO 3 Be able to demonstrate CSS selectors and properties to control the layout and appearance of web elements	3.1 Demonstrate variety of CSS selectors appropriately	What is a css selector, basic selectors, grouping selectors, descendant and child selectors, Sibling selectors, attribute selectors
	3.2 Apply CSS properties effectively to control layout and styling	Understanding css for layout vs styling, css for styling (text and typography styling; backgrounds and borders; visual styling techniques), css for layout (box model essentials; display & positioning; flexbox (modern layout tool), responsive layout considerations
	3.3 Demonstrate clear separation between HTML and CSS	Understanding separation of concerns, avoid inline styles, using external css files, internal css vs external css, semantic html with no styling, organizing css properly, demonstration and comparison

On completion assessment of this module the learner should:

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 4 Be able to build functional static web page integrating HTML and CSS	4.1 Combine HTML and CSS effectively to produce complete web page	Understanding consistency in design, consistent use of typography, consistent color scheme, spacing and layout consistency, visual hierarchy, reusable css classes and components
	4.2 Demonstrate consistency in design and visual appeal	Writing valid and correct code, cross-browser compatibility, responsive design basics, testing and debugging techniques, accessibility checks, handling broken or missing elements, version control and backups
	4.3 Ensure all elements function correctly and display as intended	Understanding consistency in design, consistent use of typography, consistent color scheme, spacing and layout consistency, visual hierarchy, reusable css classes and components

Essential Reading and Resource List

Textbooks:

Duckett, J. (2011). *HTML and CSS: Design and build websites*. Wiley.

Robbins, J. (2018). *Learning web design: A beginner's guide to HTML, CSS, JavaScript, and web graphics*. O'Reilly Media.

Frain, B. (2022). *Responsive web design with HTML5 and CSS*. Packt Publishing.

Lloyd, I. (2011). *Build your own website the right way using HTML & CSS*. SitePoint.

Journals & Newspapers:

ACM Transactions on the Web (TWEB)

International Journal of Web Engineering and Technology (IJWET)

Journal of Web Engineering (JWE)

Computer Graphics and Applications

The Verge – Web/Tech Section

TechCrunch – Design & Development

Websites:

<https://developer.mozilla.org/>

<https://www.w3schools.com/>

<https://www.smashingmagazine.com/>

<https://www.freecodecamp.org/>

<https://alistapart.com/>

Introduction to JAVA Programming

Unit Title	Introduction to JAVA Programming
Unit Code	3APC4
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This unit introduces core Java programming concepts, including variables, control structures, and object-oriented principles, enabling learners to develop, test, and debug Java applications for practical computing solutions.

Unit Objectives

- To set up the Java programming environment and understand Java fundamentals.
- To apply Java syntax to write and structure basic programs.
- To use variables, data types, input, and output in Java applications.
- To perform basic calculations and develop simple Java programs.

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners.
 Centre assess all the units internally and B-TIC externally verify for quality assurance

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to understand Java syntax to write simple programs	1.1. Use Java syntax to write and structure code	Java Program Structure (Basic structure of a Java class; Understanding main() method as the entry point; Correct use of curly braces {} to define blocks; Indentation and code formatting for readability), Java Syntax Fundamentals (Statements and Semicolons; Case sensitivity; Use of parentheses () in method calls and conditionals; Correct ordering of code elements (declarations before use), Comments and Readability, Data Types and Variables, Operators and Expressions
	1.2 Use System.out.print() and System.out.println()	Purpose of Output Statements, Basic Syntax, Difference Between print() and println(), Printing Text and Variables, Printing Multiple Values, Escape Characters, Common Mistakes to Avoid
	1.3 Compile and run basic Java programs successfully	Setting Up the Environment, Writing a Basic Java Program, Understanding the Compilation Process, Running a Compiled Program, Using an IDE to Compile and Run, Identifying and Fixing Compilation Errors, Console Input and Output Basics, Folder and File Management
LO 2 Be able to use Java to perform basic calculations and display results	2.1 Use arithmetic operators correctly in Java expressions	What Are Arithmetic Operators, Declaring Variables for Use in Expressions, Using Operators in Expressions, Integer vs. Floating-Point Division, Operator Precedence (Order of Operations), Combining Operators in Complex Expressions
	2.2 Display the results of calculations using output statements	Review Output Statements, Using Output to Show Calculation Results, Printing with Descriptive Text, Displaying Multiple Results, Handling Different Data Types, Displaying Results with Formatting (Optional/Extension)
	2.3 Write code that compiles and produces accurate results	Understand the Code Lifecycle, Correct Java Syntax, Write Logic that Gives Accurate Results, Avoid Common Errors, Understand and Fix Compilation Errors, Use Test Cases to Check Output, Code for Accuracy and Readability, Perform Final Code Reviews

