

**The Further Education and Training Awards Council (FETAC)
was set up as a statutory body on 11 June 2001
by the Minister for Education and Science.
Under the Qualifications (Education & Training) Act, 1999,
FETAC now has responsibility for making awards
previously made by FETAC.**



Module Descriptor

Information and Communication Systems

Level 5 B20145

September 2001

www.fetac.ie

Level 5 Module Descriptor

Summary of Contents

| | |
|--|---|
| Introduction | Describes how the module functions as part of the national vocational certificate framework. |
| Module Title | Indicates the module content. This title appears on the learner's certificate. It can be used to download the module from the website www.fetac.ie . |
| Module Code | An individual code is assigned to each module; a letter at the beginning denotes a vocational or general studies area under which the module is grouped and the first digit denotes its level within the national vocational certificate framework. |
| Level | Indicates where the module is placed in the national vocational certificate framework, from Level 3 to Level 6. |
| Credit Value | Denotes the amount of credit that a learner accumulates on achievement of the module. |
| Purpose | Describes in summary what the learner will achieve on successfully completing the module and in what learning and vocational contexts the module has been developed. Where relevant, it lists what certification will be awarded by other certification agencies. |
| Preferred Entry Level | Recommends the level of previous achievement or experience of the learner. |
| Special Requirements | Usually 'none' but in some cases detail is provided here of specific learner or course provider requirements. There may also be reference to the minimum safety or skill requirements that learners must achieve prior to assessment. |
| General Aims | Describe in 3-5 statements the broad skills and knowledge learners will have achieved on successful completion of the module. |
| Units | Structure the learning outcomes; there may be no units. |
| Specific Learning Outcomes | Describe in specific terms the knowledge and skills that learners will have achieved on successful completion of the module. |
| Portfolio of Assessment | Provides details on how the learning outcomes are to be assessed. |
| Grading | Provides details of the grading system used. |
| Individual Candidate Marking Sheets | List the assessment criteria for each assessment technique and the marking system. |
| Module Results Summary Sheet | Records the marks for each candidate in each assessment technique and in total. It is an important record for centres of their candidate's achievements. |
| Appendices | Can include approval forms for national governing bodies. |
| Glossary of Assessment Techniques | Explains the types of assessment techniques used to assess standards. |
| Assessment Principles | Describes the assessment principles that underpin FETAC approach to assessment. |

Introduction

A module is a statement of the standards to be achieved to gain an FETAC award. Candidates are assessed to establish whether they have achieved the required standards. Credit is awarded for each module successfully completed.

The standards in a module are expressed principally in terms of specific learning outcomes, i.e. what the learner will be able to do on successful completion of the module. The other elements of the module - the purpose, general aims, assessment details and assessment criteria - combine with the learning outcomes to state the standards in a holistic way.

While FETAC is responsible for setting the standards for certification in partnership with course providers and industry, it is the course providers who are responsible for the design of the learning programmes. The duration, content and delivery of learning programmes should be appropriate to the learners' needs and interests, and should enable the learners to reach the standard as described in the modules. Modules may be delivered alone or integrated with other modules.

The development of learners' **core skills** is a key objective of vocational education and training. The opportunity to develop these skills may arise through a single module or a range of modules. The core skills include:

- taking initiative
- taking responsibility for one's own learning and progress
- problem solving
- applying theoretical knowledge in practical contexts
- being numerate and literate
- having information and communication technology skills
- sourcing and organising information effectively
- listening effectively
- communicating orally and in writing
- working effectively in group situations
- understanding health and safety issues
- reflecting on and evaluating quality of own learning and achievement.

Course providers are encouraged to design programmes which enable learners to develop core skills.

| | | |
|----------|------------------------------|--|
| 1 | Module Title | Information and Communication Systems |
| 2 | Module Code | B20145 |
| 3 | Level | 5 |
| 4 | Credit Value | 1 credit |
| 5 | Purpose | <p>This module is a statement of the standards to be achieved to gain an FETAC credit in Information and Communications Systems at Level 5. The module is designed to be taken across a wide range of FETAC certificates.</p> <p>This module has been designed to enable the learner to operate effectively within an IT environment. The focus is on acquiring the theoretical knowledge underlying data processing and on developing the practical skills required for information processing.</p> <p>Course providers are responsible for the design of learning programmes which are consistent with the learning outcomes and appropriate to the learner's interests and needs.</p> |
| 6 | Preferred Entry Level | Level 4 Certificate, Leaving Certificate or equivalent qualifications and/or relevant life or work experience. |
| 7 | Special Requirements | None. |
| 8 | General Aims | <p><i>Learners who successfully complete this module will:</i></p> <p>8.1 appreciate the importance of information to organisations</p> <p>8.2 appreciate the importance and function of various items of hardware and software used in computer systems</p> <p>8.3 appreciate the growing impact of the internet on business and society</p> <p>8.4 recognise the changes in information technology on work practices and employment patterns.</p> |

