



National 3
Course
Specification



National 3 Practical Experiences: Construction and Engineering Skills for Work Course Specification

Valid from August 2013

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Please refer to the note of changes at the end of this Course Specification for details of changes from previous version (where applicable).

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History of changes to Course Specification

Version	Description	Date
02	2013 - Course re-coded as part of CfE development programme but no change to Course and Unit content.	August 2013

National Course Specification

National 3 Practical Experiences: Construction and Engineering

COURSE CODE **C240 73**

COURSE STRUCTURE

This Course has three mandatory Units.

The mandatory Units are:

<i>DX 15 09</i>	<i>Practical Experiences in Construction</i>	<i>1 credit</i>	<i>(40 hours)</i>
<i>DX16 09</i>	<i>Practical Experiences in Engineering</i>	<i>1 credit</i>	<i>(40 hours)</i>
<i>DX17 09</i>	<i>Developing Employability Skills in Construction and Engineering</i>	<i>1 credit</i>	<i>(40 hours)</i>

To achieve the Course award the candidate must successfully achieve all the Units which make up the Course.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

PROGRESSION

This Course or its Units may provide progression to:

- ◆ National 4 Courses and Intermediate 1 Units in Construction or Engineering
- ◆ Scottish Vocational Qualifications in Construction and Engineering areas
- ◆ further education
- ◆ training or employment

Administrative Information

Publication date: August 2013

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National Course Specification: (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

CREDIT VALUE

The National 3 Course in Practical Experiences: Construction and Engineering is allocated 18 SCQF credit points at SCQF level 3*.

**SCQF points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills or Core Skills components in this Course.

Opportunities for developing aspects of Core Skills are highlighted in the Support Notes of the Unit Specifications for this Course.

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.

This Course has no direct links to NOS but provides a progression pathway to other Courses which may have these links.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

RATIONALE FOR SKILLS FOR WORK COURSES

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

- ◆ skills and knowledge in a broad vocational area
- ◆ 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 candidates with opportunities for developing *Core Skills* and enhancing skills and attitudes for *employability*.

CORE SKILLS

The **five** Core Skills are:

- ◆ Communication
- ◆ Numeracy
- ◆ Information Technology
- ◆ Problem Solving
- ◆ Working with Others

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

Opportunities for developing these skills are highlighted in the Unit Specifications for this Course.

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 time-keeping, appearance, customer care
 - 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 National Occupational Standards 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 opportunities to develop employability and Core Skills in these Courses contribute to meeting these aspirations.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

RATIONALE FOR NATIONAL 3 PRACTICAL EXPERIENCES: CONSTRUCTION AND ENGINEERING COURSE

The *National 3 Practical Experiences: Construction and Engineering course* has been designed to provide a basis for progression into further education or training. In some cases candidates may progress to employment at a semi-skilled level (assisting tradespeople) within the construction or engineering sector. The purpose of the Course is to ensure that candidates start to understand the range of employment opportunities and job roles within these broad sectors. The candidates will also develop some of the basic generic practical skills and introductory knowledge and understanding necessary to enhance employment opportunities.

The primary target group for this Course is school candidates in S3 and above. It is anticipated that, for this group of candidates, the Course will rely on and build on existing partnerships between schools and colleges and employers (or other agencies). This is particularly important for allowing candidates access to a range of different learning environments. Nevertheless, the *National 3 Practical Experiences: Construction and Engineering course* is designed at a level and scope such that it can be delivered in schools, if the school has suitable facilities and teaching expertise. The Course is also suitable for adult candidates who are seeking to enhance their employability and develop basic vocational skills in the construction and engineering sectors.

The general aims of the *National 3 Practical Experiences: Construction and Engineering course* are to:

- ◆ widen participation in vocationally-related learning for 14–16 year olds
- ◆ allow candidates to experience vocationally-related learning
- ◆ provide candidates with a broad introduction to the range of employment opportunities and job roles in the construction and engineering vocational sectors
- ◆ encourage candidates to develop a good work ethic, including timekeeping, a positive attitude and other relevant employability skills
- ◆ allow candidates to understand the importance of teamworking in the Construction and Engineering sectors
- ◆ provide opportunities to develop a range of Core Skills in a realistic context
- ◆ encourage candidates to take charge of their own learning and development
- ◆ provide a range of teaching, learning and assessment styles to motivate candidates to achieve their full potential at this level
- ◆ facilitate progression to further education and/or training

In particular, the aims of this Course are to:

- ◆ build candidates' confidence in their ability to operate in a working environment
- ◆ encourage candidates to consider a career in the construction and engineering industries
- ◆ develop an awareness of what employment opportunities there may be within construction and engineering in terms of the types and range of career options
- ◆ enable candidates to develop and apply basic practical, technical and communication skills as a foundation for future learning and progression
- ◆ develop the candidates' awareness of their individual strengths and weaknesses in relation to the requirements of construction and engineering, and to reflect on how this affects their employability potential
- ◆ give candidates basic technical knowledge, skills and understanding associated with a limited range of craft skills in construction and engineering at this level

