Unit 1: Information Technology Systems

Level: 3

Unit type: External

Guided learning hours: 120

Unit in brief

Students will study the role of Information Technology (IT) systems and the implications of their use in personal and professional situations. Students will gain knowledge and understanding of issues relating to the use of IT in personal and professional situations.

Unit introduction

IT systems have a significant role in the world around us and play a part in almost everything we do. Having sound knowledge and understanding of how to effectively select and use appropriate IT systems will benefit you personally and professionally.

You will explore the relationships between the hardware and software that form an IT system, how systems work individually and together, and the relationship between the user and the system. You will examine issues related to the use of IT systems and the impact that they have on organisations and individuals.

This unit will give you a fundamental understanding of all areas of IT, supporting your progression to an IT-related higher education course.

Summary of assessment

The unit will be assessed through one examination of 90 marks lasting 2 hours.

Students will be assessed through a number of short- and long-answer questions. The questions will assess knowledge and understanding of IT systems and the implications of their use in personal and professional situations.

The assessment availability is twice a year in January and May/June. The first assessment availability is May/June 2026.

Sample assessment materials will be available to help centres prepare students for assessment.

Assessment outcomes

AO1 Demonstrate knowledge and understanding of information technology systems, terminology, concepts and processes.

AO2 Apply knowledge and understanding of information technology systems, terminology, concepts and processes.

AO3 Analyse and evaluate the factors and implications of information technology systems.

[SP-CT]

Content

The essential content is set out under content areas. Students must cover all specified content before the assessment.

A: Explore the concepts and implications of the use of, and relationships among devices that form IT systems

A1 Functions and use of digital devices, and the notation used to represent the design of IT systems

Students should apply their knowledge and understanding of the features and uses of digital devices in IT systems to meet the needs of individuals and organisations. Students should apply their knowledge of notation used in designing IT systems and flowcharts. This knowledge is essential for the effective use of technology in both personal and professional settings.

A1.1 Features of digital devices that form part or all of IT systems:

- A1.1.1 personal computers
- A1.1.2 multifunctional devices
- A1.1.3 mobile devices
- A1.1.4 servers
  - file
  - application
  - web
- A1.1.5 entertainment systems
- A1.1.6 digital cameras
  - still
  - video
- A1.1.7 navigation systems
- A1.1.8 communication devices and systems
- A1.1.9 embedded systems
  - Sensors
  - Internet of Things (IoT).

A1.2 Function and use of the above digital devices for:

- A1.2.1 personal
- A1.2.2 education and training
- A1.2.3 social
- A1.2.4 retail
- A1.2.5 manufacturing

A1.2.6 healthcare

A1.2.7 creative tasks

A1.2.8 automation and robotics.

A1.3 Forms of notation used to design IT systems:

A1.3.1 system diagrams

A1.3.2 flowcharts.

A2 Peripheral devices and media

Students should apply their knowledge and understanding of the features and uses of peripheral devices and media in IT systems to meet the needs of individuals and organisations.

A2.1 Features and uses of peripheral devices used with other digital devices to form part of an IT system:

A2.1.1 input devices

A2.1.2 output devices

A2.1.3 storage devices.

A2.2 Assistive technologies

A2.2.1 adaptive keyboards

A2.2.2 screen readers

A2.2.3 braille displays

A2.2.4 screen magnifiers

A2.2.5 head pointers

A2.2.6 single switch entry devices

A2.2.7 foot switches

A2.2.8 sip-and-puff switches

A2.2.9 eye-tracking software

A2.2.10 text-to-speech software.

A2.3 Characteristics and implications of storage media used to form part of an IT system.

A2.3.1 capacity

A2.3.2 cost

A2.3.3 speed

A2.3.4 compatibility

A2.4 Data processing.

A2.4.1 manual

A2.4.2 automatic

A3 Computer software in an IT system

Students should know and understand the concepts, implications and impact on individuals and organisations of the use of, and relationships between hardware and software.