9 Units The specific learning outcomes are grouped into 4 units.

Unit 1 Information Processing

Unit 2 Processing Tools

Unit 3 Data Processing

Unit 4 Data Communications

**10 Specific Learning
 Outcomes**

Unit 1 Information Processing

Learners should be able to:

10.1.1 distinguish between data and information

10.1.2 give examples of data and information

**10.1.3 describe attributes of information e.g. completeness, clarity,
conciseness, precision**

10.1.4 describe how data is processed into information

10.1.5 analyse the stages involved in various processing activities e.g.

- sales: from initial enquiry to final payment
- recruitment: from initial job specification to appointment
- wages: from time sheet to pay slip

**10.1.6 describe the importance of the following in relation to
information flows**

- comparison
- exception reporting
- feedback

**10.1.7 distinguish between operational, tactical and strategic
information**

**10.1.8 compare the benefits of acquiring information with the costs of
producing the information**

**10.1.9 describe the advantages of using computers in information
processing in terms of speed, storage of information,
consistency, accuracy and cost**

10.1.10 describe the following information systems

- personal system (PS)

- transaction processing system (TPS)
- management information system (MIS)
- decision support system (DSS)
- expert system (ES)

- 10.1.11** give an example of each of the following systems
- personal system (PS)
 - transaction processing system(TPS)
 - management information system (MIS)
 - decision support system (DSS)
 - expert system (ES)
- 10.1.12** distinguish between hard (quantitative) and soft (qualitative) information
- 10.1.13** give examples of hard information and soft information.

Unit 2 Processing Tools

Learners should be able to:

- 10.2.1** define the term hardware
- 10.2.2** define the term software
- 10.2.3** evaluate the main components of a computer processing system i.e. input, output, processing and backing store
- 10.2.4** identify the main features of a micro computer i.e. processor, clock speed, RAM, cache, storage capacity, monitor, graphics card, multimedia capabilities, internet access
- 10.2.5** distinguish between the various types of computer
- mainframe
 - mini
 - micro (desktop, notebook, palmtop)
- 10.2.6** evaluate the use of various input devices with reference to specific applications e.g.
- keyboard
 - mouse
 - touch sensitive screen
 - microphone (voice data entry)
 - scanner e.g. OCR, OMR, MICR and graphics
 - ATMs
 - smart cards
 - sensors e.g. alarms, climate control
- 10.2.7** evaluate the use of various output devices with reference to specific applications e.g.

- printers (impact and non impact)
- plotters
- monitors
- disks (magnetic and optical)
- speakers
- robotics
- effector e.g. alarm siren, climate control

- 10.2.8** identify the specifications of a range of information processing equipment e.g. fax, telephone, photocopier
- 10.2.9** identify the various components necessary for printers to function e.g. cables, consumables, printer drivers
- 10.2.10** identify the various backing store devices and their associated media e.g.
- magnetic disk drives
 - optical disk drives
- 10.2.11** distinguish between various backing store devices in terms of capacity and speed
- 10.2.12** give examples of where or when such backing store devices could or can be used
- 10.2.13** distinguish between systems and application software
- 10.2.14** describe the major functions carried out by an operating system e.g.
- providing the user interface
 - scheduling resources amongst users (mini/mainframe)
 - reporting errors to the user/operator
 - file handling/controlling access to data on storage devices
 - controlling operations of peripheral devices
 - running required software
 - memory management
- 10.2.15** evaluate software applications packages currently available
- 10.2.16** distinguish between off the shelf and custom software.