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 3 Be able to declare and use variables of different data types in Java	3.1 Declare variables using appropriate Java data types	What Are Variables, Basic Syntax for Declaring Variables, Common Java Data Types and When to Use Them, Choosing the Right Data Type, Multiple Variable Declarations, Initialisation and Default Values, Using Variables in Expressions, Naming Conventions
	3.2 Assign and display variable values using output statements	Declaring and Assigning Variables, Common Java Data Types for Variables, Displaying Variable Values, Assigning New Values to Existing Variables, Displaying Multiple Variables, Using Variables in Expressions Before Display, Formatting Output (Optional for Extension)
	3.3 Use advanced variable features where appropriate	Final Variables (Constants), Typecasting and Type Conversion, Variable Scope, Using Wrapper Classes and Autoboxing (Optional/Extension), Mutable vs Immutable Variables, Using Arrays for Multiple Values, Using var Keyword
LO 4 Be able to identify and apply Java comments and naming conventions	4.1 Use single-line and multi-line comments appropriately	Purpose of Comments, Single-Line Comments, Multi-Line Comments, Appropriate Use of Comments, Good Commenting Practices
	4.2 Follow valid naming rules for Java identifiers	What Is an Identifier, Rules for Valid Java Identifiers, Examples of Valid Identifiers, Examples of Invalid Identifiers, Java Naming Conventions (Best Practices), Why Naming Rules and Conventions Matter
	4.3 Apply consistent naming conventions	What Are Naming Conventions, Standard Java Naming Conventions (Variables and Fields; Constants (final variables); Methods; Classes and Interfaces), Importance of Consistency, Examples: Consistent vs Inconsistent

Essential Reading and Resource List

Textbooks:

- Schildt, H. (2022). *Java: A beginner's guide*. McGraw-Hill Education.
- Sierra, K., & Bates, B. (2022). *Head First Java*. O'Reilly Media.
- Liang, Y. D. (2022). *Introduction to Java programming and data structures*. Pearson.

Journals & Newspapers:

- ACM Transactions on Computing Education (TOCE)
- IEEE Transactions on Education
- Journal of Computer Science Education
- Inroads – SIGCSE Bulletin
- TechCrunch
- Java Magazine

Websites:

- <https://docs.oracle.com/javase/tutorial/>
- <https://www.w3schools.com/java/>
- <https://www.geeksforgeeks.org/java/>
- <https://www.programiz.com/java-programming>
- <https://www.tutorialspoint.com/java/index.htm>

Digital Marketing

Unit Title	Digital Marketing
Unit Code	3APC5
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This unit covers digital marketing fundamentals, including SEO, social media, email campaigns, content creation, and analytics, enabling learners to plan and manage effective online marketing strategies to engage target audiences.

Unit Objectives

- To explain the fundamentals and significance of digital marketing.
- To identify key digital marketing channels and platforms.
- To develop website and content strategies to engage audiences.
- To apply SEO and social media marketing techniques effectively.

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners.
 Centre assess all the units internally and B-TIC externally verify for quality assurance

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to understand the principles of digital marketing	1.1 Differentiate digital marketing from traditional marketing	What is Digital Marketing (Definition; purpose; key components), What is Traditional Marketing (Definition; examples), Differences Between Digital and Traditional Marketing, Advantages of Digital Marketing, Why Digital Marketing Is Becoming More Popular
	1.2 Explain digital marketing and how it has changed over time	Origins of Digital Marketing, 1990s: The Internet Era Begins, 2000s: Search Engines and the Rise of Google, Mid-2000s to Early 2010s: Social Media and Mobile Shift, 2010s: Data-Driven and Personalized Marketing, 2020s–Present: AI, Automation, and Omnichannel Marketing, Key Changes in Digital Marketing Over Time, Reasons for This Evolution
	1.3 Discuss the roles of digital marketing in business	What is the Role of Digital Marketing Today, Importance of Digital Marketing in Modern Business, Digital Marketing Across Different Sectors, Digital Marketing and the Digital Consumer, Role of Digital Platforms, Trends That Reinforce Its Importance, Challenges in Today's Digital World
LO 2 Be able to understand digital marketing channels.	2.1 Describe key digital marketing platforms and tools	Social Media Marketing Platforms (facebook; instagram; linkedIn; tiktok; youtube), Email Marketing Tools (popular tools like Mailchimp; Sendinblue; key uses of email marketing), Search Engine Marketing (SEM) Tools (Tools & Platforms; Key Concepts:), SEO (Search Engine Optimization) Tools (key tools), Content Creation & Scheduling Tools, Web Analytics Tools, CRM & Automation Tools
	2.2 Compare the benefits of different digital marketing channels	What Are Digital Marketing Channels, Key Digital Marketing Channels to Cover (Social Media Marketing; Email Marketing; Search Engine Marketing (SEM/PPC); Search Engine Optimization (SEO); Content Marketing; Video Marketing), Factors to Consider When Comparing Channels
	2.3 Compare the benefits of different digital marketing channels	Canva (for social media marketing & design), Mailchimp (for email marketing), Instagram or Facebook (social media platform simulation), Google Ads (simulated PPC campaign), Google Analytics (demo or video walkthrough)

