



Group Award Specification for:

**National Progression Award in Engineering at SCQF
level 5**

Group Award Code: GT70 45

Validation date: 30 June 2022

Date of original publication: July 2022

Version: 02

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1 Introduction

The purpose of this document is to:

- ◆ assist centres to implement, deliver and manage the qualification.
- ◆ provide a guide for new staff involved in offering the qualification.
- ◆ inform course managers teaching staff, assessors, learners, employers and higher education institutes (HEIs) of the aims and purpose of the qualification.
- ◆ provide details of the range of learners the qualification is suitable for and progression opportunities.

The Engineering sector, in all its forms, is vital to Scotland's economy and society. It requires a steady flow of young people to join recognised training schemes such as Modern Apprenticeships or other long-term training programmes which can lead to employment as operatives and technicians. There is an urgent need at significant scale to attract and grow a fresh pipeline of talent into fabrication and welding in Scotland and provide suitable pathways for entry and progression are a key importance.

Additionally, employers in the shipbuilding sector, recognise the need to address perceptions about the industry, raise awareness of the fact that it is a vibrant and growing sector, and motivate young people to consider fabrication and welding for shipbuilding as a career with a sustainable future. Employers in the sector are willing to support pathways that begin with insights and awareness raising through work-based learning focused on projects in shipbuilding.

This National Progression Award (NPA) Engineering at Scottish Credit and Qualification Framework (SCQF) level 5 is suitable for learners considering employment within the Engineering and Shipbuilding sector and will equip them with the knowledge, skills and experiences employers want to see.

The framework consists of existing units from the engineering and fabrication and welding National Certificate awards which will provide learners with a solid foundational knowledge of Shipbuilding Engineering. Successful completion of the NPA will provide a foundation for further engineering units at more advanced SCQF levels and will also provide learners with skills to add value in related career disciplines. There are possible employment opportunities for earners who gain this qualification.

A visual representation of learner entry, exit and potential destination points (links to and from other existing qualifications, for example National, Higher National, National Certificate s (NC's), National Progression Awards (NPA's), Professional Development Awards,(PDA's) Scottish Vocational Qualifications (SVQ's) in the sectoral area) and higher education.

The NPA is suitable for:

- ◆ Senior phase school pupils.
- ◆ Further education (FE) college students wishing to develop their skills and knowledge in relation to engineering skills.
- ◆ School leavers.
- ◆ Adult returners to education.
- ◆ Trainees participating in preparation for entering employment.

2 Qualification structure

This group award is made up of 8 SQA unit credits. It comprises 48 SCQF credit points of which 12 are at SCQF level 5 and 6 are at SCQF 4 in the mandatory section. The optional section of which 5 credits 30 SCQF credit points should be selected are made up of a number of SCQF level 5 and level 6 units. A mapping of Core Skills development opportunities is available in section 5.3.

2.1 Structure

| 4 code | 2 code | Unit title | SQA credit | SCQF credit points | SCQF level |
|----------------------------|--------|---|------------|--------------------|------------|
| Mandatory 3 credits | | | | | |
| J6JT | 45 | Engineering Work-based Challenge | 1 | 6 | 5 |
| J1GS | 44 | Understanding Industry | 1 | 6 | 4 |
| F3HV | 11 | Mathematics: Craft 1 | 1 | 6 | 5 |
| Optional 5 credits | | | | | |
| F5EW | 11 | Fabrication Processes | 1 | 6 | 5 |
| F5DG | 11 | Health and Safety: Engineering | 1 | 6 | 5 |
| F5F3 | 11 | Welding Processes | 1 | 6 | 5 |
| F5DE | 11 | Engineering Project | 1 | 6 | 5 |
| F5F7 | 12 | Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills | 1 | 6 | 6 |
| F5EX | 11 | Pattern Development | 1 | 6 | 5 |
| F5H4 | 11 | Computer Aided Draughting (CAD) for Engineers | 1 | 6 | 5 |
| F5EY | 11 | Pipework Skills | 1 | 6 | 5 |
| F5F0 | 11 | Ship Construction Skills | 1 | 6 | 5 |
| F5FC | 12 | Tungsten Inert Gas (TIG) Welding Skills | 1 | 6 | 6 |
| F5FG | 11 | Fabrication Skills | 2 | 12 | 5 |
| F5F6 | 12 | Manual Metal Arc (MMA) Welding Skills | 1 | 6 | 5 |
| F5WA | 11 | Engineering Workshop Skills | 1 | 6 | 5 |
| F5K1 | 11 | Mechanical Engineering Principles | 1 | 6 | 5 |
| F5HK | 11 | Electrical Principles | 1 | 6 | 5 |
| F5HP | 11 | Electrical Wiring Skills | 1 | 6 | 5 |

3 Aims of the qualification

The principal aim of the qualification is to provide a route for learners to gain the knowledge, skills and experiences required by employers in the shipbuilding and engineering sector.

3.1 General aims of the qualification

To provide a foundation of knowledge, skills and experience about the engineering sector, based on employers' requirements, in order to help learners to secure employment in it. In particular:

1. Develop skills and knowledge for employability and progression to work.
2. Enable the learner to consolidate knowledge and skills to enhance career progression.
3. Develop skills which are capable of being transferred to a wide range of employment in the engineering sectors.

3.2 Specific aims of the qualification

To provide awards that will allow learners to work now, or in the future, at craft or technician levels in an engineering environment:

1. Provide awards that on successful completion will allow learners to progress to an NC or HNC/HND in an engineering or related subject discipline
2. Allow learners to develop knowledge, understanding and skills in an area of engineering which relates directly to the title of the award the learner is studying
3. Allow learners a degree of specialisation in engineering relevant to the area of engineering covered by the award
4. Include opportunities for learners to develop meta-skills to support the active development of professional practice and behaviours and to give learners self-awareness and understanding that they can use these meta-skills to increase and discuss their employability.

4 Recommended entry to the qualification

Entry to this qualification is at the discretion of the centre. The following information on prior knowledge, skills, experience or qualifications that provide suitable preparation for this qualification has been provided by the Qualification Design Team (QDT) as guidance only.

Learners would benefit from having attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ Mathematics at SCQF level 4 or level 5.
- ◆ Physics at SCQF level 4 or level 5.
- ◆ Technological Studies at SCQF level 4 or level 5.
- ◆ Skills for Work Engineering at SCQF level 4 or level 5.

4.1 Core Skills entry profile

The Core Skill entry profile provides a summary of the associated assessment activities that exemplify why a particular level has been recommended for this qualification. The information would be used to identify if additional learning support needs to be put in place for learners whose Core Skills profile is below the recommended entry level or whether learners should be encouraged to do an alternative level or learning programme.