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

- ◆ encourage candidates to apply their knowledge and understanding of construction and engineering by using basic skills of evaluation and problem-solving in a vocational context
- ◆ develop an awareness that health and safety issues are integral to the world of work generally and to construction and engineering in particular
- ◆ encourage candidates to plan their work and review their progress
- ◆ encourage candidates to develop a positive attitude to waste minimisation and environmental issues
- ◆ prepare candidates for further learning opportunities, study and training for employment at a semi-skilled level (assisting trades people) in construction, engineering or related occupations

The *National 3 Practical Experiences: Construction and Engineering* course requires no formal entrance qualifications although it would be expected that suitable candidates would have a desire to explore the opportunities and skills that apply within these sectors.

This Course supports progression into appropriate further education, training or employment at a semi-skilled level (assisting trades people). The Course provides the basis for candidates to gain an understanding of employability in construction and engineering occupational areas such as building, joinery, painting, mechanical, fabrication and electrical, and to use their studies to help them decide the career path they may wish to follow.

Therefore candidates successfully completing this National 3 Course may wish to:

- ◆ progress to a relevant Intermediate 1 Skills for Work Course
- ◆ progress to a preparatory Course in Further Education
- ◆ seek employment at a semi-skilled level

Embarking on this pathway may eventually lead to a craft apprenticeship in industry where candidates might undertake a relevant SVQ.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

COURSE CONTENT

Summary of Course content

This Course has three mandatory 40-hour Units. The practical Units should be integrated with the *Access 3 Developing Employability Skills in Construction and Engineering* Unit so that the range of career choices and employability skills related to specific skills in the Construction and Engineering industry are addressed.

Both the construction and engineering practical Units, while focusing on basic craft skill areas, also address some basic generic skills related to:

- ◆ confidence
- ◆ technical communication
- ◆ materials
- ◆ measurement
- ◆ Core Skills

The employability skills identified as important in the Construction and Engineering sectors are:

- ◆ maintaining good timekeeping
- ◆ maintaining good attendance
- ◆ maintaining a tidy workplace
- ◆ following instructions
- ◆ seeking advice
- ◆ showing health and safety awareness
- ◆ wearing appropriate personal protective clothing
- ◆ preparing appropriately to carry out tasks
- ◆ checking own work, with support

Summary of Unit content

Practical Experiences in Construction (Access 3) (1 credit)

Candidates will select and use the basic tools, equipment and materials associated with construction at an introductory level, leading to various practical activities and the manufacture of an artefact. The candidate will learn basic construction terminology and skills.

Practical Experiences in Engineering (Access 3) (1 credit)

Candidates will select and use the basic tools, equipment and materials associated with engineering at an introductory level, leading to various practical activities and the manufacture of an artefact. The candidate will learn basic engineering terminology and skills.

Developing Employability Skills in Construction and Engineering (Access 3) (1 credit)

Candidates will explore the range of employment opportunities, career paths and job roles in the construction and engineering industries, and develop work practices and attitudes that will enhance their employability skills. They will also regularly review and evaluate these skills.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

ASSESSMENT

To achieve the Course award the candidate must successfully achieve all the Units which make up the Course.

Assessment objectives

Assessment across the Units in this Course will primarily test practical skills but will also address the range of employment opportunities and job roles, basic technical knowledge and understanding associated with those skills in construction and engineering at Access 3. In particular, assessment will focus on:

- ◆ practical vocational skills
- ◆ skills for employment in a construction and engineering context

Unit assessment

In the Units, which focus on the development of specific craft skills, the assessment involves a range of practical activities which will produce evidence for all the Outcomes. The evidence will be confirmed by the use of an assessor checklist, which will cover:

- ◆ the appropriate use of tools, materials and equipment
- ◆ successful involvement in the completion of a range of practical activities
- ◆ the successful completion of an artefact
- ◆ use of simple drawings or specifications
- ◆ quality checking of their work by the candidate
- ◆ adhering to the health and safety aspects of working in a workshop environment

The assessment of the *Access 3 Developing Employability Skills in Construction and Engineering Unit* should be integrated with the assessment of the practical Units and is based on the completion of a candidate review sheet on four different occasions throughout the Course. This review allows the candidate to record development in employability skills in the context of different practical activities.

Evidence of knowledge and understanding of the range of roles in the sectors will be gathered through oral/written questioning throughout the Course in the context of practical activities. This will be recorded in an assessor checklist.

