

Foreword

General National Vocational Qualifications (GNVQs) have been designed to provide a broad education as a basis for further training, further and higher education or for moving into employment. This is achieved by ensuring that students develop the general skills, knowledge and understanding that underpin a range of occupations or professions. Foundation GNVQs are part of the level 1 provision in the National Framework of Qualifications.

The specifications have been approved by ACCAC for use by centres in Wales and by CCEA for use by centres in Northern Ireland.

General information

Students in Wales or Northern Ireland should not be disadvantaged by terms, legislation or aspects of government organisation that are different from those in England.

Where the content of the units refers only to England, students in Wales and Northern Ireland should have their learning focused on content specific to their country.

Centres interested in offering GNVQs through the medium of Welsh or Irish should contact their regional office (details below) who will be pleased to offer advice.

Welsh Regional Office
Manager Edexcel Wales
42 Lambourne Crescent
Cardiff Business Park
Llanishen
Cardiff CS4 5GG
Tel: 02920 689 911
Fax: 02920 689 933
E-mail: cardiff@edexcel.org.uk

Edexcel in Ireland
Belfast Regional Office
Regional Manager
Forestview
Purdy's Lane
Newtonbreda
Belfast BT8 4ZX
Tel: 01232 642 086
Fax: 01232 647 715
E-mail: belfast@edexcel.org.uk

Qualification structure

The 6-unit Foundation GNVQ consists of:

- three compulsory units
- three optional units.

Compulsory units

The compulsory units have a broad focus providing the student with a general understanding of the sector as a whole.

Optional units

The optional units introduce a more specialised vocational focus and the opportunity to broaden the skills and knowledge already gained from the compulsory units.

The optional units can improve the opportunities available to students to progress to further education, employment or training.

The Edexcel Foundation GNVQ has a set of optional units that are unique to Edexcel.

The optional units may be chosen from the compulsory or optional units from any vocational area. This gives students the opportunity to sample several areas.

Apart from the availability of units at any particular centre, the only other restriction would be that no two units with similar titles from different vocational areas may be chosen.

Equivalence

The 6-unit Foundation GNVQ is designed to be of a standard equivalent to 4 GCSEs at grades D to G.

Access

Edexcel's policy concerning access to our qualifications is that:

- qualifications must be available to anyone who is capable of reaching the required standard
- qualifications must be free from barriers that restrict access and progression
- equal opportunities exist for all students.

It is, however, the responsibility of centres to recruit with integrity and centres should:

- provide applicants with information and advice on the course and its associated assessment
- identify specific needs
- select on the basis of each applicant's previous qualifications and experience.

Students who would benefit most from the Foundation GNVQs are likely to have one or more of the following:

- an Entry level qualification
- a standard of literacy and numeracy equivalent to GCSE grades D to G
- some related work experience.

Accreditation of prior learning (evidence from past achievement)

In assessing students, centres should be mindful that students may present evidence from past experience/learning which is still current. The centre assessor should match the evidence with the specifications, and if all the requirements have been met then the student should be given the credit, and accreditation can take place.

Please refer to the Edexcel Publication *Accreditation of Prior Learning (APL)*, published June 1990 – order code 80-092-0 and available from Edexcel Publications (see page 9).

Unit structure

Each GNVQ unit is made up of a number of sections. Some are directed at the student, others at the teacher. The sections are:

About this unit

This provides an introduction to the content of the unit, its relationship to other units in the qualification and progression routes. It also states the form of assessment for the unit.

What you need to learn

This states what students need to know and be able to do to achieve the unit.

Assessment evidence

This is the evidence the student must produce to achieve a unit.

This section states the form and general content of students' evidence, for example, this could be, a report, an information pack, or the outcomes from an investigation.

Students must produce the evidence stated in the assessment evidence. It must fulfil the requirements as stated in the grade criteria. The criteria for merit and distinction focus on improving the quality of the evidence, not producing more evidence.

Essential information for teachers

This suggests delivery and assessment strategies for the unit, associated resources and guidance on integrating the Key Skills, including the Wider Key Skills.

The guidance also highlights where appropriate how cultural, moral, social and ethical issues could be addressed within unit delivery. Environmental, European and health and safety issues are also identified.