For this reason, the level stated should be reflective of the main focus of the qualification which is likely to require a certain level of ability in one or two of the Core Skills. Learners will naturally use and develop aspects of all five Core Skills as they work through the units making up the qualification through teaching and learning approaches which require to be mapped in the next section.

| Core Skill | Recommended SCQF entry profile | Associated assessment activities |
|---------------|--------------------------------|---|
| Communication | 4 | <ul style="list-style-type: none"> ◆ Taking part in a straightforward interaction with one or more people — this will usually be a discussion on a straightforward topic, although learners may also deliver a short talk with questions and answers. ◆ Give an accurate account of important ideas or significant information in a written communication. ◆ Following the written instructions for using a piece of equipment and commenting on their clarity. ◆ Produce a straightforward but detailed written communication. |
| Numeracy | 4 | <ul style="list-style-type: none"> ◆ Extract information from a straightforward table, graph, chart, or diagram. ◆ Use appropriate graphical forms to convey particular types of information. ◆ Communicate information in straightforward tables, graphs, charts, or diagrams. ◆ Work confidently with basic numerical notation. ◆ Select appropriate numerical methods to be carried out. ◆ Carry out a range of straightforward numerical calculations. |

| Core Skill | Recommended SCQF entry profile | Associated assessment activities |
|--|--------------------------------|---|
| Numeracy (continued) | | <ul style="list-style-type: none"> ◆ Draw straightforward conclusions from results. ◆ Read and use a straightforward scale. |
| Information and Communication Technology (ICT) | 4 | <ul style="list-style-type: none"> ◆ Use ICT effectively to access information within a range of straightforward tasks. ◆ Make effective use of a computing system to process information. ◆ Carry out a range of straightforward tasks using familiar application software. ◆ Present information in a straightforward and appropriate format. |
| Problem Solving | 4 | <ul style="list-style-type: none"> ◆ Identify the main features of the situation or issue. ◆ Select an approach to deal with the situation or issue. ◆ Plan, organise, and complete a straightforward task. ◆ Review and evaluate a straightforward problem solving activity. |
| Working with Others | 4 | <ul style="list-style-type: none"> ◆ Work with others co-operatively on an activity and/or activities. ◆ Review work with others in a co-operative activity and/or activities. |

5 Additional benefits of the qualification in meeting employer needs

This qualification was designed to meet a specific purpose and what follows are details on how that purpose has been met through mapping of the units to the aims of the qualification. Through meeting the aims, additional value has been achieved by linking the unit standards with those defined in national occupational standards and/or trade/professional body requirements. In addition, significant opportunities exist for learners to develop the more generic skill, known as Core Skills through doing this qualification.

The work-based skills challenge has been developed with the concepts of meta-skills at its foundation, placing emphasis on their development through a practical, work-based approach and encouraging the acquisition of new skills through collaborative group working, problem solving activities and reflective practice. Learners are expected to judge where their strengths and development needs for meta-skills lie through self-reflection and feedback from different sources and at different times.

The meta-skills framework has been developed to support learners as they prepare themselves for the uncertain, ever-evolving future. In response to the concept of industry 4.0 (or the 'fourth industrial revolution'), twelve meta-skills have been identified as those which will help learners to adapt to and embrace the inevitable changes to industry, job roles and society expected as a result of continuing technological advance and other global mega-trends and shifts. These skills have been grouped into three broad categories: 'self-management', 'social intelligence' and 'innovation', and within each main category there are up to four sub skills that are each made up of several skills. Therefore, learners will be able to select from a large list of skills those which most closely reflect the individual skills they aim to develop by participating in the project and sector context of the work-based skills challenge.

More information about meta-skills can be found via the centre of work-based learning's white paper on the topic, available from (https://www.skillsdevelopmentscotland.co.uk/media/44684/skills-40_a-skills-model.pdf)

Skills for the future: Meta-skills

Timeless, higher order skills that support the development of additional skills and promote success in whatever context the future brings

| | | |
|---|---|--|
| <p>Self management Taking responsibility for your own behaviour and wellbeing</p> | <p>Social intelligence Awareness of others' feelings, needs, and concerns in order to effectively navigate and negotiate complex social relationships and environments</p> | <p>Innovation The ability to define and create significant positive change</p> |
| <p>Focusing The ability to manage cognitive load by filtering and sorting information in order to maintain a sense of focus in an age of information overload and constant change</p> <ul style="list-style-type: none"> — Sorting — Attention — Filtering | <p>Communicating The ability to openly and honestly share information in a way that creates mutual understanding about others' thoughts, intentions and ideas</p> <ul style="list-style-type: none"> — Receiving information — Listening — Giving information — Storytelling | <p>Curiosity The desire to know or learn something in order to inspire new ideas and concepts</p> <ul style="list-style-type: none"> — Observation — Questioning — Information sourcing — Problem recognition |
| <p>Integrity Acting in an honest and consistent manner based on a strong sense of self and personal values</p> <ul style="list-style-type: none"> — Self awareness — Ethics — Self control | <p>Feeling Considering impact on other people by being able to take a range of different thoughts, feelings and perspectives into account</p> <ul style="list-style-type: none"> — Empathy — Social conscience | <p>Creativity The ability to imagine and think of new ways of addressing problems, answering questions or expressing meaning</p> <ul style="list-style-type: none"> — Imagination — Idea generation — Visualising — Maker mentality |
| <p>Adapting The ability and interest to continue to enlarge knowledge, understanding and skills in order to remain adaptive and resilient as circumstances change</p> <ul style="list-style-type: none"> — Openness — Critical reflection — Adaptability — Self-learning — Resilience | <p>Collaborating The ability to work in coordination with others to convey information and tackle problems</p> <ul style="list-style-type: none"> — Relationship building — Teamworking & collaboration — Social perceptiveness — Global & cross-cultural competence | <p>Sense making The ability to determine the deeper meaning or significance of what is being expressed and to recognise wider themes and patterns in information</p> <ul style="list-style-type: none"> — Pattern recognition — Holistic thinking — Synthesis — Opportunity recognition — Analysis |
| <p>Initiative Readiness to get started and act on opportunities built on a foundation of self belief</p> <ul style="list-style-type: none"> — Courage — Independent thinking — Risk taking — Decision making — Self belief — Self motivation — Responsibility — Enterprising | <p>Leading The ability to lead others by inspiring them with a clear vision and motivating them to realise this</p> <ul style="list-style-type: none"> — Inspiring others — Influencing — Motivating others — Developing others — Change catalyst | <p>Critical thinking The ability to evaluate and draw conclusions from information in order to solve complex problems and make decisions</p> <ul style="list-style-type: none"> — Deconstruction — Logical thinking — Judgement — Computational thinking |