A3.1 Types of operating systems:

- A3.1.1 batch
- A3.1.2 distributed
- A3.1.3 multitasking
- A3.1.4 network OS
- A3.1.5 real-time OS
- A3.1.6 mobile OS
- A3.1.7 single use
- A3.1.8 multi-user

A3.2 Role of the operating system in managing:

- A3.2.1 networking
- A3.2.2 security
- A3.2.3 memory management
- A3.2.4 multi-tasking
- A3.2.5 device drivers
- A3.2.6 user accounts.

A3.3 Types, uses and features of software:

- A3.3.1 utility
- A3.3.2 application.

A3.4 Factors impacting the choice and use of operating system and application software.

- A3.4.1 cost
- A3.4.2 security
- A3.4.3 hardware and software compatibility
- A3.4.4 features
- A3.4.5 business and/or user needs
- A3.4.6 performance.

A3.5 Types of user interface and factors affecting the choice of user interface:

A3.5.1 command line

A3.5.2 menu-driven

A3.5.3 graphical user

A3.5.4 touchscreen graphical user.

A3.6 Principles and implications of open source and proprietary software:

A3.6.1 operating systems

A3.6.2 application software.

A3.7 Features of common file types and formats used for:

A3.7.1 images

A3.7.2 audio

A3.7.3 videos

A3.7.4 application software.

A4 Choosing IT systems

Students should know and understand how the features of an IT system can affect its performance and the factors impacting on the choice.

A4.1 Factors affecting the choice of IT systems:

A4.1.1 user needs

A4.1.2 specifications

A4.1.3 compatibility

A4.1.4 connectivity

A4.1.5 cost

A4.1.6 efficiency

A4.1.7 implementation

- timescales
- testing
- migration to new system(s)
- downtime

A4.1.8 productivity

A4.1.9 security.

A4.2 Features and implications of IT systems used by organisations for:

A4.2.1 stock control

A4.2.2 data logging

A4.2.3 data analysis

A4.2.4 general office tasks

A4.2.5 creative tasks

A4.2.6 advertising

A4.2.7 manufacturing

A4.2.8 security

A4.2.9 automation.

A4.3 Impact and implications for organisations of IT systems in terms of:

A4.3.1 user experience

- ease of use
- performance
- availability
- accessibility

A4.3.2 employee and customer needs

A4.3.3 cost

A4.3.4 implementation

- timescales
- testing
- migration to new system(s)
- downtime

A4.3.5 replacement or integration with current systems

A4.3.6 productivity

A4.3.7 working practices

A4.3.8 staff training needs

- Initial
- ongoing

A4.3.9 user support

A4.3.10 security.

A5 Emerging technologies

Students should understand how emerging technologies can be used by individuals and organisations.

A5.1 The concepts and implications of how emerging technologies affect the performance of IT systems.

A5.2 Implications of emerging technologies on the personal use of IT systems.

A5.3 Implications of emerging technologies on the use of IT systems in organisations.

B: Transmitting data

The essential content topics require understanding of the concepts, processes and implications of transmitting data within and between IT systems.

B1 Connectivity

B1.1 Wireless and wired methods of connecting devices and transmitting data within and between IT systems.

- B1.1.1 Bluetooth
- B1.1.2 USB
- B1.1.3 Wi-Fi
- B1.1.4 Ethernet

B1.2 How the features of connection types can meet the needs of individuals and organisations.

B1.3 Implications of selecting and using different connection types.

B1.4 Impact of connection types on the performance of an IT system.

B2 Networks

Students should know the concepts and implications for individuals and organisations of connecting devices to and from a network.

B2.1 Network topologies:

- B2.1.1 star
- B2.1.2 ring
- B2.1.3 bus.

B2.2 Types of networks:

- B2.2.1 Personal Area Network (PAN)
- B2.2.2 Local Area Network (LAN)
- B2.2.3 Wide Area Network (WAN)
- B2.2.4 Virtual Private Network (VPN).

B2.3 Factors affecting the choice of network:

- B2.3.1 user needs
- B2.3.2 specifications
- B2.3.3 connectivity
- B2.3.4 cost
- B2.3.5 efficiency
- B2.3.6 compatibility

B2.3.7 implementation

- timescales
- testing
- downtime

B2.3.8 productivity

B2.3.9 security.

