SEG Awards ABC Level 1 Certificate in Fabrication and Welding Techniques and Skills

Qualification Guidance

Level 1 Certificate – 603/5749/6

This is a live document and as such will be updated when required. It is the responsibility of the approved centre to ensure the most up-to-date version of the Qualification Guide is in use. Any amendments will be published on our website and centres are encouraged to check this site regularly.

About us

At the Skills and Education Group Awards (ABC Awards)[1] we continually invest in high quality qualifications, assessments and services for our chosen sectors. As a UK leading sector specialist we continue to support employers and skills providers to enable individuals to achieve the skills and knowledge needed to raise professional standards across our sectors.

Skills and Education Group has an on-line registration system to help customers register learners on its qualifications, units and exams. In addition it provides features to view exam results, invoices, mark sheets and other information about learners already registered.

The system is accessed via a web browser by connecting to our secure website using a username and password: https://ors.skillsandeducationgroupawards.co.uk/

Sources of Additional Information

The Skills and Education Group Awards website https://skillsandeducationgroupawards.co.uk/ provides access to a wide variety of information.

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Specification Code, Date and Issue Number

The specification code is C5707-01

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Issue	Date	Details of change	Section/page
1	1/4/2020	Original document	n/a
2	8/10/2020	Progression Opportunities updated	Page 6
3	07/07/2025	Review date amended to 31/08/2027	Page 8

[1] ABC Awards is a brand of the Skills and Education Group Awards, a recognised awarding organisation and part of the Skills and Education Group. Any reference to ABC Awards, its registered address, company or charity number should be deemed to mean the Skills and Education Group Awards.

Contents

Introduction

- At Skills and Education Group Awards we have updated our suite of Fabrication and Welding qualifications to include the latest fabrication and welding techniques, materials, processes and practices. They are assessed in line with industry demands, which include updated rigorous practical assessments and online on-demand assessments.

- The qualification structures have been developed with the typical learner in mind, to ensure the units contained within them are relevant and facilitate progression, whether that is onto higher levels of learning, employment or specialist fabrication and welding procedures.

The qualifications have been developed in conjunction with academia and industry experts and informed by the work of professional bodies in the fabrication and welding field. At Level 2 and Level 3, the qualifications have been designed to complement the recently developed Apprenticeship Standards in Welding.

This qualification, along with the rest of the suite, has been endorsed by Lincoln Electric.

Aims

Raise a learner's skill level and enhance their underpinning knowledge to promote progression from basic welding and fabrication skills to a more highly developed understanding of equipment functions and how materials behave when subjected to fabrication and welding process.

Educate the learner in the observation of the correct and safe procedures that are paramount in the fabrication and welding industry.

Target Group

The target group includes, but is not limited to:

- School learners (14-16 year old) who are looking for an introductory programme of a vocational type of qualification for progression into further education and training
- young people who are following an apprenticeship programme
- young people who are new entrants to the industry
- adults wishing to specialise or upskill by pursuing single units
- the self-employed

Qualification Structure

Rules of Combination:

Learners must achieve all 4 units.

Units	Unit Number	Level	M/O	Credit Value	GLH
Health and Safety in a Fabrication and Welding Environment	R/618/0744	1	M	3	20
Welding Processes (Manual Metal-Arc and Metal-Arc Gas Shielded)	M/616/1263	1	M	6	50
Fabrication Processes (Sheet Metal and Plate)	T/616/1264	1	M	6	50
Engineering Drawing	A/616/1265	1	M	6	50

GLH: 170 hours, TQT: 210 hours, Credit value: 21

Assessment

In order to successfully achieve this qualification a learner must fully meet all of the learning outcomes. This is done by completing the Skills and Education Group Awards' practical and online multiple-choice assessments.

All centres are required to have internal quality assurance processes in place. Assessment workbooks are available on the Skills and Education Group Awards website for learners to complete to form the internal assessment requirements for each unit. The practical tasks in the workbooks are graded at a pass, merit or distinction.

The qualification is assessed via an externally set and externally assessed multiple choice question (MCQ) assessment. The examination provides the grade for this unit at a:

- Pass – 60%
- Merit – 70% or
- Distinction – 80%.

The overall qualification is graded as pass/fail however, unit achievements at pass, merit or distinction are shown on the qualification transcript.

For further information around assessment including reasonable adjustments and special considerations please review the Access to Assessment Policy here: https://skillsandeducationgroupawards.co.uk/policies-and-procedures/

Practice Assessment Material

Skills and Education Group Awards will make paper-based, multiple choice, practice tests available for learners prior to undertaking the online knowledge test. These questions will be of a comparable level and cover the same subject areas as listed above in the 'assessment' section, but they will not be the same questions as those presented during the online knowledge test.