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5.1 Mapping of qualification aims to units

| Code | Title | Aims | | | | | | |
|---------|---|------|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| J6JT 45 | Engineering Work-based Challenge | X | X | X | X | X | X | X |
| J1GS 44 | Understanding Industry | X | X | X | X | | | X |
| F3HV 11 | Mathematics: Craft 1 | X | X | X | X | | | |
| F5EW 11 | Fabrication Processes | X | X | X | | X | | |
| F5DG 11 | Health and Safety: Engineering | X | X | X | X | X | | |
| F5F3 11 | Welding Processes | X | X | X | | X | | |
| F5DE 11 | Engineering Project | X | X | X | X | X | X | X |
| F5F7 12 | Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills | X | X | X | | X | | |
| F5EX 11 | Pattern Development | X | X | X | | X | | |
| F5H4 11 | Computer Aided Draughting (CAD) for Engineers | X | X | X | X | X | X | |
| F5EY 11 | Pipework Skills | X | X | X | | X | | |
| F5F0 11 | Ship Construction Skills | X | X | X | | X | X | |
| F5FC 12 | Tungsten Inert Gas (TIG) Welding Skills | X | X | X | | X | X | |
| F5FG 11 | Fabrication Skills | X | X | X | | X | X | |
| F5F6 12 | Manual Metal Arc (MMA) Welding Skills | X | X | X | | X | X | |
| F5WA 11 | Engineering Workshop Skills | X | X | X | X | X | X | X |
| F5K1 11 | Mechanical Engineering Principles | X | X | X | | X | X | |
| F5HK 11 | Electrical Principles | X | X | X | | X | X | |
| F5HP 11 | Electrical Wiring Skills | X | X | X | | X | X | |

5.2 Mapping of National Occupational Standards (NOS) and/or trade body standards

NPAs are designed to assess a defined set of skills and knowledge in specialist vocational areas. They are mainly used by colleges for short programmes of study. NPAs are linked to National Occupational Standards, at the time of development the following NOS were linked to the relevant NPA Units.(not all units have been mapped).

Alignment to National Occupational Standards (NOS)

Table 1 indicates SVQ Units used in the mapping exercise.

| Table 1: NOS — Fabrication and Welding | | |
|---|----------------|--|
| Ref. | NOS No. | Unit Title |
| 1 | FEW 2. 01 | Complying with Statutory Regulations and Organisational Safety Requirements |
| 2 | FEW 2. 02 | Using and Interpreting Engineering Data and Documentation |
| 3 | FEW 2. 03 | Working Effectively and Efficiently in Engineering |
| 4 | FEW 2. 04 | Joining Materials by the Manual Metal Arc Welding Process |
| 5 | FEW 2. 05 | Joining Materials by the Manual MIG/MAG & other Continuous Wire Processes |
| 6 | FEW 2. 06 | Joining Materials by the Manual TIG & Plasma Arc Welding Processes |
| 7 | FEW 2. 08 | Produce Fillet Welded Joints using a Manual Welding Process |
| 8 | FEW 2. 21 | Marking Out Components for Fabrication |
| 9 | FEW 2. 22 | Cutting Sheet Metal to Shape Using Hand and Machine Tools |
| 10 | FEW 2. 23 | Forming Sheet Metal Using Hand and Machine Tools |
| 11 | FEW 2. 24 | Producing Sheet Metal Assemblies |
| 12 | FEW 2. 32 | Cutting Plate and Sections Using Shearing Machines |
| 13 | FEW 2. 34 | Cutting and Shaping Materials Using Gas Cutting Machines |
| 14 | FEW 2. 36 | Bending and Forming Plate Using Power Operated Machines |
| 15 | FEW 2. 37 | Forming Platework Using Power Rolling Machines |
| 16 | FEW 2. 38 | Producing Platework Assemblies |
| 17 | FEW 2. 42 | Assembling Structural Steelwork |
| 18 | FEW 3. 22 | Developing and marking Out Templates for Metalwork |
| 19 | WE 2001. 3 | Establishing Welding and Fabrication Requirements for the Design Brief |
| 20 | WE 2001. 6 | Specifying Welding Processes, Procedures & Controls to Achieve Production Requirements |
| 21 | 045NTES 51 | Implementing Quality Control Systems & Procedures in an Engineering Environment |

| NPA Unit | National Occupational Standard | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| Mathematics: Craft 1 | | x | | x | x | x | x | x | | | x | x | x | | | x | x | x | x | x | |
| Fabrication Processes | x | x | x | | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Health and Safety: Engineering | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | |
| Welding Processes | x | x | x | x | x | x | x | | | | | | | | | | | | x | x | x |
| Engineering Materials | x | x | x | x | x | x | | | | | | | x | | | | | x | | | |
| Engineering Project | x | x | x | | | | | | | | | | | | | | | | x | x | x |
| Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills | x | x | x | | x | | x | | | | | | | | | | | | x | x | x |
| Pattern Development | x | x | x | | | | | x | | | x | | | | | x | | x | x | | x |
| Thermal Cutting Skills | x | x | x | | | | | | | | | | x | | | | | | x | | x |
| Weld Procedure Specification and Testing | x | x | x | x | x | x | x | x | | | x | | | | | x | x | | | x | x |
| Engineering Workshop Skills | x | x | x | x | | | | | | | | | | | | | | | | | |
| Mechanical Engineering Principles | x | x | x | | | | | | | | | | | | | | | | | | |
| Electrical Principles | x | x | x | | | | | | | | | | | | | | | | | | |
| Electrical Wiring Skills | x | x | x | | | | | | | | | | | | | | | | | | |

5.3 Mapping of Core Skills development opportunities across the qualification

| Unit code | Unit title | Communication | | | Numeracy | | ICT | | Problem Solving | | | Working with Others | |
|-----------|---|---------------|-------|---|----------|-----|-----|-----|-----------------|----------|----|---------------------|-----|
| | | W (R) | W (W) | O | UN | UGI | AI | PCI | CT | PO | RE | WCO | RCC |
| J6JT 45 | Engineering Work-based Challenge | | | | | | | | S | S | S | S | S |
| J1GS 44 | Understanding Industry | S | S | S | | | S | S | S | S | S | | |
| F3HV 11 | Mathematics: Craft 1 | | | | E SCQF 5 | S | | | | | | | |
| F5EW 11 | Fabrication Processes | S | S | S | | | S | S | S | S | S | S | S |
| F5DG 11 | Health and Safety: Engineering | S | S | S | | | | | S | S | S | | |
| F5F3 11 | Welding Processes | S | S | S | | | | | S | S | S | | |
| F5DE 11 | Engineering Project | | | | S | S | | | S | E SCQF 5 | S | | |
| F5F7 12 | Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills | S | S | S | | | | | S | S | S | S | S |
| F5EX 11 | Pattern Development | | | | S | | | | | | | | |
| F5H4 11 | Computer Aided Draughting (CAD) for Engineers | S | S | S | S | | S | S | S | S | S | | |
| F5EY 11 | Pipework Skills | S | S | S | | | | | S | S | S | | |
| F5F0 11 | Ship Construction Skills | | | | S | | | | S | S | S | | |

| Unit code | Unit title | Communication | | | Numeracy | | ICT | | Problem Solving | | | Working with Others | |
|-----------|---|---------------|-------|---|----------|-----|-----|-----|-----------------|----|----|---------------------|-----|
| | | W (R) | W (W) | O | UN | UGI | AI | PCI | CT | PO | RE | WC) | RCC |
| F5FC12 | Tungsten Inert Gas (TIG) Welding Skills | S | S | S | | | | | S | S | S | | |
| F5FG11 | Fabrication Skills | | | | | S | | | S | S | S | | |
| F5F612 | Manual Metal Arc (MMA) Welding Skills | | | | | | | | S | S | S | S | S |
| F5WA11 | Engineering Workshop Skills | | | | | | | | S | S | | S | |
| F5K111 | Mechanical Engineering Principles | | | | S | S | | | S | S | | | |
| F5HK11 | Electrical Principles | | | | | S | | | S | S | S | | |
| F5HP11 | Electrical Wiring Skills | | | | S | S | | | S | S | S | | |