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 3 Be able to manage digital content in social media	3.1 Plan content strategy for a selected product, service, or campaign.	What Is a Content Strategy, Key Components of a Basic Content Strategy (Define the Goal; Identify the Target Audience; Choose the Right Content Types; Select the Channels; Develop a Content Calendar), Example Scenario
	3.2 Build digital content using appropriate tools or platforms	What Is Digital Content (Definition; Types of digital content), Purpose of Creating Digital Content, Content Planning Basics, Teach Appropriate Tools/Platforms (canva For Visual Posts & Graphics; Mailchimp For Email Campaign Content; Capcut For Short Video Content, word For Text-Based Content)
	3.3 Explain the importance of content quality, relevance, and consistency in digital marketing	What Is Digital Content in Marketing, The Importance of Content Quality (What is content quality; Why it matters), The Importance of Relevance (What is content relevance; Why it matters), The Importance of Consistency (What is content consistency; Why it matters), Combined Impact
LO 4 Be able to apply SEO and social media techniques to optimize digital marketing campaigns	4.1 Explain the principles of SEO	What Is SEO (Search Engine Optimization), How Do Search Engines Work (Crawling; Indexing; Ranking), Principles of SEO (Keywords; Meta Tags, Backlinks), Other Key SEO Principles to Mention (Mobile-friendliness; Page speed; User experience (UX); Fresh content)
	4.2 Explain search performance using SEO tools	Introduction to SEO Tools, Overview of Google Search Console (GSC), Overview of Ubersuggest, How to Research and Analyse Search Performance, Interpretation of Key Metrics
	4.3 Plan a basic social media campaign	Understanding What a Social Media Campaign Is, Key Elements to Plan (Define Campaign Goals; Target Audience; Content Ideas; Scheduling Content; Engagement Goals), Example Campaign Plan

Essential Reading and Resource List

Textbooks:

Chaffey, D., & Ellis-Chadwick, F. (2021). *Digital marketing: Strategy, implementation and practice*. Pearson Education.

Clarke, A. (2023). *SEO 2023: Learn search engine optimisation with smart internet marketing strategies*. Independently Published.

Deiss, R., & Henneberry, R. (2020). *Digital marketing for dummies*. Wiley.

McDonald, J. (2023). *SEO: Focused on practices, website optimisation, and ranking techniques*. Independently Published.

Journals & Newspapers:

Journal of Digital & Social Media Marketing

Journal of Interactive Marketing

International Journal of Advertising

Journal of Marketing Communications

International Journal of Internet Marketing and Advertising

Marketing Week

The Drum

Search Engine Journal

TechCrunch – Marketing Section

Websites:

<https://academy.hubspot.com>

<https://moz.com>

<https://neilpatel.com>

<https://learndigital.withgoogle.com>

<https://www.socialmediaexaminer.com>

<https://contentmarketinginstitute.com>

Networking Fundamentals

Unit Title	Networking Fundamentals
Unit Code	3APC6
Unit Level	Level 3
Credit Value	20
Guided Learning Hours	100
Independent Learning Hours	100
Unit Type	Core
Grading System	Pass / Fail

Unit Introduction

This unit introduces the core principles of computer networking, covering network types, hardware, protocols, and addressing, providing learners with essential knowledge and skills for designing and managing modern networks..

Unit Objectives

- To understand basic networking concepts such as LAN, WAN, IP addressing, and data transmission principles.
- To identify and explain the functions of common networking devices, including routers, switches, hubs, and access points.
- To describe different network topologies and their advantages and disadvantages in various scenarios.
- To recognise key network protocols and demonstrate basic awareness of network security principles such as firewalls, encryption, and safe usage practices.