Further details about Unit assessment for this Course can be found in the Unit Specifications and the National Assessment Bank (NAB) materials.

QUALITY ASSURANCE

The Units of all National Courses are subject to internal verification and may also be chosen for external verification by SQA. This is to ensure that national standards are being applied across all subjects.

To assist centres, Senior Verifier reports are published on SQA's website www.sqa.org.uk

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

GUIDANCE ON LEARNING/TEACHING AND ASSESSMENT APPROACHES FOR THIS COURSE

The Course has three mandatory Units which offer a range of different construction, engineering and employability experiences.

The *Access 3 Developing Employability Skills in Construction and Engineering Unit* should span the Course, allowing candidates ample opportunity to develop and review employability skills and attitudes over a range of construction and engineering practical activities and over a reasonable period of time. The course should also allow candidates to explore the range of employment opportunities and job roles related to the construction and engineering industries. There is no prescribed order of delivery for the Construction or Engineering Units and it is at the centre's discretion whether the Units are delivered sequentially or concurrently.

Learning and Teaching

The Course has been designed to ensure that candidates learn through practical experiences. The main focus in each of the skills Units is on practical work. General vocational skills, such as selecting and maintaining tools and equipment, are integrated with practical activities within the Units. As well as carrying out practical tasks, candidates will also learn from brief lessons on health and safety and workshop protocol. Teaching and learning approaches will also include demonstrations of practical work by teachers/lecturers. 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 candidates 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 candidates.

Reflecting on practical experiences and learning from them is an approach which is embedded in the Course. Throughout the learning experiences, the emphasis should be on helping candidates to develop an awareness of the employability skills and attitudes needed for the construction and engineering industries, for example, good timekeeping, co-operating with others, taking instructions, and a positive attitude to learning. Opportunities to develop these skills and attitudes arise naturally in the work of the Course. Candidates should be aware that these generic skills are just as important as the practical construction and engineering skills they are developing.

For example, it is important for workshop activities to be carried out within realistic timescales; candidates will have opportunities to demonstrate good timekeeping in the context of these timescales. Candidates 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. Candidates will be encouraged to develop a positive attitude to waste minimisation and environmental issues regarding the use of materials.

The work of the Course will increase awareness that health and safety issues are important in the world of work generally and in construction and engineering in particular.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

In carrying out construction and engineering activities, candidates will learn that there are correct and incorrect ways to use tools and equipment. Teachers/lecturers should demonstrate good practice and correct procedures to candidates, who will learn the importance to self and others of following instructions. Such positive experiences will help to encourage a positive attitude to learning.

Teaching and learning approaches should help to inform candidates of realistic prospects in construction and engineering. They should become aware of steps to employment or further training. Through their experiences of the various practical skills in the Course, they should become better equipped to make valid personal choices regarding careers and further study.

Opportunities to develop aspects of Core Skills should be used where they arise naturally. For example, in order to carry out construction and engineering activities in a workshop environment candidates will develop aspects of numeracy when making calculations and taking measurements. They will also have to use simple technical terms with tutors and fellow candidates regarding skills practices, materials and tools, health and safety and working together in the workplace. Aspects of problem solving will arise in their participation in practical work.

Teaching and learning approaches should encourage candidates to take responsibility for their own learning and development. In the practical Units of the Course, candidates need to carry out quality checks on their own work. This provides a good opportunity to motivate candidates to take pride in their work. The *Access 3 Developing Employability Skills in Construction and Engineering Unit* will allow candidates to take responsibility for seeking feedback and identifying action points for improvement. This should help them to develop confidence in taking advice and in asking for direction and assistance where necessary.

In both practical Units the building of candidates' confidence through participation in and completion of practical assignments is an important element of the Course.

Preparation for practical activities, visiting speakers, visits

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 use of tools and equipment and a positive view of health and safety should help to ensure that preparation for practical work is comprehensive yet concise.

Candidates 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 activities, eg manual handling tasks.

It is recommended that each practical session be preceded by a 'tool box' talk on aspects of health and safety relevant to the work in hand. It is recommended that candidates be given regular but short practice sessions in the correct use 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 companies may be happy to offer support, for example, in the form of visits. Visitors from industry will be able to give candidates a realistic view of jobs and conditions in the construction and engineering industries.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

Visits to local industry are often particularly useful because work in progress will be at different stages and candidates can see various different trades working at the same time. Industrial visits should be carefully arranged, organised and authorised. It would be preferable for those responsible for such visits to have prior knowledge of the industry in question.

Due to current legislation it may not be possible for candidates to visit construction or building sites. Centres should make themselves aware of current legislative restrictions on visiting construction sites particularly with 14 to 16 year olds.