Assessment

Assessment is focused on the unit. For each unit there is only **one method of assessment** either a portfolio of evidence or an external assessment.

Moderation

The standard of internally assessed portfolios will be checked through a moderation programme. This is explained in detail in the section *Moderation of portfolio units* (see page 6) and will take place after the centre's own internal modification.

External Assessments

External assessments will be set, marked and graded by Edexcel.

One third of the compulsory and optional units will normally be externally assessed, except for the areas of IT, Media, Art & Design and Performing Arts where the requirement is 25%. The external tests will assess the essential skills, knowledge and understanding associated with that unit.

The time allocated to the external assessment will depend on the form the assessment takes, which may be one of the following:

- performance tasks
- practical activities
- structured tests
- case studies
- research activities and associated assignments
- set assignments.

Where the external assessment requires it, students will be allowed to use specialist resources. Any such requirement will be specified by Edexcel in advance. The total mark gained for the assessment will determine the student's grade for that unit.

There will normally be two opportunities each year for student's to take the external assessments, in January and in June.

Re-sit Regulations

Re-sit regulations will be sent to centres before the start of the course.

Grading

Each unit contains its own set of grading criteria, contextualised to the unit content. Units are graded according to those criteria.

This means that a student will either achieve a fail (below pass), pass, merit or distinction grade for every unit.

Within the units there is guidance to show centres how vocational and Key Skills achievement can be successfully combined. The guidance identifies ‘keys to attainment’ and ‘signposting’.

Keys to attainment are identified Key Skills or aspects of Key Skills that are central to vocational achievement. If the student has met the indicated vocational requirements of the unit, the keys to attainment show that the relevant aspect of the Key Skills will also have been achieved.

Signposting indicates naturally occurring opportunities for the development of Key Skills during teaching, learning and assessment. Students will not necessarily achieve the signposted Key Skill through the related vocational evidence.

Aspects of Key Skills are indicated at the end of each unit, sometimes as ‘key to attainment’ (K) and sometimes as ‘signposts’ (S).

Wider Key Skills

Within the units there are also opportunities for students to achieve Wider Key Skills. These are:

- Working With Others
- Improving Own Learning and Performance
- Problem Solving.

These are identified at the end of each unit.

Nesting

GNVQ Foundation units have been designed so that they can be delivered together with associated GNVQ Intermediate units. This concept is known as nesting.

Nesting offers many advantages to students and centres, for example:

- smaller groups can be taught together. However there will have to be additional sessions to allow Intermediate students to gain greater breadth and depth
- it helps with initial assessment of borderline students so that decisions concerning the specific level offered to the student can be delayed
- it allows a fast-track to Intermediate level. The majority of the nesting is within the compulsory units as the optional units are more specialised
- it aids progression for less confident students. They will be progressing to a programme where they are already familiar with some of the content.

Appeals

Every Edexcel centre must have an appeals procedure that is known to staff and students. Students have the opportunity to appeal against assessment decisions made either by the centre or by Edexcel relating to:

- work assessed by the centre
- work assessed by Edexcel.

Centres responsible for local assessment decisions are required to have appropriate appeals and counselling procedures in place. Edexcel is available to offer advice and act as an impartial observer or moderator when requested to do so by students and/or centres.

If, after thorough local procedures have been undertaken, a student still feels that an inappropriate decision has been reached, then the student may appeal directly to Edexcel. In such cases, Edexcel will contact the head of centre concerned to request a full report.

All appeals to Edexcel must be accompanied by supporting evidence, which must be relevant to the grounds on which the decision in question was made.

Appeals to Edexcel should be submitted to the Edexcel Compliance and Regulation Unit who will determine the appropriate procedure for the appeal. This will normally involve an Appeals Review Panel.

Special arrangements

Students with special requirements may require additional support, for example technical aids or specially devised or adapted methods of assessment, with additional time allowed if necessary.

Edexcel will comply with the regulations for assessment in GNVQs as described in the Joint Council of National Vocational Awarding Bodies document *Provision for Candidates with Particular Requirements (Special Assessment Needs) 1998/9* or the equivalent updated document. Centres are advised to obtain copies of the current document from Edexcel.