Unit 3 Data Processing

Learners should be able to:

- 10.3.1** define the following terms: field, record, file
- 10.3.2** explain the relative advantages of using fixed and variable length records

- 10.3.3** describe file organisation structures e.g. serial, sequential, index sequential, direct access
- 10.3.4** distinguish between static and dynamic data held on file
- 10.3.5** explain the different methods used to collect data: e.g. surveys, tele-surveys, scanners, sensors
- 10.3.6** create a data capture form
- 10.3.7** distinguish between data validation and data verification
- 10.3.8** describe at least two errors, which could be caught by means of data verification e.g. transposition errors, misspelling
- 10.3.9** describe at least six techniques commonly used for data validation purposes e.g. length, format, type
- 10.3.10** distinguish between single and multi-user environments
- 10.3.11** list the relative advantages and disadvantages of single and multi-user environments
- 10.3.12** explain the advantages and disadvantages of the following data processing methods: batch, on line, real time
- 10.3.13** differentiate between data security and data integrity
- 10.3.14** describe potential threats to data integrity e.g. virus, disgruntled employees, inaccurate data, fire, flood, acts of God, magnetic fields, unauthorised access
- 10.3.15** describe methods of securing data e.g. checking disk integrity, de-fragmenting disk, passwords, work practices, locks, environment, anti-virus software, insurance, backups, auditing, training
- 10.3.16** explain the importance of software copyright
- 10.3.17** distinguish between public and private databases
- 10.3.18** describe the rights and responsibilities detailed in current data protection legislation
- 10.3.19** recognise and avoid potential computer related dangers to health and safety, including those outlined in EU directives
- 10.3.20** describe ergonomic factors affecting design and use of computer facilities

10.3.21 identify the effects on work practices and employment patterns resulting from changes in information technology.

Unit 4 Data Communications

Learners should be able to:

10.4.1 explain the meaning of the terms: file server, dumb terminal, intelligent terminal, wide area network, local area network

10.4.2 explain the term world wide web (WWW)

10.4.3 explain the terms browser, search engine, URL, hyperlink, download, FTP, baud rate, ISP, PSP, HTML, home page

10.4.4 identify the requirements to connect to the internet i.e. a computer, a modem/terminal adaptor, a telephone line, internet software, an ISP account

10.4.5 differentiate between different types of PSP lines available for data communications e.g. standard telephone lines, leased lines, ISDN lines

10.4.6 describe the advantages and disadvantages of email over other communications systems

10.4.7 identify the main components of an e-mail address i.e. user name, domain name

10.4.8 describe the uses of newsgroups and discussion groups on the internet

10.4.9 describe the role of the internet in business e.g. marketing, sales, video conferencing, research

10.4.10 recognise and avoid potential dangers of the world wide web e.g.

- risk of credit card fraud
- spread of computer viruses
- spread of pornography
- distribution of unsolicited junk e-mail

10.4.11 describe the uses of intranets in business

10.4.12 list examples of content appropriate to intranets

10.4.13 use the internet to locate information on a specific topic

| | | | | | | | |
|------------------------------------|--|------------------------------------|------------|-------------------|------------|-----------------------------|------------|
| 10.4.14 | use e-mail to send, forward and receive messages, (including file attachments), to single and multiple recipients | | | | | | |
| 10.4.15 | set-up an e-mail address book for individuals and groups | | | | | | |
| 10.4.16 | import data from an application program. | | | | | | |
| 11 | <p>Portfolio of Assessment</p> <p>Please refer to the glossary of assessment techniques and the note on assessment principles at the end of this module descriptor.</p> <p>All assessment is carried out in accordance with FETAC regulations.</p> <p>Assessment is devised by the internal assessor, with external moderation by FETAC.</p> | | | | | | |
| Summary | <table> <tr> <td>Examination (Theory -Based)</td><td>40%</td></tr> <tr> <td>Assignment</td><td>30%</td></tr> <tr> <td>Skills Demonstration</td><td>30%</td></tr> </table> | Examination (Theory -Based) | 40% | Assignment | 30% | Skills Demonstration | 30% |
| Examination (Theory -Based) | 40% | | | | | | |
| Assignment | 30% | | | | | | |
| Skills Demonstration | 30% | | | | | | |
| 11.1 | <p>Examination</p> <p>The internal assessor will devise a theory-based examination that assesses candidates' ability to recall and apply theory and understanding, requiring responses to a range of short answer and structured questions. These questions may be answered in different media such as in writing or orally.</p> <p>The examination will be based on a range of specific learning outcomes and will be 2 hours in duration.</p> <p>The format of the examination will be as follows:</p> <p>Section A 12 short answer questions Candidates are required to answer 10 (2 marks each).</p> <p>Section B 3 structured questions Candidates are required to answer 2 (10 marks each).</p> | | | | | | |
| 11.2 | <p>Assignment</p> <p>The internal assessor will devise a brief that requires candidates to produce evidence that demonstrates an understanding and application of a range of specific learning outcomes.</p> <p>The brief will require candidates to investigate and analyse a topic(s) appropriate to information processing and data communications within the context of the candidates' vocational area e.g. processing tools, system security, teleworking.</p> | | | | | | |

