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 NCVA.

Module Descriptor

Computer Aided Design - 3D Design

Level 6 L32698

www.fetac.ie

Level 6 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**	**Computer Aided Design - 3D Design**
2	**Module Code**	**L32698**
3	**Level**	**6**
4	**Credit Value**	**1 credit**
5	**Purpose**	This module is a statement of the standards to be achieved to gain a FETAC credit in CAD – 3D Design at Level 6. It is designed to enhance the skills of those who have already achieved an award in 2D CAD in preparation for direct entry into the workplace in the architectural and / or engineering sectors.
6	**Preferred Entry Level**	Level 5 Certificate, Leaving Certificate or equivalent qualifications and/or relevant life and work experiences.
7	**Special Requirements**	None.

8 General Aims

Learners who successfully complete this module will:

8.1	achieve competence in the use of 3D CAD software within the office environment
8.2	fully utilise wire frame construction in the production of 3D form.
8.3	use 3D faces in the construction of 3D drawings of buildings
8.4	develop a range of skills to achieve complex form as presented within a building project
8.5	understand the role of the expert practitioner as part of the design team
8.6	use a number of media in the presentation of a design project
8.7	give clear guidelines on the presentation of a project

9 Units

The specific learning outcomes are grouped into 2 units.

Unit 1	**Technical Skills**
Unit 2	**Management Process**

10 Specific Learning Outcomes

Unit 1 **Technical Skills**

Learners should be able to:

10.1.1	understand the file formats used by a variety of CAD applications
10.1.2	understand the relevance of first and third angle projection
10.1.3	construct entitles on a number of planes
10.1.4	raise a 2D drawing file to 3D
10.1.5	use wire frame construction appropriately
10.1.6	fully utilise the printing environment to produce hard copy of drawing files
10.1.7	use shade and hidden line removal in presentation of drawings
10.1.8	present a number of views in hard copy
10.1.9	use scanners and other hardware to produce finished renderings
10.1.10	incorporate different media in the production of a finished 3D drawing

Unit 2 **Management Process**

Learners should be able to:

10.2.1	create a presentation of a project
10.2.2	identify the skills required to manage the presentation of a project
10.2.3	design a workflow diagram to take project to completion
10.2.4	assign tasks to others using the workflow diagram
10.2.5	supervise the work of an individual or a group
10.2.6	produce a range of 3D drawings
10.2.7	evaluate the performance of a task
10.2.8	ensure that suitable outcomes are achieved through meetings and critiques
10.2.9	participate in presentation to clients

11 Portfolio of Assessment

Summary	**Assignments (2)**	**50%**
	Project	**50%**

11.1 Assignments

The internal assessor will devise **two** briefs that require the candidate to produce evidence that demonstrates an understanding and application of a range of learning outcomes.

Assignment 1: Relates to application and evaluation of techniques learned in Unit 1. Evidence presented will include:

- a drawing environment set up
- a 3D drawing of a building
- use of a variety of techniques to present an electronic 3D model of a building
- landscaping as appropriate
- critique and report
- presentation

Assignment 2: Relates to application and evaluation of techniques learned in Unit 1. Evidence presented will include:

- examples of wire frame construction
- use of wire frame construction in the design process
- conceptualisation of form
- design of an object from a range of given subjects
- critique and report
- presentation of design ideas

11.2 Project

The internal assessor will devise a project brief that requires candidates to demonstrate their ability to use 3D CAD, solve problems and to see a project through to completion. Candidates will carry out the project in the workplace or through work simulation.
The brief will use the broad range of specific learning outcomes gained through Unit 1 and will focus on the specific learning outcomes of Unit 2.

Evidence presented will include:

- a report showing the identification of the skills required to carry out the project
- a workflow diagram to take the project to completion
- assignment of tasks to others in the workflow diagram
- supervision of other(s)
- evaluation of performance
- specified number of 3D drawings relevant to the project
- evidence of evaluation meetings / critiques
- presentation to clients.

12 Grading

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

Individual Candidate Marking Sheet 1	Computer Aided Design - 3D Design L32698 Assignments 50 %

Candidate Name: _____ **PPSN:** _____

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

Assessment Criteria	Maximum Mark	Candidate Mark
Assignment 1 Drawing environment set up as appropriate to working office	3	
3D drawing of building – produced to specification	10	
Use of appropriate variety and mix of drawing techniques	7	
Evaluation and report	5	
Subtotal	**25**	
Assignment 2 Examples of wireframe construction – 5 drawings	5	
3D modification of 2D drawings – 5 drawings	5	
Use of wireframe construction in the design process	2	
Conceptualisation of form	3	
Object designed from a given range of subjects	5	
Critical evaluation and report	3	
Presentation of design ideas	2	
Subtotal	**25**	
TOTAL MARKS *This mark should be transferred to the Module Results Summary Sheet*		

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

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

Individual Candidate Marking Sheet 2	Computer Aided Design - 3D Design L32698 Project 50 %

Candidate Name: _____ **PPSN:** _____

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

Assessment Criteria	Maximum Mark	Candidate Mark
Documentation of the analysis of the project brief Report identifying the project skills required	10	
Workflow diagram – shows full extent of project, including assignment of tasks to others	10	
Supervision of the work of another(s) Evaluate the performance of a task 3D drawings produced to specification and standard of accuracy and presentation	15	
Meeting minutes and written critiques showing developmental evaluation of project work	15	
TOTAL MARKS *This mark should be transferred to the Module Results Summary Sheet*	**50**	

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

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

FETAC Module Results Summary Sheet

Module Title: **Computer Aided Design - 3D Design**

Module Code: **L32698**

Assessment Marking Sheets	Mark Sheet 1	Mark Sheet 2	Total Marks	Grade*
Maximum Marks per Marking Sheet	50	50	100	

Candidate Surname	*Candidate Forename*				

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

An exercise carried out in response to a brief with specific guidelines and usually of short duration.

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.

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.

Collection of Work

A collection and/or selection of pieces of work produced by candidates over a period of time that demonstrates the mastery of skills.

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.

This body of work may be self-generated rather than carried out in response to a specific assignment eg art work, engineering work etc.

Examination

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.

Examinations may be:

- 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

A self-reported record by an individual, in which he/she describes specific learning experiences, activities, responses, skills acquired.

Candidates compile a personal logbook/journal/diary/daily diary/ record/laboratory notebook/sketch book.
The logbook/journal/diary/daily diary/record/laboratory notebook/sketch book should cover specified aspects of the learner's experience.

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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