In accordance with the published guidelines, Edexcel is happy to assess whether special considerations or concessions can be made for students with particular requirements. Requests should be addressed to:

Special Requirements
Edexcel Foundation
Stewart House
32 Russell Square
London WC1B 5DN

Centre/teacher support

There is a full range of support material designed for each GNVQ including:

- specimen tests
- exemplar grading materials
- sample materials for delivering the units
- sample materials for assessing the units.

Edexcel delivers a full INSET programme to underpin the GNVQs. This may take the form of subject-specific conferences, seminars, or tailor-made events for individual centres. Details of these are updated annually and sent to centres.

Edexcel has regional offices which support centres with subject-specific advice, visits, and a curriculum planning service.

Further information concerning INSET and regional offices can be obtained from the Edexcel Customer Response Centre on 020 7393 4500.

Our publications can be obtained from:

Edexcel Publications

Adamsway

Mansfield

NG18 4LN

Tel: 01623 467 467

Fax: 01623 450 481

E-mail: publications@maillin.co.uk

Aims

The Foundation GNVQ in Engineering is designed to provide opportunities for students to develop skills, knowledge and understanding relating to engineering, and to learn about the principles and processes that underpin the design and manufacture of engineered products, systems and services and put them into practice within an engineering context

The specific aims of the Foundation GNVQ in Engineering are:

- to enable students to investigate a range of areas within the engineering industry
- to provide students with knowledge, understanding and skills required for future employment/training in broad engineering sector
- to enable students to be aware of the progression routes within the National Qualifications Framework
- to stimulate and sustain students' interest in and enjoyment of the vocational area
- to provide an appropriate course for students wishing to enter employment in engineering or continue with further education.

Objectives

The Foundation GNVQ in Engineering provides students with the ability:

- to know and understand the engineering industry appropriate to level 1 of the National Qualifications Framework
- to acquire further knowledge by practical application in realistic work situations
- to use imaginative and critical thinking in applying knowledge to engineering situations and problems.

National provision

The Foundation GNVQ in Engineering contributes to the quality and coherence of provision nationally by:

- providing students with the knowledge, understanding and skills appropriate to level 1 required for future employment in the engineering industry
- enabling progression within the National Qualifications Framework
- providing a unique opportunity for students to follow the national curriculum programme of study for Design and Technology at KS4 in an applied way.

The distinctive characteristics of the Edexcel Foundation GNVQ in Engineering are to:

- take account of industry's needs
- encourage progression
- provide scope for students to focus on a desired engineering discipline
- provide a practical focus
- enable students to develop essential transferable skills for employment
- address the requirements of individual students
- provide support through the provision of tutor support material.

Recommended prior learning/attainment/experience

Students who would benefit most from a Foundation GNVQ in Engineering are likely to have one or more of the following:

- an Entry qualification
- a standard of literacy and numeracy which would enable achievement
- work experience in engineering or in a manufacturing industry.

Structure and content of Foundation GNVQ in Engineering

To achieve the Foundation GNVQ in Engineering students must successfully complete all 3 compulsory units and 3 optional units from the choice provided.

Compulsory unit numbers and titles

Unit number	Unit title
1	Design & graphical communication
2	Application of new technology in engineering
3	Make engineered products

Optional unit numbers and titles

Unit number	Unit title
4	Applied science & mathematics for engineering
5	Introduction to automation in engineering
6	Application of computers in engineering
7	Servicing & maintenance in engineering
8	Health & safety in engineering
9	Preparing for Employment
10	Working as a part of a team

Assessment

Assessment is focused on the unit. For each unit there is only one method of assessment, a portfolio of evidence or an external assessment, which will be set and marked by Edexcel.

One third of the Intermediate GNVQ in Engineering is externally assessed including both the compulsory and optional units. The following units are externally assessed:

Unit number	Unit title
1	Design & graphical communication
4	Applied science & mathematics for engineering

This GNVQ contains only one optional unit that carries external assessment, which makes it in essence compulsory. This has been agreed because Unit 4: Applied science and mathematics for engineering provides the essential tool kit of techniques and principles needed for study in other compulsory and optional units, and to help to ensure that the students can progress to other levels

Progression

The 6-unit Foundation GNVQ in Engineering award is equivalent to four GCSEs at grades D to G.

