
National 5 Skills for Work Energy Course Specification (C258 75)

Valid from August 2013

This edition, August 2018, version 3.0

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Course outline

Course title: National 5 Skills for Work Energy

SCQF credit points: (24 SCQF credit points)

Course code: C258 75

This course has 3.5 units that are mandatory and a 0.5 unit which is taken from three 0.5 optional units.

Mandatory units

The course comprises the following mandatory units:

| | | |
|----------------|---|-----------------------------|
| J12W 75 | Energy: An Introduction | 6 SCQF credit points |
| J12Y 75 | Energy: Domestic Wind Turbine Systems | 6 SCQF credit points |
| J130 75 | Energy: Domestic Solar Hot Water Systems | 6 SCQF credit points |
| J12X 75 | Energy: Employability and Careers | 3 SCQF credit points |

Optional units

The course comprises the following optional units:

A choice of one from the following options:

| | | |
|----------------|---|-----------------------------|
| J131 75 | Energy and the Individual | 3 SCQF credit points |
| J133 75 | Energy: Oil/Gas Extraction | 3 SCQF credit points |
| J132 75 | Energy: Conventional Technologies and the Grid | 3 SCQF credit points |

To achieve the course award, the learner must successfully achieve all the mandatory units and one of the optional units.

Recommended entry

Entry is at the discretion of the centre.

Progression

This course, or its units, may provide progression to:

- ◆ National Progression Award
- ◆ a National Certificate programme in Further Education
- ◆ training/employment

Core Skills

Achievement of this course gives automatic certification of the following Core Skills component:

| | |
|----------------------|--|
| Complete Core Skill | Working with Others at SCQF level 4 |
| Core Skill component | Critical Thinking at SCQF level 4 Planning and Organising at SCQF level 4 Working Co-operatively with Others at SCQF level 4 |

There are also opportunities to develop aspects of Core Skills which are highlighted in the support notes of the unit specifications.

Links to National Occupational Standards

National Occupational Standards (NOS) are developed by the key employment sectors of the United Kingdom. These standards set the competences required for job roles within a particular employment sector.

The NOS for the energy sector (eg Occupational and Functional Map of the UK Renewable Energy Sector) reflect common requirements in the demonstration of competences across that sector.

Some of these competences, which are identified in the current NOS, are reflected to varying degrees in this course. For example:

- ◆ General engineering skills.
- ◆ A combination of integrated electrical installation and plumbing skills.
- ◆ Mechanical skills.

Additionally, other generic skills included in the NOS are reflected throughout the course including:

- ◆ Communication skills.
- ◆ Using IT to exchange information.
- ◆ Team working skills.
- ◆ Ability to learn.
- ◆ Ability to follow instructions.
- ◆ Organising own learning and development.

Further details are provided in the 'Rationale' section.

Equality and inclusion

This Course Arrangements Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Common rationale for Skills for Work Courses

Skills for Work Courses are designed to help learners to develop:

- ◆ Skills and knowledge in a broad vocational area.
- ◆ Skills for learning, skills for life and skills for work.
- ◆ Core Skills.
- ◆ An understanding of the workplace.
- ◆ Positive attitudes to learning.
- ◆ Skills and attitudes for employability.

A key feature of these courses is the emphasis on *experiential learning*. This means learning through practical experience and learning by reflecting on experience.

Learning through practical experience

Teaching/learning programmes should include some or all of the following:

- ◆ Learning in real or simulated workplace settings.
- ◆ Learning through role play activities in vocational contexts.
- ◆ Carrying out case study work.
- ◆ Planning and carrying out practical tasks and assignments.

Learning through reflecting at all stages of the experience

Teaching/learning programmes should include some or all of the following:

- ◆ Preparing and planning for the experience.
- ◆ Taking stock throughout the experience, reviewing and adapting as necessary.
- ◆ Reflecting after the activity has been completed, evaluating and identifying learning points.