Teaching Strategies and Learning Activities

Centres should adopt a delivery approach which supports the development of all individuals. The aims and aspirations of all the learners, including those with identified special needs or learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

Progression Opportunities

Learners who successfully achieve this qualification could progress into employment within a fabrication and welding environment or a manufacturing environment.

Tutor/Assessor Requirements

Skills and Education Group Awards require those involved in the assessment process to be suitably experienced and/or qualified. In general terms, this usually means that the Tutor/Assessor must be knowledgeable in the subject/occupational area to at least the level they are delivering/assessing at.

Those responsible for Internal Quality Assurance (IQA) must be knowledgeable of the subject/occupational area to a suitable level to carry out accurate quality assurance practices and processes.

Resource Requirements

Centres must provide access to sufficient equipment in the centre or workplace to ensure learners have the opportunity to cover all of the practical activities.

For external assessments the examination should be conducted at the Centre where the course delivery has taken place and should be carried out in accordance with the examination requirements of Skills and Education Group Awards.

Language

These specifications and associated assessment materials are in English only.

Qualification Summary

SEG Awards ABC Level 1 Certificate in Fabrication and Welding Techniques and Skills								
Qualification Number	603/5749/6							
Regulated	The qualification identified above is regulated by Ofqual, Qualifications Wales and CCEA Regulation.							
Assessment	• Internally set, internally assessed • Externally set, internally assessed • Externally set, externally assessed • Internal and external moderation							
Grading	Pass							
Operational Start Date	01/09/2020							
Review Date	31/08/2027							
Skills and Education Group Awards Sector	Engineering							
SSA Sector	4.1 Engineering							
Contact	See the Skills and Education Group Awards website for Customer Support Officer responsible for these qualifications.							
Qualification Purpose	C. Prepare for employment C1. Prepare for employment in a broad occupational area							
Entry Requirements	There are no formal pre-requisites for entry onto this qualification. Each centre is required to notify the awarding body of its policies on access and equality of opportunity. Within the parameters of these policies, a centre is expected to recruit with integrity on the basis of a learner's ability to contribute to and successfully complete the qualification.							
Age Range	Pre 16	✓	16 - 18	✓	18+	✓	19+	✓

Recommended GLH	Level 1 Certificate – 170
Recommended TQT	Level 1 Certificate – 210
Credit Value	Level 1 Certificate – 21
Learning Aims Reference	See Learning Aim Reference Service (LARS) website: https://data.gov.uk/dataset/learning-aim-reference-service
Type of Funding Available	See Learning Aim Reference Service (LARS) website
Qualification Fee	See Skills and Education Group Awards website for current fees and charges.
Additional Information	See Skills and Education Group Awards website for resources available for this qualification.

Unit Details

1. Health and Safety in a Fabrication and Welding Environment

Unit Reference	R/618/0744
Level	1
Credit Value	3
Guided Learning Hours	20
Unit Summary	In this unit, learners will find out about health and safety legislation, and the application of safe working practices within a workplace. They will explore hazards and precautions, signs and symbols and basic safety procedures. Health and Safety must be an integral part of every learner's programme. It is expected that the outcomes listed will be integrated as appropriate into each unit of this qualification. Skills and Education Group Awards has produced a workbook which learners can use to provide evidence of achievement against the learning outcomes and assessment criteria. The workbook is available on the Skills and Education Group Awards website. Skills and Education Group Awards also provides Learner Achievement Checklists to record achievement. These are also available on Skills and Education Group Awards website.
Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know about health and safety responsibilities	1.1. Identify the basic responsibilities of employer and employee with regard to Health and Safety at Work Act 1974 (where legislation, regulations do not apply in the jurisdiction, relevant ones should be applied) 1.2 Identify the statutory requirements and legislation of the Health and Safety at Work in a fabrication and welding work environment

2. Know how to avoid risks in a fabrication and welding work environment	2.1. Identify and describe where potential health and safety hazards may occur within a fabrication and welding work environment 2.2 Identify potential hazards and the necessary precautions in a fabrication and welding environment for each of the following • when moving and handling materials • when using hand and power tools • when using thermal processes
3. know how to undertake a risk assessment of fabrication and welding work environment	3.1 Describe the five steps of a risk assessment
4. Know how to protect themselves in a work environment	4.1 State reasons why protective clothing and equipment should be worn 4.2 Identify common safety guards, screens and fences within a workshop situation 4.3 Describe how waste materials should be dealt with to comply with current laws and regulations
5. Know about accident and emergency procedures	5.1 Describe their organisational accident and emergency procedures in relation to • injury to self or others • fire • malfunctions of equipment • problems with hazardous substances
6. Understand safety signs	6.1 Identify safety signs within the following groups • mandatory • warning • safe condition • prohibited