Key:

| | | | |
|----------------------------|--|---|-------------------------------|
| Communication: | W (R) = Written (Reading) | W (W) = Written (Writing) | O = Oral |
| Numeracy: | UN = Using Number | UGI = Using Graphical Information | |
| ICT: | AI = Accessing Information | PCI = Providing/Creating Information | |
| Problem Solving: | CT = Critical Thinking | PO = Planning and Organising | RE = Reviewing and Evaluating |
| Working with Others | WCO = Working Co-operatively with Others | RCC = Reviewing Co-operative Contribution | |

5.4 Assessment strategy for the qualification

| Unit | Assessment |
|---|--|
| Shipbuilding Work-Based Challenge Unit | |
| Understanding Industry | <p>The evidence for this unit, covering all the outcomes and performance criteria, will be gathered in a folio of evidence. This could be an e-portfolio if preferred. This will be developed by the learner throughout the duration of the unit and will be based on class work and the learner's investigations. The approach to gathering evidence should take a holistic view across the unit. Learners should build their own portfolio of information and add to this with photos and relevant information, for example website information, job descriptions/roles, emails, promotional information about their chosen industry and any exciting developments in this area. The aim is that they find out as much as they can about their chosen industry sector.</p> |
| Mathematics: Craft 1 | <p>Evidence should be produced under closed-book, supervised conditions in response to an appropriate set of questions. The evidence may be gathered:</p> <ul style="list-style-type: none"> ◆ in a single, end-of-unit assessment. or ◆ on an outcome by outcome basis. or ◆ by a combination of outcomes. <p>The total time allowed for the assessment /s should not exceed two hours.</p> |

| Unit | Assessment |
|-----------------------|--|
| Fabrication Processes | <p>Evidence for this unit will be in the form of written and/or recorded oral evidence produced under controlled and supervised conditions lasting no more than two hours in total.</p> <p>The evidence will be produced on one assessment occasion towards the conclusion of the unit where the learner will:</p> <ul style="list-style-type: none"> ◆ Identify any one chip and one non-chip forming method of material removal. ◆ Identify all the principles of the shearing process. ◆ Identify all the effects of mechanical cutting on the cut edge of a material. ◆ Identify any one hot and one cold forming method. ◆ Identify the effects of one forming method on the material structure. ◆ Correctly select appropriate marking out, cutting, forming and joining methods. ◆ Complete one sequence of operations sheet for one fabrication. ◆ Identify any five terms used in CNC. ◆ List any five pieces of fabrication equipment that can be controlled by computers. |

| Unit | Assessment |
|--------------------------------|---|
| Health and Safety: Engineering | <p>Outcome 1 will be assessed by written and/or recorded oral evidence at a single assessment event under supervised conditions lasting no more than 60 minutes and must include:</p> <ul style="list-style-type: none"> ◆ The identification of sources of current Health and Safety legislation to include any ten of the following with any eight correct responses required: PPE, Noise, Vibration, Fume and Dust, Signage, Chemicals, Accident Reporting, Dangerous Machines, Management, First Aid, Abrasive Wheels, Electricity, Manual Handling, Radiation, Explosives and Fire in addition to training, list one other responsibility of the employer from any eight of the following with any five correct responses required from the list below: <ul style="list-style-type: none"> — Health and Safety at Work; COSHH; Electricity at Work; Control of Noise at Work; Management of Health and Safety at Work; Supply of Machinery; Safety Signs, Manual Handling; Fire Precautions, First Aid; Reporting of Injuries; PPE; Provision and Use of Work Equipment. ◆ In addition to training, list one other responsibility of the employee from any eight of the following with any five correct responses required from the list below: <ul style="list-style-type: none"> — Health and Safety at Work; COSHH; Electricity at Work; Control of Noise at Work; Management of Health and Safety at Work; Supply of Machinery; Safety Signs, Manual Handling; Fire Precautions, First Aid; Reporting of Injuries; PPE; Provision and Use of Work Equipment. <p>Outcome 2 will be assessed by performance evidence generated under supervised conditions throughout this and any other practical unit(s) supported by assessor checklists covering the outcome and all performance criteria.</p> <p>Outcome 3 will be assessed by written and/or recorded oral and performance evidence at a single assessment event lasting no more than 30 minutes conducted under supervised conditions in which the learner will:</p> <ul style="list-style-type: none"> ◆ For a given item of plant, working environment or process identify a minimum of four hazards, four risks and relevant control measures and record these on pro forma documentation. |

| Unit | Assessment |
|---------------------|---|
| Welding Processes | <p>Evidence for this unit will be in the form of closed-book written and/or recorded oral evidence produced under controlled and supervised conditions lasting no more than two hours in total. The evidence must be produced on one assessment occasion towards the conclusion of the unit where the learner will:</p> <ul style="list-style-type: none"> ◆ Select welding processes for given applications. ◆ State the principles of the given welding processes. ◆ Select the consumables and variable settings. |
| Engineering Project | <p>Written and/or recorded oral evidence, product and performance evidence supplemented by an assessor observation checklist(s) is required to demonstrate that the learner has achieved the outcomes and performance criteria. Assessment must be conducted under supervised conditions. An integrated approach to the generation of assessment evidence is required with evidence being gathered at appropriate points throughout the delivery of the unit.</p> <p>In order to pass the unit each learner must produce sufficient evidence on his/her own to satisfy the outcomes and performance criteria in the unit specification.</p> |

| Unit | Assessment |
|--|---|
| <p>Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills</p> | <p>Performance evidence supported by assessor checklists and written and/or recorded oral evidence is required to show that all outcomes and performance criteria have been achieved. Assessment should take place under supervised conditions and should last no more than two hours.</p> <p>Performance evidence supplemented by assessor observation checklists is required to demonstrate that the learner has safely, within a total time not exceeding two hours, carried out the following:</p> <ul style="list-style-type: none"> ◆ Selected equipment and consumables to produce a single vee butt joint in the downhand position in low carbon steel to current industrial standards. ◆ Selected equipment and consumables to produce a Tee joint/fillet weld in aluminium to current industrial standards. ◆ Visually inspected the completed joints and complete an inspection report for the single vee butt weld. ◆ Complied with all health and safety requirements. |
| <p>Pattern Development</p> | <p>Product evidence will be required to demonstrate that the learner has achieved all the outcomes and performance criteria. This can be produced during one or more assessment occasions throughout the duration of the unit and should last no more than two hours in total.</p> <p>This evidence will be produced under supervised conditions and will comprise five drawings to be completed with layouts, joint lines, developed templates and user instructions as detailed below:</p> <ul style="list-style-type: none"> ◆ Tee piece in equal diameter pipes. ◆ Tee piece in unequal diameter pipes. ◆ Right cone cut inclined to the base. ◆ Oblique cone cut inclined to the base. ◆ Square to round on-centre transition piece, between parallel planes. <p>Satisfactory achievement of the unit is based on all templates being within a tolerance of $\pm 2\%$.</p> |