Approaches to assessment

The assessment activities in this Course make a particularly important contribution to learning, particularly the involvement of the candidate in the review, evaluation and target setting processes which are required in the *Access 3 Developing Employability Skills in Construction and Engineering Unit*. Delivery of this Unit is integrated within the practical skills Units and candidates can readily gather evidence for assessment during their work in practical activities. Reviewing progress with generic employability skills and attitudes will take place in the practical context of work in the different practical activities. Candidates will complete a minimum of four review sheets at different points during the various practical activities.

Within the practical Units, candidates will produce evidence as a natural part of the learning and teaching process. Candidates will first learn and practise the correct techniques and methods for each of the skills they undertake. Assessment will take place at appropriate points throughout the Course, allowing time for candidates to make quality checks of their work. Assessment of the use of drawings, specifications and materials should also take place during the work in practical activities.

Health and Safety

Risk assessment and compliance with health and safety legislation is of paramount importance in this Course. Due to the health and safety implications involved in working in Construction and Engineering, the Units have been designed so that they can be taught and assessed in a workshop environment.

It is the centre's responsibility to produce risk assessments which set out the safe working/teaching and learning arrangements for teachers/lecturers, support staff and candidates. Centres will need to be familiar with the requirements of the Health & Safety at Work Act, The Management of Health & Safety at Work Regulations, Control of Substances Hazardous to Health, Provision and Use of Work Equipment Regulations and other legislative requirements where risk assessments are required. (This list of statutes is not intended to be exhaustive, and centres must comply with all relevant current legislation.)

The Course requires access to safe and suitably-equipped workshops or work areas to deliver and assess the vocational skill options. These workshops or work areas should be of an appropriate size and have sufficient tools, equipment and resources to deliver and assess the Units for the number of learners in the class group. This may take the form of a combined workshop/project area divided into suitable work areas for each skill, or separate workshops. Storage areas for materials and personal protective equipment (PPE) should also be provided.

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

It is recognised that while some centres will have facilities and expertise available to deliver both of the practical Units in this qualification, others will benefit from appropriate partnership arrangements to provide the learning environments and/or expertise necessary to deliver the Course. Liaison and agreements regarding health and safety and safe systems of work would be a priority for partners involved.

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for this Course. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

National Course Specification: Course details (cont)

COURSE National 3 Practical Experiences: Construction and Engineering

Appendix: 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 purpose of the table, the Units are referred to as A, B and C as indicated.

Practical Experiences in Construction = **A**
Practical Experiences in Engineering = **B**
Developing Employability Skills in Construction and Engineering = **C**

Employability skill/attitude	Evidence
◆ understanding roles and responsibilities in the workplace	C
◆ maintaining good timekeeping	C
◆ maintaining good attendance	C
◆ maintaining a tidy workplace	A, B, C
◆ following instructions	C
◆ seeking advice	C
◆ working co-operatively with others	C
◆ showing health and safety awareness	A, B, C
◆ wearing appropriate personal protective clothing	C
◆ preparing appropriately to carry out tasks	A, B, C
◆ using basic drawings and specifications, with support	A, B
◆ checking own work, with support	C
◆ identifying own strengths and weaknesses, with support	C
◆ identifying learning points from practical experiences, with support	C
◆ demonstrating positive attitudes to learning	C

Assessment evidence in all Units:

A = Assessor observation checklists and candidate reviews
 B = Assessor observation checklists and candidate reviews
 C = Candidate responses, assessor observation checklists and candidate reviews

National Unit Specification: general information

UNIT	Practical Experiences in Construction (Access 3)
CODE	DX15 09
COURSE	National 3 Practical Experiences: Construction and Engineering

SUMMARY

This Unit is a mandatory Unit of the *National 3 Practical Experiences: Construction and Engineering Course*, and is designed to be taken as part of that Course. The Unit is suitable for candidates with no previous construction or employment experience. Candidates will select and use the basic tools and materials associated with construction at an introductory level, leading to various practical activities and the manufacture of an artefact. The candidate will learn basic construction terminology and skills during the process of the practical work.

Candidates who achieve this Course will build confidence in their ability to operate in a working environment and could progress to further Units at Access 3 or Intermediate 1.

The primary target group for this Unit is school candidates in S3 and above. This Unit may also be suitable for adult returners.

OUTCOMES

- 1 Select and use basic construction tools and materials in specified tasks.
- 2 Manufacture an artefact, to a given specification, using construction materials.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

Administrative Information

Superclass:	TE
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National Unit Specification: general information (cont)

CREDIT VALUE

1 credit at SQA level 3 (6 SCQF credit points at SCQF level 3*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

Opportunities for developing aspects of Core Skills are highlighted in *Guidance on Learning and Teaching Approaches for this Unit*.

National Unit Specification: statement of standards

UNIT Practical Experiences in Construction (Access 3)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Select and use basic construction tools and materials in specified tasks.