B2.4 How the features of a network and its component parts affect the performance of an IT system.

B3 Issues relating to transmission of data

Students should know and understand how the features and processes of data transmission affect the use and performance of IT systems.

B3.1 Protocols used to govern and control data transmission for common tasks:

B3.1.1 email

- SMTP
- POP
- IMAP

B3.1.2 voice and video call over the internet

B3.1.3 web pages

- HTTP
- HTTPS

B3.1.4 secure payment systems

B3.2 Security issues and considerations when transmitting data over different connection types and networks.

B3.3 Factors affecting and implications of bandwidth and latency.

B3.4 Implications of common file types and formats used for:

B3.4.1 images

B3.4.2 audio

B3.4.3 videos

B3.4.4 application software

B3.5 Factors affecting the choice of compression types:

B3.5.1 lossy

B3.5.2 lossless.

B3.6 Use and implications of codecs when using and transmitting audio and video in digital format.

C: Operating online

The essential content topics require understanding of the implications for individuals and organisations of using online IT systems.

C1 Online systems

Students should know and understand the features, impact and implications of the use of online IT systems to store data and perform tasks.

C1.1 Cloud computing models

- C1.1.1 private cloud
- C1.1.2 public cloud
- C1.1.3 hybrid cloud
- C1.1.4 Infrastructure as a Service (IaaS)
- C1.1.5 Software as a Service (SaaS)
- C1.1.6 Platform as a Service (PaaS)

C1.2 Impact and implications of using cloud computing for individuals and organisations.

C1.3 Systems that enable and support remote working:

- C1.3.1 VPNs
- C1.3.2 remote desktop technologies.

C1.4 The way factors affect the use and selection of online systems:

- C1.4.1 security
- C1.4.2 cost
- C1.4.3 ease of use
- C1.4.4 features
- C1.4.5 connectivity
- C1.4.6 scalability.

C2 Online communities

Students should know and understand the features of online communities and the implications of their widespread use for individuals and organisations.

C2.1 Ways of communicating and interacting with online communities:

- C2.1.1 social media
- C2.1.2 blog/vlog
- C2.1.3 wiki
- C2.1.4 chatrooms
- C2.1.5 instant messaging
- C2.1.6 podcasts
- C2.1.7 forums.

C2.2 Considerations for individuals and organisations of using and accessing online communities:

C2.2.1 user experience

- ease of use
- performance
- availability
- accessibility

C2.2.2 meeting user needs

C2.2.3 cost

C2.2.4 privacy

C2.2.5 security

C2.2.6 downtime

C2.2.7 training

C2.2.8 integration with current systems

C2.2.9 productivity

C2.2.10 working practices and company policies.

D: Protecting data and information

The essential content topics require understanding of the issues and implications of storing and transmitting information in digital form.

D1 Threats to data, information, and systems

Students should know and understand the types of accidental and malicious threats to the security and integration of data, held in and used by IT systems.

D1.1 Types of external threats to data:

D1.1.1 viruses and other malware

D1.1.2 unauthorised access – hackers

D1.1.3 accidental damage

D1.1.4 social engineering.

D1.1.5 natural disasters

D1.2 Types of internal threats to data:

D1.2.1 access to inappropriate websites

D1.2.2 accidental disclosure of data

D1.2.3 stealing/leaking information

D1.2.4 use of portable devices.

D1.3 Impact on individuals and organisations from threats to data, information and systems:

- D1.3.1 loss of data
- D1.3.2 financial loss due to legal action
- D1.3.3 loss of customers due to public image.

D2 Protecting data

Students should know the uses and implications of systems and procedures used to protect the data of individuals and organisations.

D2.1 Techniques used to protect data and systems:

- D2.1.1 file permissions
- D2.1.2 access levels
- D2.1.3 backup and recovery procedures
- D2.1.4 passwords/multi-factor authentication
- D2.1.5 biometrics
- D2.1.6 physical access control
- D2.1.7 digital certificates.

D2.2 Features and functions of using antivirus software to protect data.

D2.3 Features and functions of using firewalls to protect data.