| Unit | Assessment |
|--|---|
| <p>Computer Aided Draughting (CAD) for Engineers</p> | <p>Product and performance evidence supported by an assessor observation checklist is required for outcome 1 to demonstrate that a learner has achieved the outcomes and performance criteria. Assessments must be conducted under supervised, open-book conditions.</p> <p>With regard to outcome 1:</p> <ul style="list-style-type: none"> ◆ Learners must produce two drawings, one in First Angle Projection and the other in Third Angle Projection. ◆ While producing the two drawings learners must demonstrate the use of a minimum of seven drawing/editing commands. ◆ Learners must include on the two engineering drawings all the necessary information required (for example the form, dimensions, tolerances, materials, finishes, treatments, etcetera) to define completely the object in the drawing. ◆ Learners must use system supplied drawing sheet templates and utilise appropriate layers, line types and text. <p>Product and performance evidence supported by an assessor observation checklist(s) is required for outcome 2 to demonstrate that a learner has achieved the outcomes and performance criteria. Assessments must be conducted under supervised, open-book conditions.</p> <p>With regard to outcome 2:</p> <ul style="list-style-type: none"> ◆ While modifying existing engineering drawings learners must demonstrate the use of a minimum of three separate edit commands. These must be additional to the commands used in outcome 1. ◆ The assembly drawing must comprise two or more parts, or sub-assemblies, in their assembled form, including any dimensions and instructions necessary to effect assembly. A simple parts list should be included or referred to. |

| Unit | Assessment |
|--------------------------|--|
| Pipework Skills | <p>Performance evidence supported by assessor checklists and written and/or recorded oral evidence is required to show that all outcomes and performance criteria have been achieved to the required standard. Assessment should take place under supervised conditions and will last no more than two hours.</p> <p>Performance evidence supplemented by assessor observation checklists is required to demonstrate that the learner has safely completed following:</p> <ul style="list-style-type: none"> ◆ Produced a fabricated pipe spool to include: <ul style="list-style-type: none"> — 25–50 mm diameter carbon steel pipe. — screwed fittings. — welded fittings. — pipe bending. — set-on 90° branch. ◆ Carried out an inspection on a pipe bend and completed an inspection report. ◆ Carried out a hydrostatic test on a pipe spool. ◆ Complied with all health and safety requirements. |
| Ship Construction Skills | <p>Performance evidence is required that demonstrates that the learners have achieved outcomes 1 to 3 to the standard specified within the allotted time scale. The component parts produced will be fabricated to normal industry tolerances and each individual component produced will be subject to continual assessment using observation checklists.</p> <p>Performance evidence supported by assessor checklists is required to show that all outcomes and performance criteria have been achieved. The evidence can be produced on one or more assessment occasions throughout the duration of the unit but will take place under supervised conditions and last no more than two hours.</p> <p>Once all items have been produced the final assembly will be subject to independent inspection and must conform to the given dimensional tolerances of ± 3 mm.</p> |

| Unit | Assessment |
|---|---|
| Tungsten Inert Gas (TIG) Welding Skills | <p>Performance evidence supported by assessor checklists and written and/or recorded oral evidence is required to show that all outcomes and performance criteria have been achieved. Assessment should take place under supervised conditions and should last no more than two hours.</p> <p>Performance evidence supplemented by assessor observation checklists is required to demonstrate that the learner has safely carried out the following:</p> <ul style="list-style-type: none"> ◆ Selected equipment and consumables to produce a single vee butt joint in the downhand position in low carbon steel to current industrial standards. ◆ Selected equipment and consumables to produce a fillet weld in the horizontal vertical position in stainless steel to current industrial standards. ◆ Visually inspected the completed single vee butt weld and completed an inspection report. ◆ Complied with all health and safety requirements. |

| Unit | Assessment |
|--------------------|--|
| Fabrication Skills | <p>An integrated approach to the generation of assessment evidence is required with evidence being gathered at appropriate points under supervised conditions throughout the delivery of the unit. Written and/or recorded oral evidence and performance evidence supplemented by assessor observation checklists is required to demonstrate that the learner has prepared, planned and manufactured an artefact in a safe manner.</p> <p>The learner will be required to:</p> <ul style="list-style-type: none"> ◆ Interpret engineering drawings and specifications. ◆ Construct a planning sheet. ◆ Identify, select and use appropriate materials. ◆ Select and use appropriate cutting techniques to cut materials. ◆ Select and use appropriate forming techniques. ◆ Select and use appropriate joining techniques. ◆ Carry out quality checks on the artefact at various stages of manufacture. ◆ Keep a tidy workplace and wear the correct Protective Personal Equipment (PPE). ◆ Use tools and equipment correctly and safely. |

| Unit | Assessment |
|---------------------------------------|--|
| Manual Metal Arc (MMA) Welding Skills | <p>Performance evidence supported by assessor checklists and written and/or recorded oral evidence is required to show that all outcomes and performance criteria have been achieved. Assessment should take place under supervised conditions and should last no more than two hours. Performance evidence supplemented by assessor observation checklists is required to demonstrate that the learner has safely carried out the following:</p> <ul style="list-style-type: none"> ◆ Selected equipment and consumables to produce a single vee butt joint in the downhand position in low carbon steel to current industrial standards. ◆ Visually inspected the completed single vee butt weld and completed an inspection report. ◆ Complied with all health and safety requirements. |
| Engineering Workshop Skills | <p>Written and/or recorded oral, product and performance evidence supplemented with an assessor observation checklist(s) should be produced to demonstrate that a candidate has achieved all Outcomes and Performance Criteria.</p> <p>Candidate evidence may be gathered using a single, holistic assessment covering all four Outcomes. Alternatively, Outcome 1 may be assessed separately from Outcomes 2, 3 and 4. The assessment of Outcome 4 must always be integrated with Outcomes 2 and 3.</p> <p>Outcome 1 (Written and/or Oral Recorded Evidence) Assessment of Outcome 1 must be taken at a single assessment event lasting 30 minutes. The candidate should be supplied with appropriate engineering drawing(s), charts and technical data as part of this assessment. Assessment must be conducted under supervised, closed-book conditions in which candidates may use reference materials provided by the centre but are not allowed to bring their own notes, handouts, textbooks or other materials into the assessment.</p> <p>With regard to Outcome 1:</p> <ul style="list-style-type: none"> ◆ candidate will correctly identify four drawing conventions and abbreviations from a given selection ◆ candidate is given a component drawing and asked to extract four pieces of information relating to dimensions and tolerances ◆ candidate is asked to source and extract information on internal and external threads from charts and technical data sheets for a minimum of two given thread sizes |

Outcomes 2, 3 and 4 (Product and Performance Evidence)

The assessment of Health and Safety and safe working practices in Outcome 4 must always be integrated with the practical assessments in Outcomes 2 and 3 and all other practical work activities undertaken by candidates while taking this Unit.