Performance Criteria

- (a) Select and use construction materials appropriate to specified tasks.
- (b) Select and use tools appropriate for specified tasks.
- (c) Use tools correctly and solely for intended purpose.
- (d) Use basic construction drawings and specifications for given tasks.
- (e) Comply with health and safety requirements during all specified tasks.

OUTCOME 2

Manufacture an artefact, to a given specification, using construction materials.

Performance Criteria

- (a) Carry out all manufacturing steps from instructions given.
- (b) Carry out steps in an appropriate sequence according to the instructions given.
- (c) Complete the manufacture of the artefact to specified standards.
- (d) Comply with health and safety requirements during all specified tasks.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Performance evidence is required to show that all Outcomes and Performance Criteria have been achieved, and will be supported by assessor checklists. This evidence will be generated from practical activities carried out in supervised workshop conditions and will be gathered from the preparation and completion of practical activities and the manufacture of the artefact.

The practical activities will provide evidence that the candidate has performed **each** of the following tasks on **one** occasion:

- ◆ affix an object to a wall or partition
- ◆ create a concrete base (minimum of 300 mm x 300 mm x 50 mm)
- ◆ measure, cut and join timber
- ◆ apply a protective coating
- ◆ manufacture an artefact:
 - in accordance with given specifications and instructions
 - in an appropriate sequence
 - to given standards

The completed artefact should be strong, stable and functional.

National Unit Specification: statement of standards

UNIT Practical Experiences in Construction (Access 3)

Throughout the completion of these tasks, candidates must provide evidence that they are able to:

- ◆ select and use appropriate materials
- ◆ select and use tools correctly and safely, and only for the purposes intended
- ◆ use construction drawings and specifications appropriate to the task

Candidates will be required to maintain a clean and tidy workplace, adhering to health and safety requirements throughout all activities.

The NAB item for this Unit provides assessor observation checklists and details of the practical assignments which exemplify the national standard. Centres wishing to develop their own assessments should refer to the NAB to ensure a comparable standard.

National Unit Specification: support notes

UNIT Practical Experiences in Construction (Access 3)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit covers practical construction assignments at a basic level. The candidate is required to develop the ability to select and use tools correctly and safely. It is therefore important that the learning takes place in a supervised workshop environment. Basic safe working practices will be included in the content as it is important that candidates learn to adhere to these at all times.

Candidates will work on a range of practical tasks, which will enable them to become familiar with a variety of tools and materials in the workshop. Lecturers/teachers may include a wide range of short practical activities to equip candidates with the skills necessary to complete an artefact. During the process of practical work the candidate will become accustomed to simple construction terminology and will be able to demonstrate a basic knowledge and understanding of the terminology in everyday practice. Candidates should learn good working practices at each stage and how to carry out a quality check.

This Unit provides opportunities to develop generic employability skills such as time-keeping; working co-operatively; taking advice; maintaining a clean, tidy and organised workplace and thorough preparation. The context for learning should include the requirement to be clean, presentable and appropriately dressed for the workshop, wearing PPE including protective clothing when required.

Relevant aspects of current health and safety legislation, current COSHH (Control of Substances Hazardous to Health) Regulations and any systems of work relevant to the candidates' workshop/workplace should be explained and adhered to as part of the work of this Unit.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

This Unit involves learning through the various practical experiences and activities. Candidates should experience workshop conditions and should be encouraged to perform tasks and conduct themselves in a manner appropriate to the workplace. Visits to local industry could help to raise candidates' awareness of the realities of the workplace. Equally, visiting speakers from local construction firms should be encouraged. Useful material can be resourced from the Internet.

It is expected that, at this level, candidates will require some degree of teacher/lecturer support depending on their abilities. It is expected that candidates will work at a pace which suits their individual needs. Teachers/lecturers should consider the physical ability of individuals and groups when devising/adapting practical tasks.

Core Skills

In this Unit candidates will be involved in a range of practical tasks that may involve working as part of a small team. They will also be involved in tasks that require some measuring. These are good opportunities for developing aspects of the Core Skills of Working with Others and Numeracy.

National Unit Specification: support notes (cont)

UNIT Practical Experiences in Construction (Access 3)

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The assessment activities in this Unit make an important contribution to the learning process.

If candidates are working as a team on practical assignments, assessors must satisfy themselves that candidates are competent in each aspect of the given task.

The physical dimensions of the concrete base which forms part of the assessment should be decided by the tutor but will normally be no less than 300 mm by 300 mm by 50 mm deep.

A NAB pack is available to support assessment of this Unit. It provides assessor observation checklists and details of the practical assignments which exemplify the national standard. If centres wish to develop their own assessment instruments these should be of a comparable standard.