2. Welding Processes (Manual Metal-Arc and Metal-Arc Gas Shielded)

Unit Reference	M/616/1263
Level	1
Credit Value	5
Guided Learning Hours	50
Unit Summary	Learners will know about the safe working practice and the correct procedures required when carrying out manual metal-arc (MMA) and metal-arc gas shielded (MAGS) welding activities. It will also be required for the learner to produce a welded joint to an acceptable standard.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know about the dangers associated with MMA and MAGS welding activities	1.1 State the importance of wearing the correct personal protective equipment (PPE) when carrying out welding activities 1.2 Identify the dangers of MMA and MAGS welding, to include: • inhalation of welding fumes • hot metal • arc radiation burns • arc eye • electric shocks
2 Know about the equipment used for welding	2.1 Identify parts of the equipment used for MMA and MAGS welding: MMA welding equipment, to include: • power supply (transformer/rectifier) • welding lead • welding return lead • electrode holder MAGS welding equipment, to include: • power supply (rectifier) • cylinder and regulator • electrode wire and wire drive mechanism • welding torch, to include contact tip and shroud • welding return lead
3 Know how to prepare equipment and materials for welding	3.1 Identify the safe procedure for assembling the equipment prior to welding activities

	3.2 Identify safety checks to be carried out to ensure the equipment is safe to use 3.3 Identify the correct parameters required for the welding activity, to include: MMA welding • current • slope and tilt angles • arc length MAGS welding • current/voltage • wire speed • shielding gas flow rate • slope and tilt angles 3.4 Identify how to select and store the consumables to be used for the welding activity 3.5 Describe how the material should be prepared prior to welding
4 Be able to produce welded joints	4.1 Describe and demonstrate the procedure for producing a welded joint by one of the listed welded processes: • MMA • MAGS 4.2 Produce one of the listed welded joints in low carbon steel thickness range from 3 mm to 6 mm. Welds to be completed in the flat (PA) or horizontal vertical (PB) welding positions: • 90° open corner joint • lap joint
5 Know about the quality of completed welds	5.1 Undertake visual inspection of the completed welded joint to determine the presence of welding defects, to include: • undercut • porosity • uneven weld profile • lack of/or excessive root penetration (open corner joint) • absence of surface marks

3. Fabrication Processes (Sheet Metal and Plate)

Unit Reference	T/616/1264
Level	1
Credit Value	5
Guided Learning Hours	50
Unit Summary	Learners will know the methods of marking out, cutting and forming and the joining of materials, which are part of an end practical assessment. Working to tolerances as shown on engineering drawings is an integral part of this unit. Learners will know the safety requirements when carrying out fabrication practice.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know about the safe working practices when carrying out fabrication activities	1.1 State the importance of wearing the correct PPE when carrying out fabrication activities 1.2 Identify the dangers when working on fabrication activities, to include: • handling and lifting materials • using hand tools • using cutting and forming equipment and machines 1.3 Identify guards that are used on machines, to include: • fixed guards • movable guards • light guards
2. Know about forms of supply that is used in fabrication	2.1. Identify forms of supply used in fabrication activities, to include: • tin plate • sheet • plate • equal and unequal angle section • rolled steel channel • pipe and tube 2.2. Identify the precautions to be taken when storing materials for fabrication activities

3. Understand the principles of marking out	3.1. Identify tools and instruments used to mark out both sheet metal and plate sections, to include: • scriber and chalk lines • rules and tapes • straight edges • dividers • trammels • squares and protractors • callipers • punches 3.2. Identify methods of marking out sheet metal and plate sections 3.3. Use marking out equipment to mark out components to dimensions and tolerances
4. Know about fabrication equipment	4.1. Identify hand tools, manual and powered machines for cutting materials, to include: • hacksaws • tin snips • bench shears • guillotine 4.2. Identify hand tools, manual and powered machines for forming materials, to include: • folding bars • folding machines • rolling machines (pyramid and pinch) 4.3. Identify powered drilling machines, to include: • bench drill • pillar drill
5. Be able to produce fabricated assemblies	5.1. Identify methods of joining sheet metal and plate, to include: • self-secured joints • hollow rivets • welding • mechanical fasteners 5.2. Identify bending sequences as applied to sheet metal assemblies 5.3. Identify the effects of springback as applied to bending and rolling 5.4. Produce a fabricated assembly from information given on a drawing to a stated tolerance 5.5. Identify methods of inspection and quality control as applied to fabricated assemblies