For Outcomes 2, 3 and 4 each candidate will require to prepare, mark out and manufacture a minimum of two components from given engineering drawings to a general engineering manufacturing tolerance of $\pm 0.5\text{mm}$. The components will be manufactured throughout the delivery of the Unit. The components should be prepared, marked out and manufactured under supervised conditions.

With regard to Outcome 2:

- ◆ candidate should prepare the work piece material using a hand file and engineer's square to ensure work piece material is deburred and square. The candidate is also required to select appropriate datum face(s)/edge(s) to suit given specifications and where appropriate a marking out ink should be applied.
- ◆ candidate should mark out a minimum of two components with the following features: four straight lines, two circles and two angles. Candidates must use, as a minimum, the following marking out equipment: scribe, rule, surface gauge, angle plate, dividers, protractor and radius gauges.

With regard to Outcome 3:

- ◆ for Outcome 3 each candidate will require to manufacture components, which may be mechanically fastened, from given engineering drawings which have as a minimum the following features: two parallel faces, four flat faces, two square faces, one angle, one radius and six drilled holes, of which two should be tapped, two reamed, one counter-bored and one counter sunk. During manufacture of the components candidates must use, as a minimum, the following tools: files, hack saw, engineer's square, drills and reamers, pedestal drill, counter-boring tool, countersink, centre punch, ball peen hammer and sets of taps.
 - ◆ candidates must use, as a minimum, the following measuring equipment: surface table, vernier height gauge, angle plate, radius gauges, vernier calliper and an engineer's protractor.
- For Outcome 4 an observation checklist must be used to record evidence that candidates have complied with the Performance Criteria in the Outcome while undertaking the marking out and manufacturing work in Outcomes 2 and 3.

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| <p>Mechanical Engineering Principles</p> | <p>Written and/or recorded oral evidence should be produced to demonstrate that a candidate has achieved all Outcomes and Performance Criteria.</p> <p>Outcomes 1, 2, 3 and 4 may be assessed on an individual basis, as a combination of Outcomes, or as a single, holistic assessment covering all four Outcomes. The total time for assessment(s) of the four Outcomes must not exceed 2 hours. Assessment(s) must be conducted under supervised, closed-book conditions in which candidates may use reference materials provided by the centre but are not allowed to bring their own notes, handouts, textbooks or other materials into the assessment. Candidates must be provided with an appropriate formulae sheet for assessment(s) and should be allowed to use a nonprogrammable scientific calculator during assessment(s).</p> <p>With regard to Outcome 1</p> <ul style="list-style-type: none"> ◆ candidates must state two scalar and three vector quantities used in mechanical engineering ◆ candidates must solve two problems involving velocity, acceleration, weight and force in mechanical systems <p>With regard to Outcome 2</p> <ul style="list-style-type: none"> ◆ candidates must state four forms of energy which could include the following: potential, kinetic, pressure, heat, electrical, chemical, magnetic, light, sound or nuclear ◆ candidates must state two examples of energy transformation processes <p>With regard to Outcome 3</p> <ul style="list-style-type: none"> ◆ candidates must state the meaning of the terms Mechanical Advantage, Velocity Ratio and Efficiency ◆ the lever problem must be solved using simple moment theory ◆ the pulley problem must be limited to two double sheave pulleys <p>With regard to Outcome 4</p> <ul style="list-style-type: none"> ◆ candidates must state both Celsius and Kelvin as temperature units ◆ candidates should describe the three phase change (solid — liquid — gas) in water in terms similar to the following: <ul style="list-style-type: none"> — sensible heat applied to ice to bring it to 0o C — conversion of ice to water through the application of latent heat of fusion, temperature remains constant |
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|-----------------------|---|
| | <ul style="list-style-type: none"> — sensible heat applied to water to heat to 100o C — conversion of water to steam through the application of latent heat of vapourisation, temperature remains constant s— continued heating of steam to produce dry steam ◆ candidates must state the meaning of the following terms: Specific Heat Capacity, Latent Heat of Fusion and Latent Heat of Vapourisation |
| Electrical Principles | <p>Written and/or recorded oral evidence and performance evidence is required which demonstrates that the candidate has achieved Outcomes 1, 2, and 3 to the standards specified in the Outcomes and Performance Criteria.</p> <p>Performance evidence supplemented with an assessor observation checklist, and written and/or recorded oral evidence is required which demonstrates that the candidate has achieved Outcome 3 to the standards specified in the Outcome and Performance Criteria.</p> <p>Outcomes may be assessed on an individual basis or as combinations of Outcomes (eg Outcomes 1 and 2 together and Outcome 3 as stand-alone). Regardless of which approach is taken total assessment time should not exceed two hours.</p> <p>Assessment(s) should be conducted under controlled, supervised, closed-book conditions in which candidates should not be allowed to bring any notes, handouts, textbooks or any other relevant materials into the assessment. Candidates may use a scientific calculator during assessment(s).</p> <p>With regard to Outcome 1:</p> <ul style="list-style-type: none"> ◆ candidates to state correctly the atomic structure of material as protons, neutrons and electrons ◆ candidates to describe correctly the relative movement of electrons in electrical conductors and insulators and distinguish between electron flow and conventional current direction ◆ candidates to describe correctly the meaning of three terms from Resistance, Current, Voltage (Electromotive Force e.m.f. and Potential Difference p.d.) Power and Energy including their relevant Unit of measurement ◆ candidates to solve correctly two problems in a combined series-parallel dc resistive network, using a total of four resistors, from the following $V = IR$, $P = VI$, $P = I^2 R$, $P = V^2 /R$ and $P = W/t$ |

| | |
|--------------------------|--|
| Electrical Wiring Skills | <p>Outcomes may be assessed on an individual basis or as a single holistic assessment covering all Outcomes and Performance Criteria. Assessment(s) should be conducted under controlled, supervised conditions in a practical electrical environment throughout the course of the Unit.</p> <p>With regard to Outcome 1:</p> <ul style="list-style-type: none"> ◆ a minimum of eight tools should be correctly selected from the following list: pliers, screwdrivers, wire strippers, hammers, knives, crimping tools, side cutters, rule, hand drills, spirit level, plumb line and hacksaw ◆ a minimum of eight accessories should be correctly selected from the following list: switch boxes, joint boxes, ceiling rose, lamp holders, socket outlets, switched fuse outlets, consumer Unit, fuses, circuit breakers, RCD and switches <p>With regard to Outcome 2:</p> <ul style="list-style-type: none"> ◆ all wires must be terminated correctly, securely and safely <p>With regard to Outcome 3:</p> <ul style="list-style-type: none"> ◆ candidates should be provided with a layout diagram and a wiring diagram for the electrical installation they are going to install <p>The circuits to be mounted and wired in Outcome 3 must have as a minimum the following:</p> <ul style="list-style-type: none"> ◆ a one-way light control (either loop-in or joint box method may be used) ◆ a two-way light control (either loop-in or joint box method may be used) ◆ a ring final circuit incorporating at least one non-fused and one fused spur <p>Tests should be limited to continuity, polarity and insulation resistance.</p> |
|--------------------------|--|

6 Guidance on approaches to delivery and assessment

The new National Progression Award can be delivered by a range of different delivery modes. For example, it may be delivered on a day-release, block-release or evening class basis to learners in employment. Alternatively, they may be delivered on a full-time basis to school leavers, adult returners, etcetera.