The Skills for Work courses are also designed to provide learners with opportunities for developing *Core Skills*, and *Skills for Learning*, *Skills for Life* and *Skills for Work* with a focus on enhancing skills and attitudes for *employability*.

Core Skills

The five Core Skills are:

- ◆ Communication
- ◆ Numeracy
- ◆ Information and Communication Technology (ICT)
- ◆ Problem Solving
- ◆ Working with Others

Employability

The skills and attitudes for employability, including self-employment, are outlined below:

- ◆ Generic skills/attitudes valued by employers.
- ◆ Understanding of the workplace and the employee's responsibilities, for example, timekeeping, appearance, customer care, etc.
- ◆ Self-evaluation skills.
- ◆ Positive attitude to learning.
- ◆ Flexible approaches to solving problems.
- ◆ Adaptability and positive attitude to change.
- ◆ Confidence to set goals, reflect and learn from experience.
- ◆ Specific vocational skills/knowledge.

Course specifications highlight the links to NOS in the vocational area and identify progression opportunities.

Opportunities for developing these skills and attitudes are highlighted in each of the course and unit specifications. These opportunities include giving young people direct access to workplace experiences or, through partnership arrangements, providing different learning environments and experiences which simulate aspects of the workplace. These experiences might include visits, visiting speakers, role play and other practical activities.

A Curriculum for Excellence (Scottish Executive 2004) identifies aspirations for every young person. These are that they should become:

- ◆ successful learners
- ◆ confident individuals
- ◆ responsible citizens
- ◆ effective contributors

The learning environments, the focus on experiential learning and the opportunities to develop employability, Skills for Learning, Skills for Life, Skills for Work and Core Skills in these courses contribute to meeting these aspirations.

Course rationale for National 5 Skills for Work Energy

All new and revised National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

In this course, and its component units, there will be an emphasis on skills development and the application of those skills. Assessment approaches will be proportionate, fit for purpose and will promote best practice, enabling learners to achieve the highest standards they can.

This Skills for Work course is also designed to provide learners with opportunities for developing Core Skills and Skills for Learning, Skills for Life and Skills for Work, with a strong focus on enhancing skills and attitudes for employability.

This course is intended to equip learners with the necessary knowledge and skills which will enhance their prospects for employment in the wide range of opportunities within energy sectors. The course will allow learners to develop a range of employability skills which are of particular relevance to energy industries. Core Skills of Information and Communication Technology and Problem Solving will also be developed throughout the course where opportunities arise. The course will offer a variety of approaches to learning and teaching and will include a strong element of experiential learning. It is intended that some of the course will be delivered and assessed in a different learning environment to that of the school through a partnership arrangement with a college, training provider, or employer.

There are many technologies used in the production of energy and this course has been designed to contain both an electrical generation practical/skills element using wind turbines and a heat generation practical/skills element using solar panels. These elements were selected to ensure learners receive a range of skills using different technologies that are involved in the generation of energy. Other systems used to generate energy from both the traditional/conventional and renewable systems will be discussed and evaluated during the course.

The general aims of the course are to:

- ◆ Widen participation in vocationally-related learning for 14–16 year olds.
- ◆ Allow learners to experience vocationally-related learning.
- ◆ Provide learners with a broad introduction to the energy sector.
- ◆ Allow learners the opportunity to develop skills relevant to the microgeneration energy sector.
- ◆ Develop the learners' engineering skills.
- ◆ Encourage learners to evaluate the impact of energy generation on the environment.
- ◆ Encourage learners to foster a good work ethic, including timekeeping, a positive attitude and other relevant employability skills.
- ◆ Provide opportunities to develop a range of core skills in a realistic context.
- ◆ Encourage learners to take charge of their own learning and development.
- ◆ Provide a range of teaching, learning, and assessment styles to motivate learners to achieve their full potential.
- ◆ Facilitate progression to further education and/or training.