Evidence will include reference to the impact of technology on society and business and/or work practices and employment patterns.

The assignment may be presented in a variety of media, for example written, audio, video, graphic, visual or any combination of these. Any audio or video evidence must be provided on tape.

11.3 Skills Demonstration

In one or more skills demonstrations, candidates will be assessed in each of the following skill areas:

- using the internet to locate and print specific information
- using email, sending single and multiple emails with attachments, creating an email address book
- creating a data capture form.

12 Grading

| | |
|-------------|-----------|
| Pass | 50 - 64% |
| Merit | 65 - 79% |
| Distinction | 80 - 100% |

| | | |
|---|--|---|
| Individual Candidate Marking Sheet 2 | | Information and Communication Systems B20145 Assignment 30% Skills Demonstration 30% |
|---|--|---|

Candidate Name: _____ **PPSN.:** _____

Centre: _____ **Centre No.:** _____

| Assessment Criteria | Maximum Mark | Candidate Mark |
|---|-------------------------|---------------------------|
| Assignment | | |
| • relevant information appropriately selected and organised | 6 | |
| • understanding and knowledge of information processing, processing tools and data communications clearly demonstrated | 6 | |
| • information interpreted accurately | 6 | |
| • comprehensive evaluation clearly demonstrated | 6 | |
| • information presented appropriately | 6 | |
| Subtotal | 30 | |
| Skills Demonstration | | |
| Use of the Internet | | |
| • understanding of process clearly demonstrated | | |
| • internet correctly accessed | | |
| • specific search achieved | | |
| • search results accurately printed | | |
| • tasks planned, organised and executed effectively and efficiently | 10 | |
| Use of Email | | |
| • understanding of process clearly demonstrated | | |
| • single and multiple emails accurately sent | | |
| • attachments accurately sent | | |
| • email address book appropriately created | 10 | |
| • tasks planned, organised and executed effectively and efficiently | | |
| Create a Data Capture Form | | |
| • understanding of process clearly demonstrated | | |
| • data capture form appropriately created | | |
| • presentation appropriate to use | 10 | |
| • labels appropriately named | | |
| Subtotal | 30 | |
| TOTAL MARKS | 60 | |
| <i>This mark should be transferred to the Module Results Summary Sheet</i> | | |

Internal Assessor's Signature: _____ **Date:** _____

External Authenticator's Signature: _____ **Date:** _____

| FETAC Module Results Summary Sheet | | | | | | | | | |
|------------------------------------|--|--|--|--|--|--|--|--|--|
|------------------------------------|--|--|--|--|--|--|--|--|--|

Module Title: Information and Communication Systems

Module Code: B20145

Assessment Marking Sheets

Mark Sheet

Mark Sheet
2

**Total
100%**

Grade*

Maximum Marks per Marking Sheet

40

60

Candidate Surname

Candidate Forename

[illegible][illegible][illegible][illegible][illegible]

Signed:

Internal Assessor: _____ *Date:* _____

This sheet is for internal assessors to record the overall marks of individual candidates. It should be retained in the centre. The marks awarded should be transferred to the official FETAC Module Results Sheet issued to centres before the visit of the external Authenticator.