Lecturers may use a variety of teaching and learning approaches in delivering the units in the National Progression Award. These may include lecturing, group work, laboratory exercises, practical work, computer simulation (using appropriate software packages), investigative work (including the use of the Internet), project work and case studies. The use of open and distance learning and on-line materials may help to supplement and support the learning that takes place in the classroom, laboratory or workshop. Industrial visits are strongly recommended wherever possible to allow learners to see examples of engineering systems in operation and to observe the application of engineering principles and practices in 'real engineering environments.' Centres, working on their own or in partnership, might also wish to consider the following approaches to delivering the National Progression Award:

- ◆ Development of paper based and/or electronic assessment and teaching and learning materials for individual NQ Units.
- ◆ Identification and sharing of good learner learning support materials already available on the internet.
- ◆ Identification of various sources of information, including those found on the internet, to allow learners to undertake more in-depth investigations in given subject areas.
- ◆ Use of e-mentoring arrangements to support learners who study at a distance.
- ◆ Centres should take account of information contained in the 'recommended entry' statement in NQ Unit specifications in sequencing the delivery of units.

The practical units should be carried out predominantly in a workshop situation. Safety should be heavily emphasised in all its aspects, for example correct use and storage of PPE, correct use and storage of tools and specialist equipment, filter glass grades, earthing, fumes and gases, etcetera.

6.1 Sequencing/integration of units

There is no preferred sequence of delivery for the units; however, early delivery and assessment of the following unit will develop the learners' knowledge and safety awareness when undertaking practical unit: Health and Safety: Engineering.

6.2 Recognition of prior learning

SQA recognises that learners gain knowledge and skills acquired through formal, non-formal and informal learning contexts.

In some instances, a full group award may be achieved through the recognition of prior learning. However, it is unlikely that a learner would have the appropriate prior learning and experience to meet all the requirements of a full group award.

The recognition of prior learning may **not** be used as a method of assessing in the following types of units and assessments:

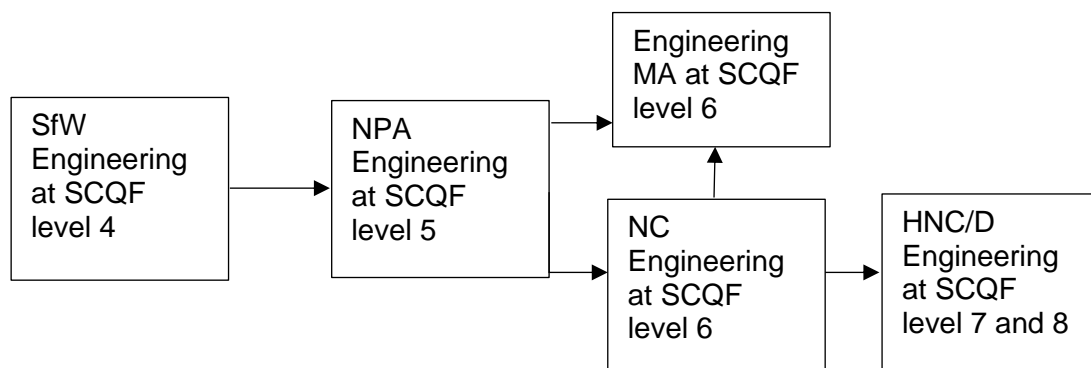
- ◆ HN Graded Units.
- ◆ Course and/or external assessments.
- ◆ Other integrative assessment units (which may or not be graded).
- ◆ Certain types of assessment instruments where the standard may be compromised by not using the same assessment method outlined in the unit.
- ◆ Where there is an existing requirement for a licence to practice.
- ◆ Where there are specific health and safety requirements.
- ◆ Where there are regulatory, professional or other statutory requirements.
- ◆ Where otherwise specified in an assessment strategy.

More information and guidance on the Recognition of Prior Learning (RPL) may be found on our website www.sqa.org.uk.

The following sub-sections outline how existing SQA unit /s may contribute to this group award. Additionally, they also outline how this group award may be recognised for professional and articulation purposes.

6.2.1 Articulation and/or progression

This award has been designed as a pre-apprenticeship qualification on the engineering career pathway. The award can be a progression route from the SfW Engineering award. The award can lead directly on to the NC (at SCQF level 6) or allow successful learners to apply for employment within the sector as appropriate at apprentice level. A progression diagram is inserted below



6.3 Opportunities for e-assessment

E-assessment may be appropriate for some assessments within the NPA. For example, where evidence is gathered in a portfolio as learners complete relevant activities

Evidence could be generated in a range of formats including but not limited to:
Written/oral/signed/audio/audio visual

- ◆ PowerPoint presentation.
- ◆ Poster presentation.
- ◆ Personal blog or wiki.
- ◆ Poster/display.
- ◆ Video or podcast.

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.

6.4 Support materials

A list of existing Assessment Support Packs (ASPs) is available to view on SQA's website.

F5EW 11: Fabrication Processes
F5DG 11: Health and Safety: Engineering
F5F3 11: Welding Processes
F5DE 11: Engineering Project
F5F7 12: Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills
F5EX 11: Pattern Development
F5H4 11: Computer Aided Draughting (CAD) for Engineers
F3HV 11: Mathematics: Craft 1
F5FG 11: Fabrication Skills
F5WA 11: Engineering Workshop Skills
F5K1 11: Mechanical Engineering Principles
F5HK 11: Electrical Principles
F5HP 11: Electrical Wiring Skills
F5W9 11: Engineering Materials

6.5 Resource requirements

No specific equipment out with what would be normally expected of a fabrication and welding engineering department and workshop.

6.6 *Learning for Sustainability*

The 2030 Agenda for Sustainable Development was adopted by all United Nations Member States in 2015. At its heart are the United Nations Sustainable Development Goals, which are central to the Scottish Government's national vision and the National Performance Framework. Education is one of the national outcomes within the framework, aiming to ensure people are well educated, skilled and able to contribute to society. This is where Learning for Sustainability (LfS) comes into play.

In line with Scottish Government recommendations, SQA is committed to identifying opportunities for developing the skills, knowledge and understanding of LfS within all new courses.

LfS combines:

- education on sustainable development
- global citizenship
- outdoor learning

It is designed to nurture a generation of learners who know the value of the natural world and are committed to the principles of social justice, human rights, global citizenship, democratic participation and living within the ecological limits of the planet.

The world is facing many interrelated issues, including financial instability, social and economic inequity, threats to food and energy security, increased health risks, climate change, shrinking biodiversity, and declining water and fossil fuel resources. These challenges make our world exceedingly difficult to predict and manage and have led to a global focus on changing the way humans interact with the world by encouraging individuals to live and work more sustainably.