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

National Unit Specification: general information

UNIT	Practical Experiences in Engineering (Access 3)
CODE	DX16 09
COURSE	National 3 Practical Experiences: Construction and Engineering

SUMMARY

This Unit is a mandatory Unit of the *National 3 Practical Experiences: Construction and Engineering Course*, and is designed to be taken as part of that Course. The Unit is suitable for candidates with no previous engineering or employment experience. Candidates will select and use the basic tools and materials associated with engineering at an introductory level, leading to various practical activities and the manufacture of an artefact. The candidate will learn basic engineering terminology and skills during the process of the practical work.

Candidates who achieve this Course will build confidence in their ability to operate in a working environment and could progress to further Units at Access 3 or Intermediate 1.

The primary target group for this Unit is school candidates in S3 and above. This Unit may also be suitable for adult returners.

OUTCOMES

- 1 Select and use basic engineering tools and materials in specified tasks.
- 2 Manufacture an artefact, to a given specification, using engineering materials.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

Administrative Information

Superclass:	TL
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National Unit Specification: general information (cont)

CREDIT VALUE

1 credit at SQA level 3 (6 SCQF credit points at SCQF level 3*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

Opportunities for developing aspects of Core Skills are highlighted in *Guidance on Learning and Teaching Approaches for this Unit*.

National Unit Specification: statement of standards

UNIT Practical Experiences in Engineering (Access 3)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Select and use basic engineering tools and materials in specified tasks.

Performance Criteria

- (a) Select and use mechanical and electrical engineering materials appropriate to the specified tasks.
- (b) Select and use tools appropriate to mechanical and electrical engineering for specified tasks.
- (c) Use tools correctly and solely for intended purpose.
- (d) Use basic engineering drawings and specifications for given tasks.
- (e) Comply with health and safety requirements during all specified tasks.

OUTCOME 2

Manufacture an artefact, to a given specification, using engineering materials.

Performance Criteria

- (a) Carry out all manufacturing steps from instructions given.
- (b) Carry out steps in an appropriate sequence according to the instructions given.
- (c) Complete the manufacture of the artefact to specified standards.
- (d) Comply with health and safety requirements during all specified tasks.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Performance evidence is required to show that all Outcomes and Performance Criteria have been achieved, and will be supported by assessor checklists. This evidence will be generated from practical activities carried out in supervised workshop conditions and will be gathered from the preparation and completion of practical activities and the manufacture of the artefact.

The practical activities will provide the evidence of the selection of the appropriate tools and the correct use of those tools to perform the **following** tasks on **one** occasion:

- ◆ measure, cut, shape, drill and join metallic or non-metallic materials
- ◆ measure, cut and terminate, a minimum of **two** types of electrical cable
- ◆ manufacture an artefact in **either** metal **or** a non-metallic material:
 - in accordance with given specifications and instructions
 - in an appropriate sequence
 - to given standards

Candidates will be required to maintain a clean and tidy workplace, adhering to health and safety requirements, throughout all activities.

National Unit Specification: statement of standards (cont)

UNIT Practical Experiences in Engineering (Access 3)

The NAB item for this Unit provides assessor checklists and details of the practical assignments which exemplify the national standard. Centres wishing to develop their own assessments should refer to the NAB to ensure a comparable standard.

National Unit Specification: support notes

UNIT Practical Experiences in Engineering (Access 3)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit covers practical engineering activities at a basic level. The candidate is required to develop the ability to select and use tools correctly and safely in the different activities in the Unit. It is therefore important that the learning takes place in a supervised workshop environment. Basic safe working practices will be included in the content as it is important that candidates learn to adhere to these at all times.

Candidates will work on a range of practical tasks, which will enable them to become familiar with a variety of tools and materials in the workshop. Lecturers/teachers may include a wide range of short practical activities to equip candidates with the skills necessary to complete an artefact. During the process of practical work the candidate will become accustomed to simple engineering terminology and will be able to demonstrate a basic knowledge and understanding of the terminology in everyday practice. Candidates should learn good working practices at each stage and how to carry out quality checks.

This Unit provides opportunities to develop generic employability skills such as time-keeping; working co-operatively; taking advice; maintaining a clean, tidy and organised workplace and thorough preparation. The context for learning should include the requirement to be clean, presentable and appropriately dressed for the workshop, wearing PPE including protective clothing when required.

Relevant aspects of current health and safety legislation, current COSHH Regulations and any systems of work relevant to the candidates' workshop/workplace should be explained and adhered to as part of the work of this Unit.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

This Unit involves learning through the various practical experiences and activities. Candidates should experience workshop conditions and should be encouraged to perform tasks and conduct themselves in a manner appropriate to the workplace. Visits to local industry could help to raise the candidate's awareness of the realities of the workplace. Equally, visiting speakers from local engineering firms should be encouraged. Useful material can be resourced from the Internet.