In particular, the aims of the course are to:

- ◆ Encourage learners to consider a career in the energy sector.
- ◆ Develop an awareness of the role of conventional and renewable energy systems in the UK.
- ◆ Develop an awareness of what opportunities there may be within the sector in terms of the types and range of career options.
- ◆ Provide learners with knowledge and skills which are directly relevant to employment within the energy sector, eg solar hot water and wind turbines.
- ◆ Provide opportunities for the personal development of skills and attitudes that will improve the learners' employment potential within the energy sector.
- ◆ Develop the learners' awareness of their individual strengths and weaknesses in relation to the requirements of the sector, and to reflect on how this affects their employability potential.
- ◆ Raise awareness of the impact of the energy sector on the environment.
- ◆ Raise awareness of the responsibilities of the energy industry with regard to the environment.

Purposes and aims of the course

The general aims of the course are to:

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- ◆ Allow learners to experience vocationally-related learning.
- ◆ Provide learners with a broad introduction to the energy sector.
- ◆ Allow learners the opportunity to develop skills relevant to the microgeneration energy sector.
- ◆ Develop the learners' engineering skills.
- ◆ Encourage learners to evaluate the impact of energy generation on the environment.
- ◆ Encourage learners to foster a good work ethic, including timekeeping, a positive attitude and other relevant employability skills.
- ◆ Provide opportunities to develop a range of core skills in a realistic context.
- ◆ Encourage learners to take charge of their own learning and development.
- ◆ Provide a range of teaching, learning, and assessment styles to motivate learners to achieve their full potential.
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In particular, the aims of the course are to:

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- ◆ Develop an awareness of what opportunities there may be within the sector in terms of the types and range of career options.
- ◆ Provide learners with knowledge and skills that are directly relevant to employment within the energy sector, eg solar hot water and wind turbines.
- ◆ Provide opportunities for the personal development of skills and attitudes that will improve the learners' employment potential within the energy sector.
- ◆ Develop the learners' awareness of their individual strengths and weaknesses in relation to the requirements of the sector, and to reflect on how this affects their employability potential.
- ◆ Raise awareness of the impact of the energy sector on the environment.
- ◆ Raise awareness of the responsibilities of the energy industry with regard to the environment.

Information about typical learners who might do the course

The primary target group for this course is school learners in S3 and S4. However, the course is also suitable for S5/S6 learners and adult learners who are seeking to enhance their employability and vocational skills in the energy sector.

Course structure and conditions of award

Summary of course content

Learners will explore a variety and range of industries and career opportunities which exist within the energy sector. Learners will become familiar with key words and terms used in the sector, and will develop an awareness of the impact of the energy sector on the environment and individual lives. Personal development of employability skills will be the main focus across the course with each unit aiming to enhance such skills. The development of teamwork and practical skills and carrying out test procedures are also given high profile.

The mandatory units in this course introduce the various energy industries based in the UK, develop practical skills by building a small scale solar hot water system and wind turbine, and learners will also review their employability skills and evaluate their strengths and weaknesses. There is an opportunity to specialise in one subject area by selecting one of the three optional units, ie analyse their own carbon footprint or develop a deeper knowledge of oil and gas production in the North Sea or develop further knowledge on the conventional energy generation systems used in the UK.

Summary of unit content

Units are statements of standards for assessment and not programmes of learning and teaching. They can be delivered in a variety of ways; however Skills for Work units are designed to provide an experiential learning process.

Energy: An Introduction (National 5) — Mandatory

The aim of the unit is to provide learners with an overview of where we get our energy from, the engineering systems that convert it into a more convenient form, and the energy conversion processes that take place from fuel being input to energy being generated.

It gives a broad overview of traditional and renewable energy systems, energy conservation and includes an evaluation of an industrial or domestic energy generation facility. Investigation and presentation skills are developed in this unit.

Energy: Domestic Solar Hot Water Systems (National 5) — Mandatory

The unit introduces a microgeneration system which generates heat from solar energy and transfers this heat energy to a heat exchanger and on to other appliances, eg hot water tank or under-floor heating system suitable for use in a domestic or small scale industrial building. This is a practical skills based unit which gives students the practical skills to manufacture some of the parts and assemble a small solar hot water panel through team working which is seen as an essential element in this unit.