The Foundation GNVQ in Engineering facilitates progression for students in the following ways:

- optional units that offer a vocational focus and ease progression into employment in the engineering industry
- access to occupational standards at the same or next level
- nesting with units in the Intermediate GNVQ in Engineering that ease progression from one level to another
- assessment strategies common with the Intermediate GNVQ in Engineering and with other Intermediate GNVQs in related areas (eg Manufacturing) that ease progression from one level to another
- an opportunity to achieve key skills that enable successful students to be better prepared to match their skills to further education, training and employment
- progression to the next stage of general qualifications within the national framework, for example BTEC First Diploma in Engineering.

Links with other qualifications

The broad nature of the engineering sector means that there are links across to several other qualifications. There is no restriction on multiple entry with GCSE or certificate of achievement courses which are complementary and address common content in a different context. The Foundation GNVQ course acts as an acceptable introduction to some of the ideas that will be covered.

GCSE Design and Technology has a general overlap through the study of the designing and making process to the compulsory units: Design & graphical communication and Make engineered products.

Links with other GNVQ's: there are several common units within the Foundation GNVQs: Preparing for employment health and safety and Working as part of a team are common to all Foundation GNVQs

The Foundation GNVQ in Engineering also shares common links to Foundation GNVQ in Manufacturing through the unit content as follows:

Engineering Foundation Unit 1: Design & graphical communication with manufacturing
Unit 2: Working with a design brief, Unit 2: Application of new technology in engineering with manufacturing, Unit 1: Application of new technology in manufacturing, Unit 3: Make engineered products with manufacturing Unit 3: Manufacturing products, Unit 5: Introduction to automation in engineering with manufacturing Unit 9: Introduction to automation in manufacturing, Unit 6: Application of computers in engineering with manufacturing Unit 8: Application of computers in manufacturing, Unit 7: Servicing and maintenance in engineering with manufacturing Unit 7: Servicing and maintenance in manufacturing.

The Foundation GNVQ in Engineering BTEC First Certificate and Diplomas offer the opportunity to develop the particular areas of the Foundation GNVQ course to a greater depth, whilst NVQs offer the opportunity for further occupational qualification for students who have moved into employment. In both cases, the Foundation GNVQ in Engineering acts as an acceptable introduction to some of the subject areas

Nesting

Several of the units for the Foundation and Intermediate GNVQs in Engineering have been written with a common focus for their content. With appropriate planning they could be co-taught. However assessment requirements are slightly different, and students transferring from one level to another would need to provide different assessment evidence

Nested unit titles at both levels are:

- Design & graphical communications
- Application of new technology in engineering
- Make engineered products
- Applied science & mathematics for engineering.

Relationships with national occupational standards

The Foundation GNVQ in Engineering has links with the following S/NVQs:

- Performing Engineering Operations level 1
- Vehicle Maintenance and Repair level 2

The links are detailed in every relevant unit.

Links with industry

The Foundation GNVQ in Engineering has been developed in consultation with the industry to ensure that students are able to progress into employment.

It is strongly recommended that centres form strong links with the industry when delivering this qualification. This can be in the form of, for example, secondment into the industry for teachers, work experience/shadowing for students, guest speakers, visits and using material produced by a range of organisations. The Neighbourhood Engineers Programme will be able to provide local support and contacts with industry Other initiatives which may provide assistance include Young Engineers, co-ordinated by SATROs, and Opening Windows on Engineering, run by The Engineering Council

Other issues

The Foundation GNVQ in Engineering takes account of moral, social, spiritual and cultural considerations when designing products.

Product design and product quality issues take account of and use, a wide range of cultural influences and practice.

The Foundation GNVQ in engineering encourages environmental awareness, health education and an understanding of the European dimension.

Health and safety is highlighted throughout the qualification as a major area of concern within engineering.

Issues of spiritual, moral, ethical, social and cultural awareness are reflected within the following units:

Unit 1: Design & graphical communication

Unit 2: Application of new technology in engineering

Unit 9: Preparing for employment

Unit 10: Working as part of a team

Environmental issues, health and safety considerations and European developments consistent with relevant international agreements are reflected within the following units:

Unit 1: Design & graphical communication

Unit 3: Make engineered products

Unit 8: Health and Safety in engineering

Unit 7: Servicing and maintenance in engineering

Glossary

These are the working definitions of key terms used in the Foundation GNVQ in Engineering.