Grade*

D: 80 - 100%

M: 65 - 79%

P: 50 - 64%

U: 0 - 49%

W: candidates entered who did not present for assessment

Glossary of Assessment Techniques

| | |
|---------------------------|---|
| Assignment | <p><i>An exercise carried out in response to a brief with specific guidelines and usually of short duration.</i></p> <p>Each assignment is based on a brief provided by the internal assessor. The brief includes specific guidelines for candidates. The assignment is carried out over a period of time specified by the internal assessor.</p> <p>Assignments may be specified as an oral presentation, case study, observations, or have a detailed title such as audition piece, health fitness plan or vocational area profile.</p> |
| Collection of Work | <p><i>A collection and/or selection of pieces of work produced by candidates over a period of time that demonstrates the mastery of skills.</i></p> <p>Using guidelines provided by the internal assessor, candidates compile a collection of their own work. The collection of work demonstrates evidence of a range of specific learning outcomes or skills. The evidence may be produced in a range of conditions, such as in the learning environment, in a role play exercise, or in real-life/work situations.</p> <p>This body of work may be self-generated rather than carried out in response to a specific assignment eg art work, engineering work etc.</p> |
| Examination | <p><i>A means of assessing a candidate's ability to recall and apply skills, knowledge and understanding within a set period of time (time constrained) and under clearly specified conditions.</i></p> <p>Examinations may be:</p> <ul style="list-style-type: none">• practical, assessing the mastery of specified practical skills demonstrated in a set period of time under restricted conditions• oral, testing ability to speak effectively in the vernacular or other languages• interview-style, assessing learning through verbal questioning, on one-to-one/group basis• aural, testing listening and interpretation skills• theory-based, assessing the candidate's ability to recall and apply theory, requiring responses to a range of question types, such as objective, short answer, structured, essay. These questions may be answered in different media such as in writing, orally etc. |
| Learner Record | <p><i>A self-reported record by an individual, in which he/she describes specific learning experiences, activities, responses, skills acquired.</i></p> <p>Candidates compile a personal logbook/journal/diary/daily diary/record/laboratory notebook/sketch book.</p> <p>The logbook/journal/diary/daily diary/record/laboratory notebook/sketch book should cover specified aspects of the learner's experience.</p> |

Project

A substantial individual or group response to a brief with guidelines, usually carried out over a period of time.

Projects may involve:

- research – requiring individual/group investigation of a topic
- process – eg design, performance, production of an artefact/event

Projects will be based on a brief provided by the internal assessor or negotiated by the candidate with the internal assessor. The brief will include broad guidelines for the candidate. The work will be carried out over a specified period of time.

Projects may be undertaken as a group or collaborative project, however the individual contribution of each candidate must be clearly identified.

The project will enable the candidate to demonstrate: (*some of these – about 2-4*)

- understanding and application of concepts in (specify area)
- use/selection of relevant research/survey techniques, sources of information, referencing, bibliography
- ability to analyse, evaluate, draw conclusions, make recommendations
- understanding of process/planning implementation and review skills/ planning and time management skills
- ability to implement/produce/make/construct/perform
- mastery of tools and techniques
- design/creativity/problem-solving/evaluation skills
- presentation/display skills
- team working/co-operation/participation skills.

Skills

Demonstration

Assessment of mastery of specified practical, organisational and/or interpersonal skills.

These skills are assessed at any time throughout the learning process by the internal assessor/another qualified person in the centre for whom the candidate undertakes relevant tasks.

The skills may be demonstrated in a range of conditions, such as in the learning environment, in a role-play exercise, or in a real-life/work situations.

The candidate may submit a written report/supporting documentation as part of the assessment.

Examples of skills: laboratory skills, computer skills, coaching skills, interpersonal skills.

FETAC Assessment Principles

- 1 Assessment is regarded as an integral part of the learning process.
- 2 All FETAC assessment is criterion referenced. Each assessment technique has **assessment criteria** which detail the range of marks to be awarded for specific standards of knowledge, skills and competence demonstrated by candidates.
- 3 The mode of assessment is generally local i.e. the assessment techniques are devised and implemented by internal assessors in centres.
- 4 Assessment techniques in FETAC modules are valid in that they test a range of appropriate learning outcomes.
- 5 The reliability of assessment techniques is facilitated by providing support for assessors.
- 6 Arising from an extensive consultation process, each FETAC module describes what is considered to be an optimum approach to assessment. When the necessary procedures are in place, it will be possible for assessors to use other forms of assessment, provided they are demonstrated to be valid and reliable.
- 7 To enable all learners to demonstrate that they have reached the required standard, candidate evidence may be submitted in written, oral, visual, multimedia or other format as appropriate to the learning outcomes.
- 8 Assessment of a number of modules may be integrated, provided the separate criteria for each module are met.
- 9 Group or team work may form part of the assessment of a module, provided each candidate's achievement is separately assessed.

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