Energy: Domestic Wind Turbine Systems (National 5) — Mandatory

This unit introduces residential or microgeneration wind turbine systems which generate electrical energy. This is a practical skills based unit which will give students the ability to wire up an electrical circuit, manufacture parts, assemble, and test a small scale wind turbine. The learners will use prepared components to build the turbine. Team working is seen as an essential element in this unit.

Energy: Employability and Careers (National 5) — Mandatory

Learners will review their performance in the employability skills undertaken in significant practical activities in the units throughout the course and evaluate their own strengths and weaknesses. It will also involve students investigating careers and job roles within the energy sector.

Energy and the Individual (National 5) — Optional

Learners will investigate the energy they use over an average year. This will include producing their own carbon footprint. From the data gained, they will review and evaluate their lifestyles to try and reduce the energy they consume and thereby reduce the size of their carbon emissions/footprint. Presentation skills will also be developed in this unit.

Energy: Oil/Gas Extraction (National 5) — Optional

Learners will be introduced to the formation of oil and gas fields and the sustainability of these fields, and the type of platform construction used on offshore installations. The methods used to extract oil and gas including drilling, mud, and fluid control will also be investigated.

Energy: Conventional Technologies and the Grid (National 5) — Optional

Learners will investigate how conventional energy generation plants support the UK's total energy needs and review the effect each of them has on the environment. They will investigate systems used to generate electricity using coal, oil, gas, hydro, and nuclear energy as a power source. The national grid and the distribution of energy/power will be investigated from both present, and projected, future needs.

Conditions of award

To achieve the award of National 5 Skills for Work Energy, learners must achieve all the required units as outlined in the course outline. They will be assessed pass/fail within centres. Skills for Work Courses are not graded.

Assessment

Assessment objectives

The aim of the assessment in this course is to provide opportunities to gather evidence of development in:

- ◆ practical skills
- ◆ review and evaluation skills
- ◆ investigation skills
- ◆ knowledge and understanding

Unit assessment

The assessment of the units in this course will be as follows:

| Unit title | Assessment |
|--|---|
| Mandatory units | |
| <i>Energy: An Introduction</i> (National 5) | outcome 1, outcome 2 and outcome 3 — investigation outcome 4 — group presentation |
| <i>Energy: Domestic Solar Hot Water Systems</i> (National 5) | outcome 1 individual practical exercises outcome 2 and outcome 3 — teamwork practical exercise outcome 4 — presentation |
| <i>Domestic Wind Turbine Systems</i> (National 5) | outcome 1 and outcome 2 — individual practical exercises outcome 3 and outcome 4 — teamwork practical exercise outcome 5 — presentation |
| <i>Energy: Employability and Careers</i> (National 5) | outcome 1 — review and evaluation outcome 2 — presentation |

| Unit title | Assessment |
|---|---|
| Optional units | |
| <i>Energy and the Individual</i> (National 5) | outcome 1 and outcome 2 — investigation outcome 3 — presentation |
| <i>Energy: Oil/Gas Extraction</i> (National 5) | outcome 1 and outcome 2 — investigation outcome 3 — presentation |
| <i>Energy: Conventional Production Technologies and the Grid</i> (National 5) | outcome 1 and outcome 2 — investigation outcome 3 — presentation |

It is the intention that the necessary skills and attitudes being developed in this course are assessed through the learners' involvement in a range of practical activities, however, there are also elements of knowledge and understanding which are important. An important element in the assessment process will be the ability of the learner to review progress and development throughout the course. Where possible, assessment should reflect current workplace practice, whether demonstrated through work placement, or simulated environments.

Unit assessment

Further details about unit assessment for this course can be found in the unit specifications and the assessment support materials.

Exemplification of possible assessment approaches for these units will be provided in the assessment support pack.

Quality assurance

All instruments of assessment used within this course should be internally verified, using the appropriate policy within the centre and the guidelines set by SQA.

