

UNIT 3BAIT

Unit description

The focus for this unit is **information and communication technologies in industry**. Students focus on the production of an ICT product for a particular industry or business of interest. Students will combine both practical and creative skills in the use of ICT to produce solutions to challenges commonly found in the industry that may relate to areas such as information management, communications and/or promotion, data or device control and/or monitoring. Students justify the computer systems selected for their product and understand the social and legal implications, and impact of its use in industry.

Unit learning contexts

Within the focus area of **information and communication technologies in industry**, teachers may choose one or more of the following contexts (this list is not exhaustive):

- hospitality and tourism
- publishing and printing
- fashion
- building and construction
- retail and wholesale
- manufacturing
- agriculture
- mining.

Unit content

This unit includes knowledge, understanding and skills to the degree of complexity described below:

Social implications and trends

The impact of ICT on individuals, communities, and environments

- discuss the impacts of ICT on industries in the community:
 - improved communications
 - increased productivity
 - efficient production processes
- analyse the impacts of ICT on individuals working within industries:
 - improved work habits and communications
 - wider employment location choices e.g. telecommuting.

Values, ethics and inclusivity

- discuss the impact of access to global markets on the ability to purchase and use of ICT products:
 - worldwide access to products and web sites
 - international news sites
 - online censorship of information

- investigate end user expectations in differing cultures e.g. interpretation and use of language and images in websites
- analyse ethical issues and legislation in industry
 - ethics in ICT in an industry context i.e. code of conduct
 - intellectual property i.e. patents, trade marks, registered designs.

Past and emerging trends in ICT

- analyse the impact of current and emerging trends on:
 - global market forces—international communications via video conferencing
 - lifestyle choices—remote access to work sites, flexible work hours
 - industry shop ‘face’—online presentation via web sites, cross web site advertising.

Hardware and software

Hardware components and functions

- identify and describe the components, concepts and terminology for the establishment of a small-scale networked computer hardware system
 - network topologies for LANs (star, wireless)
 - network devices (network interface card, switch, router, modem)
 - protocols (TCP/IP, HTTP, HTTPS, SMTP, WAP)
 - transmission media (coaxial, twisted pair, optical, wireless)
- describe the major factors affecting the functioning of ICT equipment within a networked environment e.g. transmission rates, bandwidth limitations
- knowledge of peripheral devices suited to selected industry requirements e.g. computer aided manufacturing (CAM) lathes and devices, high speed photography for movement analysis.

Applications and systems software

- explore skills and techniques required to use specialised application packages relevant to selected business/industry e.g. movement analysis software, business web sites, 3D modelling, business desktop publishing
- use techniques and skills to ensure smooth operation of software applications.

Design and acquisition of hardware and software

- compare and analyse similar software applications considering:
 - design
 - user interface
 - functions
 - technical capabilities
 - configuration
 - ease of use
- investigate the constraints associated with the acquisition and installation of a range of hardware components—video cards, monitors
- discuss the use of service level agreements and outsourcing to meet business or industry requirements.

Digital data and information

The nature, forms and transfer of digital data

- issues related to rapid transfer of large volumes of data e.g. streaming media, outside broadcasts:
 - consider the intended audience
 - discuss the technologies required to organise, process, download, upload and store the data
 - compare the associated factors and constraints in relation to data transference with reference to size, time, cost, resources, security, locality, access, and availability
- explore industry standard quality assurance processes related to data accuracy, reliability and validity.

Processing and managing data

- investigate how industry manages data including:
 - managing security concerns i.e. disaster recovery plan, biometrics
 - backup techniques and archiving of data
 - storage of data i.e. data warehouses, data mining and data marts
 - online data management e.g. call centres based in overseas countries.
- discuss the processing of industry data while considering:
 - bandwidth limitations of networks
 - compression of data files
 - encryption methods—data encryption keys digital signatures.

Creative application of information design principles

- apply information design principles in the creation and promotion of a corporate identity considering:
 - ICT solutions across a range of media to suit purpose and intended meaning
 - inclusivity
 - usability
 - currency and accuracy of data
 - evaluation of the effectiveness of the ICT solution against the design criteria.

Workplace, practices and careers

Careers, work and jobs

- discuss appropriate industry qualifications e.g. MCP, CCNA, CNE
- discuss the potential development of new skills and qualifications that arise from the rapid expansion of ICT and globalisation e.g. web design skills, database skills.

Work environments and legislation

- investigate changing work environments associated with a global economy e.g. international work opportunities, 'one job for life' theory, qualification recognition

- discuss relevant legislation affecting production in a global market e.g. visa restrictions, international copyright variations.

Technology processes in the workplace

- describe strategies to maintain employees' skill levels i.e. on the job training, short courses in relevant software skilling, power users
- consider project management strategies to encourage flexibility, originality and risk taking in ICT projects.

Assessment

The three types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Applied Information Technology course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 3	Type of assessment
20–30%	<p>Investigation</p> <p>Research work in which students plan, conduct and communicate an investigation.</p> <p>Investigation of ICT-related issues or cultural contexts, exploring a range of primary and secondary sources.</p> <p><i>Best suited to the collection of evidence of student achievement of Outcomes 1, 2 and 4.</i></p>
50–60%	<p>Production/performance</p> <p>Extended production project in which students explore ideas and control the processes required to manage the quality of production. Students engage in an activity or on-the-spot evaluation of a performance. This may be one large production/performance task or it may be two or more smaller tasks.</p> <p>Manage a range of production processes, evaluating and modifying them as necessary. Demonstrate an understanding of styles, structures, codes and conventions and the development of confidence and competence in the use of technologies, skills and processes in a range of contexts.</p> <p><i>Best suited to the collection of evidence of student achievement of Outcomes 1 and 3 and includes using a journal to show evidence of exploration and the development of ideas, reflection on learning processes and critical evaluation and modification of ideas.</i></p>
20–30%	<p>Response</p> <p>Students apply their knowledge and skills in analysing and responding to a series of stimuli or prompts.</p> <p>Response to, analysis and evaluation of own or professional information technology products.</p> <p>Types of evidence may include: observation checklists, journal and evaluation tools (self or peer).</p> <p><i>Best suited to the collection of evidence of student achievement of Outcomes 2 and 4.</i></p>