LfS responds to these challenges by developing learners' knowledge, skills and values related to sustainability so they can interact with the world in a socially responsible way. LfS encourages learners to ask questions, analyse, think critically and work with others to make collaborative decisions in a holistic way. This can bring about increased learner confidence, an increase in the development of meta-skills, and an enhanced motivation and readiness to learn. LfS is more than the sum of its parts; it is about building learners' capacity to deal with the unpredictable challenges facing our rapidly changing world. As with meta-skills, LfS is at the core of our new Qualifications. You can integrate LfS into contextualised teaching activities and include them in integrated and holistic assessment approaches.

7 General information for centres

Equality and inclusion

The unit specifications making up this group award have been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners will 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.

Internal and external verification

All assessments used within this/these qualification(s) 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).

8 Glossary of terms

Embedded Core Skills: is where the assessment evidence for the unit also includes full evidence for complete Core Skill or Core Skill components. A learner successfully completing the unit will be automatically certificated for the Core Skill. (This depends on the unit having been successfully audited and validated for Core Skills certification.)

Finish date: The end of a group award's lapsing period is known as the finish date. After the finish date, the group award will no longer be live and the following applies:

- ◆ learners may not be entered for the group award.
- ◆ the group award will continue to exist only as an archive record on the Awards Processing System (APS).

Lapsing date: When a group award is entered into its lapsing period, the following will apply:

- ◆ the group award will be deleted from the relevant catalogue.
- ◆ the group award specification will remain until the qualification reaches its finish date at which point it will be removed from SQA's website and archived.
- ◆ no new centres may be approved to offer the group award.
- ◆ centres should only enter learners whom they expect to complete the group award during the defined lapsing period.

SQA credit value: The credit value allocated to a unit gives an indication of the contribution the unit makes to an SQA group award. An SQA credit value of 1 given to an SQA unit represents approximately 40 hours of programmed learning, teaching and assessment.

SCQF: The Scottish Credit and Qualification Framework (SCQF) provides the national common framework for describing all relevant programmes of learning and qualifications in Scotland. SCQF terminology is used throughout this guide to refer to credits and levels. For further information on the SCQF visit the SCQF website at www.scqf.org.uk.

SCQF credit points: SCQF credit points provide a means of describing and comparing the amount of learning that is required to complete a qualification at a given level of the Framework. One National Unit credit is equivalent to 6 SCQF credit points. One National Unit credit at Advanced Higher and one Higher National Unit credit (irrespective of level) is equivalent to 8 SCQF credit points.

SCQF levels: The level a qualification is assigned within the framework is an indication of how hard it is to achieve. The SCQF covers 12 levels of learning. HNCs and HNDs are available at SCQF levels 7 and 8 respectively. Higher National Units will normally be at levels 6–9 and graded units will be at level 7 and 8. National Qualification Group Awards are available at SCQF levels 2–6 and will normally be made up of National Units which are available from SCQF levels 2–7.

Subject unit: Subject units contain vocational/subject content and are designed to test a specific set of knowledge and skills.

Signposted Core Skills: refers to opportunities to develop Core Skills arise in learning and teaching but are not automatically certificated.

History of changes

It is anticipated that changes will take place during the life of the qualification and this section will record these changes. This document is the latest version and incorporates the changes summarised below. Centres are advised to check SQA's APS Navigator to confirm they are using the up to date qualification structure.

NOTE: Where a unit is revised by another unit:

- ◆ No new centres may be approved to offer the unit which has been revised.
- ◆ Centres should only enter learners for the unit which has been revised where they are expected to complete the unit before its finish date.

| Version Number | Description | Date |
|-----------------------|---|-------------|
| 02 | Qualification structure updated and information relating to Learning for Sustainability was added | May 2023 |
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Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of this qualification.

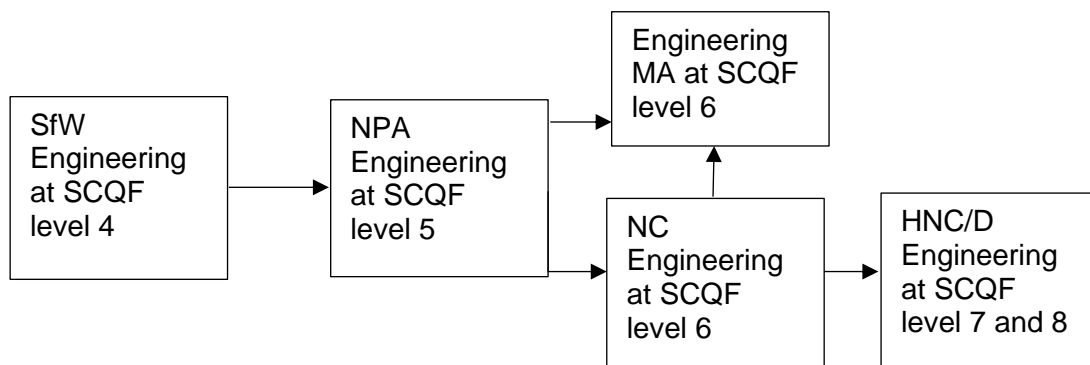
Template version: July 2020

9 General information for learners

This section will help you decide whether this is the qualification for you by explaining what the qualification is about, what you should know or be able to do before you start, what you will need to do during the qualification and opportunities for further learning and employment.

If you are still at school and sure you want to work in the engineering sector, this qualification has been designed for you. We have designed it to provide a good introduction to a wide range of careers across the engineering sector. We have worked closely with employers to design the qualification to ensure it covers the skills and knowledge they value when people start work.

The award is a mainly competence-based qualification with appropriate practical exercises. You will spend the majority of your time in a training or simulated work environment, and is designed to equip you with the knowledge, understanding and skills which are required by employers in the engineering sector. It also allows you to progress towards further qualifications, such as the Engineering NC or HNC or to apply directly for employment as an apprentice within the engineering sector. A progression diagram is inserted below.



You will be assessed on the knowledge and skills that you have developed in each unit. There are several possible types of assessment, including multiple choice questions, practical tasks with checklists, and other practical activities working in teams. The practical units will teach you the basic skills and knowledge needed to carry out practical work and to work with others. You will then be asked to complete these practical tasks yourself in order to demonstrate your range of abilities.

To complete the qualification you will need to complete 8 SQA credits, 3 of these credits are included in the mandatory section below, the further 5 credits are selected from the optional section.

Mandatory units

| Unit title | SQA credit value |
|--|------------------|
| Shipbuilding Work Based Challenge Unit | 1 |
| Understanding Industry | 1 |
| Mathematics: Craft 1 | 1 |

Optional units

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|---|---|
| Fabrication Processes | 1 |
| Health and Safety: Engineering | 1 |
| Welding Processes | 1 |
| Engineering Project | 1 |
| Metal Inert Gas (MIG) Metal Active Gas (MAG) Welding Skills | 1 |
| Pattern Development | 1 |
| Computer Aided Draughting (CAD) for Engineers | 1 |
| Pipework Skills | 1 |
| Ship Construction Skills | 1 |
| Tungsten Inert Gas (TIG) Welding Skills | 1 |
| Fabrication Skills | 2 |
| Manual Metal Arc (MMA) Welding Skills | 1 |
| Engineering Workshop Skills | 1 |
| Mechanical Engineering Principles | 1 |
| Electrical Principles | 1 |
| Electrical Wiring Skills | 1 |