External verification will be carried out by SQA to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external verification can be found in *SQA's Guide to Assessment* (www.sqa.org.uk/GuideToAssessment).

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this course. The skills that learners will be expected to improve on and develop through the course are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the course where there are appropriate opportunities.

1 Literacy

- 1.1 Reading
- 1.2 Writing
- 1.3 Listening and talking

3 Health and Wellbeing

- 3.1 Personal learning
- 3.2 Emotional wellbeing
- 3.4 Planning for, and making, choices and changes

4 Employability, enterprise and citizenship

- 4.1 Employability
- 4.3 Working with others
- 4.4 Enterprise

5 Thinking Skills

- 5.1 Remembering
- 5.2 Understanding
- 5.3 Applying
- 5.4 Analysing and evaluating
- 5.5 Creating

Amplification of these skills is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills will be appropriate to the level of the course.

Employability skills profile

In addition to the specific vocational skills developed and assessed in this course, employability skills are addressed as detailed in the table below. For the purposes of the table, the units are referred to as A, B, C and D as indicated.

| | |
|--|-----|
| Energy: Introduction — mandatory | = A |
| Energy: Domestic Solar Hot Water Systems — mandatory | = B |
| Domestic Energy Systems: Wind Turbine Systems — mandatory | = C |
| Energy: Employability and Careers — mandatory | = D |
| Energy and the Individual — optional | = E |
| Energy: Oil/Gas Extraction — optional | = F |
| Energy: Conventional Production Technologies and the Grid — optional | = G |

| Employability skill/attitude | Evidence |
|--|-------------------|
| ◆ Maintaining good timekeeping and attendance | A, B, C, D, E/F/G |
| ◆ Maintaining a tidy workplace | B, C |
| ◆ Seeking feedback and advice | A, B, C, D, E/F/G |
| ◆ Following instructions | B, C |
| ◆ Working co-operatively with others | A, B, C |
| ◆ Selecting and using tools correctly and for the purpose they were designed | B, C |
| ◆ Using Personal Protective Equipment correctly and working safely | A, B, C |
| ◆ Following basic drawings correctly | B, C |
| ◆ Checking quality of work | A, B, C, D, E/F/G |
| ◆ Working to agreed deadlines | A, B, C, D, E/F/G |
| ◆ Organising work effectively | A, B, C, D, E/F/G |
| ◆ Working confidently | A, B, C, D, E/F/G |
| ◆ Willingness to learn new skills or techniques | B, C |
| ◆ Working independently | A, B, C, D, E/F/G |
| ◆ Reflecting on own performance | B, C |
| ◆ Learning from past experiences | B, C |
| ◆ Awareness of a range of careers and job roles | D |
| ◆ Developing investigation skills | A, D, E/F/G |
| ◆ Developing presentation skills | A, B, C, D, E/F/G |
| ◆ Developing creativity skills | A, B, C, D, E/F/G |

Assessment evidence in all units:

Learner folio of performance and product evidence in response to a given brief, supported by assessor checklists.

Course support notes

Course support notes are not mandatory; they provide advice and guidance on approaches to delivering and assessing the Skills for Work course. They are intended for teachers and lecturers who are delivering the course and its units.

Guidance on approaches to delivery and assessment for this course

Centres should ensure that an induction to the course is given which will enable learners to understand fully what is required and the approaches to be adopted. It is important that employability skills, both generic and specific to the energy industries, are stressed at this time.

Sequencing/integration of units

While the sequence of delivery of the units is for individual centres to decide, it is recommended that *Energy: An Introduction* (National 5) unit is offered first. This unit sets the scene for the other units to be delivered in the context of the energy sector and the energy people use. All teachers, lecturers and assessors involved in the delivery and assessment of this course should have an appreciation of the nature and content of the whole course. This is particularly important in the delivery of the *Energy: Employability and Careers* (National 5) unit. It is intended that the evidence requirements for this unit will be drawn from the other units in the course.