D2.4 Features and functions of encryption methods to protect:

- D2.4.1 stored data
- D2.4.2 data during transmission
- D2.4.3 data in secure websites (HTTPS).

E: Impact of using IT systems

The essential content topics require understanding of the uses, issues and implications of IT systems and their impact on individuals and organisations.

E1 Online services

Understand how the features of online services are used to meet the needs of individuals and organisations.

E1.1 Features and implications of using online services to support:

- E1.1.1 retail
- E1.1.2 financial services
- E1.1.3 education and training
- E1.1.4 news and information

E1.1.5 entertainment and leisure

E1.1.6 booking systems.

E1.2 Uses, impact and implications for individuals and organisations of:

E1.2.1 transactional data

E1.2.2 targeted marketing

E1.2.3 collaborative working

E1.2.4 remote working.

E2 Using and manipulating data

Understand the uses, processes and implications for individuals and organisations of accessing and using data and information in digital form.

E2.1 Sources of data:

E2.1.1 primary

E2.1.2 secondary.

E2.2 Methods of ensuring reliability of information.

E2.3 Methods of collecting data and opinions:

E2.3.1 survey

E2.3.2 questionnaire

E2.3.3 focus groups

E2.3.4 interview.

E2.4 Reasons for ensuring data accuracy.

E2.5 Methods of ensuring data accuracy:

E2.5.1 verification

E2.5.2 validation.

E2.6 Characteristics and considerations of user interfaces for data collection and processing systems:

E2.6.1 ease of use

E2.6.2 accessibility

E2.6.3 error reduction

E2.6.4 functionality

E2.6.5 performance

E2.6.6 compatibility.

F: Issues

The essential content topics require understanding of the concepts, impacts, and implications of moral, ethical and legal issues relating to the use of IT systems.

F1 Moral and ethical issues

Understand the moral and ethical factors and implications of using information technology for individuals and organisations.

F1.1 Moral and ethical factors and implications of the use of information technology:

- F1.1.1 privacy
- F1.1.2 environmental impact
- F1.1.3 unequal access to information technology
- F1.1.4 access to assistive technology
- F1.1.5 online behaviour and netiquette
- F1.1.6 acceptable use policies.

F2 Legal issues

Understand the legal issues relating to the use of IT systems, and the implications for individuals and organisations.

F2.1 Role and impact of current legislation in protecting IT systems, users and their data from attack and misuse:

- F2.1.1 computer misuse legislation
- F2.1.2 copyright, designs and patents legislation
- F2.1.3 copyright regulations (computer programs)
- F2.1.4 health and safety and display screen equipment regulations
- F2.1.5 data protection legislation

Transferable skills

Managing Yourself	Effective Learning	Interpersonal Skills	Solving Problems
MY – TPR	EL – MOL	IS – WC	SP – CT *
MY – PS&R	EL – CL	IS – V&NC	SP – PS
MY – COP	EL – SRS	IS – T	SP – C&I
MY – PGS	EL-PRS	IS – C&SI	

Table key

*	Signposted to indicate opportunities for development as part of wider teaching and learning.
√	Embedded in teaching, learning and assessment
blank	TS not embedded or signposted in unit

Key terms typically used in assessment

The following table shows the key terms that will be used consistently by Pearson in our assessments to ensure students are rewarded for demonstrating the necessary skills.

Please note: the list below will not necessarily be used in every paper/session and is provided for guidance only.

Command or term	Definition
Describe	Students provide an account of something or highlight several key features of a given topic. May also be used in relation to the stages of a process.
Discuss	Students consider the different aspects in detail of an issue, situation, problem or argument and how they interrelate.
Draw	Students represent understanding using a diagram or flowchart.
Explain	Students identify a point and give a linked justification/exemplification of that point. The answer must contain some linked reasoning.
Evaluate	Students consider various aspects of a subject's qualities in relation to its context such as: strengths or weaknesses, advantages or disadvantages. They come to a judgement supported by evidence which will often be in the form of a conclusion.
Identify	Students select some key information from a given stimulus/resource.
State, name, give	Students recall one or more pieces of information