It is expected that, at this level, candidates will require some degree of teacher/lecturer support depending on their abilities. It is expected that candidates will work at a pace which suits their individual needs. Teachers/lecturers should consider the physical ability of individuals and groups when devising/adapting practical tasks.

Core Skills

In this Unit candidates will be involved in a range of practical tasks which may involve working as part of a small team. They will also be involved in tasks which require some measuring. These are good opportunities for developing aspects of the Core Skills of Working with Others and Numeracy.

National Unit Specification: support notes (cont)

UNIT Practical Experiences in Engineering (Access 3)

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The assessment activities in this Unit make an important contribution to the learning process.

If candidates are working as a team on practical assignments, assessors must satisfy themselves that candidates are competent in each aspect of the given task.

A NAB pack is available to support assessment of this Unit. It provides assessor observation checklists and details of the practical assignments which exemplify the national standard. If centres wish to develop their own assessment instruments these should be of a comparable standard.

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

National Unit Specification: general information

UNIT	Developing Employability Skills in Construction and Engineering (Access 3)
CODE	DX17 09
COURSE	National 3 Practical Experiences: Construction and Engineering

SUMMARY

This Unit is a mandatory Unit of the *National 3 Practical Experiences: Construction and Engineering course*, and is designed to be taken as part of that Course. The Unit is suitable for candidates with no previous employment experience in construction or engineering.

Candidates will explore the range of employment opportunities, career paths and job roles in the construction and engineering industries. They will develop work practices and attitudes that will enhance their employability skills, and will also regularly review and evaluate these skills. Candidates who achieve this Unit will build confidence in their ability to operate in a working environment and could progress to further Units at Access 3 or Intermediate 1.

The primary target group for this Unit is school candidates in S3 and above. This Unit may also be suitable for adult returners.

OUTCOMES

- 1 Identify job roles and career options within the Construction sector.
- 2 Identify job roles and career options within the Engineering sector.
- 3 Demonstrate specified employability skills related to construction and engineering work practices.
- 4 Review and evaluate own employability skills related to construction and engineering work practices.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

Administrative Information

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National Unit Specification: general information (cont)

CREDIT VALUE

1 credit at SQA level 3 (6 SCQF credit points at SCQF level 3*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

Opportunities for developing aspects of Core Skills are highlighted in *Guidance on Learning and Teaching Approaches for this Unit*.

National Unit Specification: statement of standards

UNIT Developing Employability Skills in Construction and Engineering (Access 3)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Identify job roles and career options within the Construction sector.

Performance Criteria

- (a) Identify a range of construction industry job roles.
- (b) Identify potential career options in construction.

OUTCOME 2

Identify job roles and career options within the Engineering sector.

Performance Criteria

- (a) Identify a range of engineering job roles.
- (b) Identify potential career options in engineering.

OUTCOME 3

Demonstrate specified employability skills related to construction and engineering work practices.

Performance Criteria

- (a) Undertake necessary preparation prior to practical work.
- (b) Follow instructions from the person responsible, seeking advice when necessary.
- (c) Maintain tidy work areas in accordance with health and safety requirements.
- (d) Check own practical work with the support of the person responsible.

OUTCOME 4

Review and evaluate own employability skills related to construction and engineering work practices.

Performance Criteria

- (a) Identify strengths and weaknesses in specified employability skills.
- (b) Identify learning points in specified employability skills.
- (c) Identify action points for improvement in specified employability skills.
- (d) Demonstrate positive attitudes to learning.

National Unit Specification: statement of standards

UNIT Developing Employability Skills in Construction and Engineering (Access 3)

EVIDENCE REQUIREMENTS FOR THIS UNIT

Written and/or oral recorded evidence, supported by an assessor checklist, together with candidate review sheets are required to show that all Outcomes and Performance Criteria have been achieved.

Outcomes 1 and 2

Evidence need not be gathered on one single assessment occasion, but could be gathered throughout the Unit. The evidence will be generated from a series of short answer or objective questions which will allow the candidate to:

- ◆ identify in both construction and engineering the roles of:
 - labourers
 - operatives
 - trades people
 - technicians
- ◆ identify different trades in construction and engineering
- ◆ identify own potential career options within construction and engineering

An assessor checklist will record the candidate's achievement. The use of a cut-off score may be appropriate. The NAB item for this Unit provides exemplification.