Guidance on approaches to delivery

The course has been designed to ensure that learners learn through practical experiences where possible. The main focus in each of the skills specific units is on practical work. General vocational skills, such as selecting and maintaining tools and equipment, are integrated with practical engineering activities within the units.

Energy: An Introduction (National 5) includes practical lab work where learners will gain a greater understanding of the principles of energy conversion and how we can generate more useful forms of energy that can be used in a range of energy production processes.

Learners should be encouraged to investigate energy related topics, including careers, within the energy sector, and the effect energy production has on the environment or climate change.

Health and safety is integral to all practical tasks and should be emphasised at the start of, and throughout, each lesson. Brief lessons on workshop protocol should also be included at the start of the practical units and at appropriate points during these units.

Teaching and learning approaches will include demonstrations of practical work by tutors. Short lessons on specific aspects of industrial practice and the correct use of tools will prove invaluable at intervals throughout the learning experience. These may be followed by brief practical sessions in which the learners practise the skill emphasised by the demonstration. Given the practical nature of teaching/learning and assessment, centres should ensure that teaching blocks are of sufficient time to allow a meaningful experience for learners.

Reflecting on practical experiences and learning from them is an approach that is embedded in the course. Throughout the learning experiences, the emphasis should be on helping learners to develop an awareness of the employability skills and attitudes needed for the energy industry, for example, good timekeeping, co-operating with others, team working,

taking instructions, and a positive attitude to learning. Opportunities to develop these skills and attitudes arise naturally in the work during the course. Learners should be aware that these generic skills are just as important as the practical skills they are developing. For example, it is important for workshop activities to be carried out to effective schedules; learners will have opportunities to demonstrate good timekeeping in the context of these schedules. Learners will have to co-operate with others regarding shared workspace, tools and equipment. They will have to co-operate and communicate regarding the transfer of materials, tools, and equipment safely around and across the workshop. Learners will be encouraged to develop a positive attitude to reducing waste and reduce their impact on the environment with regard to the use of materials and the consumption of energy.

Teaching and learning approaches should encourage learners to take responsibility for their own learning and development. In the practical units of the course, learners need to carry out quality checks on their own work. This provides a good opportunity to motivate learners to take pride in their work. The integration of employability skills, in particular self-evaluation skills, will allow learners to take responsibility for seeking feedback and identifying action points for improvement in their own performance. This should help to develop confidence in taking advice and in asking for direction and assistance where necessary.

Investigations are used throughout this course and lecturing staff should encourage learners to use as many methods as possible to gain the information they need. Apart from the teaching notes provided, learners should make full use of the internet, journals (online and paper-based), books, national and local papers, friends or family who have knowledge or experience of the energy sector, site visits, practical demonstrations, and experimentation.

Presentations are also frequently used in this course. Learners should be encouraged to use their creativity skills to develop a range of skills in presenting information, this could include a talk, flipcharts, whiteboard (electronic), computer software, practical demonstrations, digital pictures, video clips (using a mobile phone or camcorder).

Teaching staff should emphasise the need for learners to try and develop their own ideas to solve problems or issues; these can then be used as points for discussion. Giving learners the solution should not be seen as the first option. Learners should be encouraged to play an active part in their own learning by discussing their views and thoughts on the technologies being used, the environment, careers and personal preferences with peers and teaching staff.

Guidance on approaches to assessment

Throughout the course, the need for correct preparation for practical activities should be stressed. However, such preparation should not take excessive time to complete. Teaching correct skills practice, effective and safe use of tools and equipment, and a positive view of health and safety should help to ensure that preparation for practical work is comprehensive.

Learners will require supervision during practical work — both on a skills level and for health and safety reasons. The learning environment should be designed to minimise risks and provide a safe context for carrying out tasks. For example, when undertaking the task of soldering, learners should be made aware of the risk from heat and fumes to themselves and others.

It is recommended that each practical session be preceded by a ‘tool box’ talk on an aspect of health and safety relevant to the work in hand. It is recommended that learners be given regular but short practice sessions in the correct and safe working principles of the materials to be used in each session, as well as coaching in the correct use of associated tools and equipment.