Assessment

Learning Outcomes to meet	All 4 Learning Outcomes
Assessment Criteria to cover	All ACs of each Learning Outcome
Assessment method	Coursework, Practical or other appropriate methods
Word count	3000 or Equivalent

Assignment briefs are part of this unit specification and available to all the centres and learners.
 Centre assess all the units internally and B-TIC externally verify for quality assurance

On completion assessment of this module the learner should:

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 1 Be able to understand the importance of computer networks	1.1. Explain the importance of computer network	Connection of two or more devices for sharing data; networks allow communication via emails, chats, and video calls; enable file sharing and collaborative tools; support online education and gaming; connect homes, schools, and workplaces.
	1.2 Explain common types of networks	LAN for small areas like homes and classrooms; WAN connects cities and countries (e.g., Internet); WLAN for wireless access with Wi-Fi routers; simple comparison of coverage area and speed; everyday examples like home Wi-Fi, office intranet, and public hotspots.
	1.3 Explain the functions of networking devices	Router directs traffic between local network and the internet; switch connects multiple computers in one LAN; modem converts digital signals for internet access; wireless access points extend Wi-Fi coverage; firewalls protect devices from unwanted access.
LO 2 Be able to understand networking protocols and models	2.1 Explain the concept of the TCP/IP model.	Framework that allows computers to talk across networks; TCP ensures data is delivered correctly and in order; IP defines how packets find their way; used in all internet communication; provides reliable and standardized communication.
	2.2 Identify common networking protocols	HTTP for loading web pages; HTTPS adds security with encryption for safe browsing; SMTP used to send emails; IMAP and POP3 used to receive emails; real-life examples: checking Gmail, shopping online, or using e-learning platforms.
	2.3 Explain different protocols used in internet communication	Sending a WhatsApp or Messenger message relies on TCP/IP; browsing websites uses HTTPS to secure passwords; Gmail uses SMTP for sending and IMAP for receiving; streaming YouTube or Spotify uses protocols for continuous delivery; protocols work silently in the background.

Learning Outcomes	Assessment Criteria	Unit Teaching Content
LO 3 Be able to understand network topologies and the OSI model	3.1 Identify common network topologies with simple diagrams	Bus topology: single cable connecting all devices; Star: devices connected to a central hub/switch; Ring: devices form a circular path for data; Mesh: each device connected to many others for reliability; diagrams drawn in class or on slides.
	3.2 Describe the purpose of the OSI model and its seven layers	OSI provides a step-by-step framework for understanding how data travels; Physical layer manages cables and signals; Data Link handles device addresses; Network manages routing; Transport ensures error-free delivery; Session manages communication sessions; Presentation formats data (e.g., encryption); Application is what users see (e.g., email apps).
	3.3 Compare different network topologies	Star easy to install but fails if hub breaks; Bus cheap but slows with many devices; Ring organized but one failure disrupts the whole; Mesh highly reliable but expensive; comparisons made in tables or simple charts; links concepts to real-world school, office, and city networks.
LO 4 Be able to understand network security threats and protective measures	4.1 Identify common network security threats	Viruses spread via infected files or USBs; phishing tricks users into giving personal data; weak or repeated passwords make accounts easy targets; spyware and ransomware threats; examples from social media scams and fake banking emails.
	4.2 Explain security controls (firewalls, ACLs, strong passwords)	Creating passwords with numbers, letters, and symbols; changing passwords regularly; enabling two-factor authentication; avoiding free/public Wi-Fi for sensitive tasks; checking website URLs before entering details; importance of software updates.
	4.3 Analyse security measures	Firewalls block unauthorized traffic; antivirus scans and removes malicious software; keeping antivirus updated ensures new threats are covered; explains role in preventing data theft; simple examples like Windows Defender or AVG antivirus; stresses using both firewall and antivirus together.

Essential Reading and Resource List

Textbooks:

- Forouzan, B. A. (2012). *Data communications and networking*. McGraw-Hill Education.
- Kurose, J. F., & Ross, K. W. (2020). *Computer networking: A top-down approach*. Pearson.
- Lowe, D. (2018). *Networking all-in-one for dummies*. Wiley.
- West, J., Dean, T., & Andrews, J. (2022). *CompTIA Network+ guide to networks*. Cengage Learning.

Journals & Newspapers:

- IEEE Communications Magazine
- Computer Networks (Elsevier)
- ACM SIGCOMM Computer Communication Review (CCR)
- International Journal of Network Security & Its Applications (IJNSA)
- The Register
- Network World (by IDG)
- ZDNet

Websites:

- <https://www.netacad.com>
- <https://www.comptia.org/certifications/network>
- <https://www.howtogeek.com>
- <https://networklessons.com>
- <https://www.cybrary.it>
- <https://www.professormesser.com>