Outcomes 3 and 4

Evidence of the candidate's progress in specified employability skills will be demonstrated through the completion of candidate review sheets. Each review sheet will have a section to be completed by the candidate and a section to be completed by the assessor. The review sheet will focus on the following employability skills:

- ◆ maintaining good timekeeping
- ◆ maintaining good attendance
- ◆ maintaining a tidy workplace
- ◆ following instructions
- ◆ seeking advice
- ◆ showing health and safety awareness
- ◆ wearing appropriate personal protective clothing
- ◆ preparing appropriately to carry out tasks
- ◆ checking own work, with support

Two candidate review sheets will be completed in relation to practical experiences in construction and **two** in relation to practical experiences in engineering. The first review sheet should be completed after several learning and teaching sessions; the second review sheet should be completed towards the end of a block of learning and teaching to allow the candidate to demonstrate some evidence of development. The assessor will discuss the review sheets with the candidate and complete the assessor section.

National Unit Specification: statement of standards

UNIT Developing Employability Skills in Construction and Engineering (Access 3)

The NAB item for this Unit provides sample short answer questions for Outcomes 1 and 2, candidate review sheets and an assessor checklist which exemplify the national standard. Centres wishing to devise their own assessments should refer to the NAB to ensure a comparable standard.

National Unit Specification: support notes

UNIT Developing Employability Skills in Construction and Engineering (Access 3)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

The content and context of this Unit is at a basic, introductory level. The main purpose of the Unit is to help candidates develop work practices and attitudes that will enhance their opportunities for further training, or for employment at a semi-skilled level in the construction or engineering industries.

This Unit has been designed to complement the practical content of the other two Units of the *National 3 Practical Experiences: Construction and Engineering Course*, and should be integrated with these other Units. By completing this Unit, candidates will:

- ◆ develop their awareness of the range of jobs and careers in the broad areas of construction and engineering
- ◆ develop a range of generic employability skills which will improve their employment prospects
- ◆ develop self-evaluation skills and the confidence to seek feedback and to learn from them

Opportunities will arise in various practical contexts to discuss job roles, career paths, and the value of, for example: time-keeping; working co-operatively; taking advice; maintaining a clean, tidy and organised workplace and thorough preparation. The context for learning should include the requirement to be clean, presentable and appropriately dressed for the workshop, wearing PPE including protective clothing when required.

Candidates will be provided with an opportunity to review how well they have progressed in developing the relevant work practices and attitudes by comparing their own evaluation with that of their assessors. Candidates should be encouraged to actively participate in discussions of their own strengths and weaknesses and assist in identifying learning/action points for similar work in the future.

Relevant aspects of current health and safety legislation, current COSHH Regulations and any systems of work relevant to the candidates' workshop/workplace should be explained and adhered to as part of the work of this Unit.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Where this Unit is taken as part of the *National 3 Practical Experiences: Construction and Engineering course*, delivery should be integrated with the delivery of the other Units in the Course. This involves candidates in:

- ◆ gaining the knowledge about job roles, general skills and qualifications while experiencing workshop conditions
- ◆ practising and developing the general skills and attitudes that employers value
- ◆ reviewing and evaluating their progress in these general skills

National Unit Specification: support notes (cont)

UNIT Developing Employability Skills in Construction and Engineering (Access 3)

The exploration of career paths and job roles will be integrated with the various practical activities as the opportunity arises. Visiting speakers from local construction and engineering firms should be encouraged. Visits to local industry could help to raise the candidate's awareness of the various job roles in construction and engineering. Useful material can also be resourced from the Internet.

Two candidate review sheets will be completed in relation to practical experiences in construction and **two** in relation to practical experiences in engineering. The first review sheet should be completed after several learning and teaching sessions; the second review sheet should be completed towards the end of a block of learning and teaching to allow the candidate to demonstrate some evidence of development. The assessor will discuss the review sheets with the candidate and complete the assessor section. It is important to encourage candidates throughout the Course to evaluate their own work and progress. They should be encouraged to seek advice and set themselves realistic goals to build confidence and competence in undertaking the practical assignments.

Core Skills

In this Unit candidates will be involved in a process of review, evaluation and action planning, which in turn will require active discussion with the assessor. These discussion sessions are good opportunities for developing aspects of the Core Skill of Communication (oral).

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The assessment activities in this Unit make an important contribution to learning, particularly the involvement of the candidate in the review, evaluation and action-planning process.

This Unit, the *Access 3 Developing Employability Skills in Construction and Engineering Unit*, is delivered in an integrated approach within the practical skills Units and candidates can readily gather evidence for assessment during their work in practical activities. Reviewing progress with generic employability skills and attitudes will take place in the practical context of work in the different practical activities. Candidates will complete a minimum of two review sheets in the different practical activities. The process of review and evaluation using the checklists provided should take place at regular intervals to show progression and development. Assessment of interpreting drawings and specifications and materials should also take place during the work in practical activities.

In the short answer responses for Outcomes 1 and 2, where a re-assessment is needed, a different sample of questions should be used.

A NAB pack is available to support assessment of this Unit. If centres wish to develop their own assessment instruments these should be of a comparable standard.

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).