Centres are encouraged to establish links with local industry. Local engineering companies, trades associations, Sector Skills Councils (SSCs) and Engineering or Energy Institutes may be prepared to offer support, for example, in the form of visits from representatives of their organisations. Visitors from the energy industry will be able to give learners a realistic view of jobs and conditions within the energy sector.

Centres should try and arrange a visit to an energy generation facility as part of the learners' learning experience and assessment. Visits to local sites are often particularly useful to give learners a feel for the environment, equipment, and staff working and using energy generation systems.

Site visits should be carefully arranged, organised and authorised. Due regard should be placed on insurance arrangements, necessary when taking students on these visits, particularly when going on to industrial sites.

Teaching and learning approaches should impart enthusiasm and help to inform learners of realistic prospects in the energy industries. They should become aware of steps to employment or further training. Through their experiences of the various practical skills and knowledge of various energy systems in the course, they should become better equipped to make valid personal choices regarding careers and further study.

A holistic approach to the course delivery and assessment should be adopted. The types of energy generation methods and plant/systems contained within the *Energy: An Introduction* (National 5) unit should form the basis of the practical units *Energy: Domestic Wind Turbine Systems* (National 5) and *Energy: Domestic Solar Hot Water Systems* (National 5). *Energy: Employability and Careers* (National 5) unit should be central to the whole course and delivered alongside the other units.

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this course. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the evidence requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core Skills

Learners will be encouraged to learn through practical activity with workshop skills, and practical lab work, forming a main type of delivery. The development of Core Skills and employability skills should be uppermost in the minds of those considering how to plan lessons. Learners should be encouraged to accept responsibility for learning and ownership of the review and self-evaluation process. The *Energy: Employability and Careers* (National 5) unit, in particular, will actively encourage learners to analyse their strengths and weaknesses with regard to the employability skills identified within the course units and review their own performance through self-reflection and self-evaluation. Tasks involving investigations into energy systems and the effects these energy systems have on individuals or the environment should be incorporated throughout the course. This approach will encourage development in the use of information technology as a tool for information gathering and analysis, independent working, and investigation skills.

Opportunities to develop aspects of Core Skills should be used where they arise naturally. For example, in order to carry out activities in a workshop environment, learners will develop aspects of numeracy when making calculations and taking measurements. They will also have to communicate simple science/engineering/construction terms with tutors and fellow learners regarding skills practices, materials and tools, health and safety, and working together in the workplace. They will have to work in a team during the practical units; it is important that they realise what the positive attitudes are to ensure good team working dynamics. Aspects of Problem Solving will arise through their participation in practical work.

This course gives automatic certification of Working with Others at SCQF level 4, Critical Thinking at SCQF level 4, and Planning and Organising at SCQF level 4.

General information for learners

The National 5 Skills for Work Energy course is an introduction to the various energy industries based in the UK. You will also develop practical skills by building a small scale solar hot water system and wind turbine, review your employability skills and evaluate your own strengths and weaknesses.

There is an opportunity to specialise in one subject area by selecting one of the three specialist areas to study:

- ◆ analyse your own carbon footprint
- ◆ develop a deeper knowledge of oil and gas production in the North Sea
- ◆ develop further knowledge on the conventional energy generation systems used in the UK

The primary target group for this course is school learners in S3 and S4. However, it is also suitable if you are an S5/S6 learner, or an adult learner wanting to increase employability and vocational skills in the energy sector.

Once you have finished this course, you may progress to:

- ◆ a National Progression Award
- ◆ a National Certificate programme in Further Education
- ◆ training/employment

Administrative information

Published: October 2018 (version 3.0)

History of changes to national course specification

| Version | Description of change | Date |
|---------|---|--------------|
| 2.0 | 2013 — course re-coded as part of CfE development programme but no change to course and unit content. | August 2013 |
| 3.0 | Course specification moved to a new template. No change to content. Units re-coded to align with corresponding course 2 code. | October 2018 |
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