Engineered product – the result of a planned electrical/electronic, mechanical or, most often, electro-mechanical engineering activity to produce products or components to specification. Key to the term engineered product is the understanding that the finished product will meet the specification. It should be functional, fit for its intended purpose and serve the needs of the client.

Engineering information – technical details, often quoted in a specification, relating to factors such as materials, finish, tolerances, processes or equipment involved in manufacturing an engineered product or service. These details may be communicated in oral, graphical or written form.

Engineering service – the application of engineering principles to install, maintain or repair engineered products to a state of effective and efficient functionality, usually in accordance with a specification.

Specification – a detailed statement of technical information required to produce an engineered product or perform an engineering service. This information will reflect both the requirements of the client and the constraints of production or of installation/maintenance. A specification may be communicated in written or graphical form and may form an important element of a contract. It may refer to factors such as the purpose, timing, materials, processes, quality, and cost of an engineering service, or the function, materials, processes, quality, tolerances, finish, quantity, measurements and cost of an engineered product.

Customer – it should be noted that the customer is not necessarily external to the organisation, nor the end-user of the product. S/he may come from another department within the organisation or may be another manufacturer.

Record – an account (written or recorded in other form which can be scrutinised) of the activity which is being assessed. The form and content of the record will vary according to the nature of the element. For example, the record could be in tabular form, a series of prose statements, a check-list and so on.

Design Brief – instructions from the customer, outlining requirements for function, performance, aesthetics, cost, quality, etc. The design brief represents the first stage of the product's design and development, and forms the basis of the future development on design proposals, solutions and product specifications.

Report – a finished piece of work which brings together the ideas and information that the student has researched and investigated for the unit. In producing her/his report, the student will need to: consider carefully what material to include; sequence the material in a way that is appropriate to the purpose and the audience; use examples to illustrate general points; and express the report with due care and attention. The form in which the report is presented will vary depending on the nature of the unit. For example, it could be written, oral, or in a table form.

UNIT 1: DESIGN & GRAPHICAL COMMUNICATION (FOUNDATION)

ABOUT THIS UNIT

Engineers are often asked by the customer to provide ideas to help solve engineering problems. The customer presents the engineering problem in the form of a design brief. The engineer then provides an answer. This answer is called a design solution.

In this unit you will suggest ideas to solve an engineering problem. In other words, you will develop a design solution to a customer's design brief. As part of the design process you will learn to:

- consider the important features of the customer's design brief
- suggest design solutions in draft form
- present your chosen design solution using drawings.

To help you understand the design brief and present your final design solution, you will also learn to read and to produce engineering drawings. Engineering drawings are used to show the technical details of electrical and mechanical products.

You will have the opportunity to develop and produce evidence for Key Skills at Level 1 in Application of Number, Communication, Information Technology, Problem Solving.

The unit links with the Foundation Unit 3: Make engineered products (Foundation), through the understanding of materials and their production methods. It also links with Unit 1: Design & graphical communication (Intermediate).

This unit will be assessed only through an external assessment. The grade you achieve in this assessment will be your grade for this unit.

WHAT YOU NEED TO LEARN

Design brief

A design brief will ask you to think of ways to solve a customer's problem. Before you start to produce an answer (a design solution), you must understand what your customer needs. You must be able to pick out the important features in a design brief. These important features are particular design needs that the customer has asked you to think about when you offer a design solution.

You must learn to identify the following important requirements in the design brief:

- function – what the product is used for, what the product does
- constraints – factors that limit the design in some way, including the expected quality of the product and the overall cost of producing the product
- size – the approximate size in three dimensions.

KEY SKILLS MAPPING

Compulsory units

Key Skill Criteria	Communication			Information Technology			Application of Number					Working with Others			Improving Own Learning and Performance			Problem Solving		
	1.1	1.2	1.3	1.1	1.2	1.3	1.1	1.2a	1.2b	1.2c	1.3	1.1	1.2	1.3	1.1	1.2	1.3	1.1	1.2	1.3
Unit																				
1	S	S	S	S	S		S	S			S							S	S	S
2	S	K	K	K								S	S	S	S	S	S			
3		K		K				K	K	S		S	S	S				S	S	S

Key: S = Signposting

K = Keys to attainment