4. Engineering Drawing

Unit Reference	A/616/1265
Level	1
Credit Value	5
Guided Learning Hours	50
Unit Summary	Using various drawing instruments and/or computer-aided design (CAD) systems, learners will know how to produce engineering drawings that will meet current industry standards.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know about the presentation of engineering drawings	1.1. Identify the use of orthographic drawings, to include: • first angle projection • third angle projection 1.2. Identify other forms of graphic representation, to include: • isometric drawings • oblique drawings 1.3. Identify information shown on a drawing, to include: • dimensioning (to current engineering standards) • scale • line types • title box information 1.4. Identify drawing paper sizes (A2, A3, A4)
2. Know about engineering drawings and symbols	2.1. Identify first and third angle projection symbols 2.2. Identify welding symbols for fillet and butt welds 2.3. Identify symbols and conventions, to include: • diameter • square • radii • measurement units

3. Be able to use manual drafting methods	3.1. Use manual drafting methods to produce: • angles of 30°, 45°, 60° and 90° • a regular hexagon • an ellipse 3.2. Divide a line into 5 equal parts
4. Be able to produce engineering drawings	4.1. Using CAD or manual drawing methods, produce a drawing of an engineering component. The completed drawing should be: • drawn in first or third angle projection • fully dimensioned • drawn to scale • showing a title box 4.2. Identify the advantages and limitations of using a CAD system for producing engineering drawings

Appendices

Recognition of Prior Learning, Exemption and Credit Transfer

Skills and Education Group Awards policy enables learners to avoid duplication of learning and assessment in a number of ways:

- Recognition of Prior Learning (RPL) – a method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.
- Exemption - Exemption applies to any certificated achievement which is deemed to be of equivalent value to a unit within Skills and Education Group Awards qualification but which does not necessarily share the exact learning outcomes and assessment criteria. It is the assessor's responsibility, in conjunction with the Internal Moderator, to map this previous achievement against the assessment requirements of the Skills and Education Group Awards qualification to be achieved in order to determine its equivalence.
  Any queries about the relevance of any certificated evidence, should be referred in the first instance to your centre's internal moderator and then to Skills and Education Group Awards.
  It is important to note that there may be restrictions upon a learner's ability to claim exemption or credit transfer which will be dependent upon the currency of the unit/qualification and a learner's existing levels of skill or knowledge.
  Where past certification only provides evidence that could be considered for exemption of part of a unit, learners must be able to offer additional evidence of previous or recent learning to supplement their evidence of achievement.

- Credit Transfer – Skills and Education Group Awards may attach credit to a qualification, a unit or a component. Credit transfer is the process of using certificated credits achieved in one qualification and transferring that achievement as a valid contribution to the award of another qualification. Units / Components transferred must share the same learning outcomes and assessment criteria along with the same unit number. Assessors must ensure that they review and verify the evidence through sight of:
    - original certificates OR
    - copies of certificates that have been signed and dated by the internal moderator confirming the photocopy is a real copy and make these available for scrutiny be the External Moderator.
- Equivalencies – opportunities to count credits from the unit(s) from other qualifications or from unit(s) submitted by other recognised organisations towards the place of mandatory or optional unit(s) specified in the rule of combination. The unit must have the same credit value or greater than the unit(s) in question and be at the same level or higher.

Skills and Education Group Awards encourages its centres to recognise the previous achievements of learners through RPL, Exemption and Credit Transfer. Prior achievements may have resulted from past or present employment, previous study or voluntary activities.

Centres should provide advice and guidance to the learner on what is appropriate evidence and present that evidence to the external moderator in the usual way.

Further guidance can be found in 'Delivering and Assessing Skills and Education Group Awards Qualifications' which can be downloaded from:
https://skillsandeducationgroupawards.co.uk/wp-content/uploads/2017/12/SEG-Awards_Delivering-and-Assessing-Qualifications-19-20.pdf

Certification

Learners will be certificated for all units and qualifications that are achieved and claimed.

Skills and Education Group Awards policies and procedures are available on the Skills and Education Group Awards website.

Glossary of Terms

Guided Learning Hours (GLH)
GLH is where the learner participates in education or training under the immediate guidance or supervision of a tutor (or other appropriate provider of education or training). It may be helpful to think – 'Would I need to plan for a member of staff to be present to give guidance or supervision?'

GLH is calculated at the unit/component level and added up at the qualification level.
Examples of guided learning include:

- Face-to-face meeting with a tutor
- Telephone conversation with a tutor
- Instant messaging with a tutor
- Taking part in a live webinar
- Classroom-based instruction
- Supervised work
- Taking part in a supervised or invigilated assessment
- The learner is being observed.

TQT (Total Qualification Time)
The number of notional hours which represents an estimate of the total amount of time that could reasonably be expected to be required, in order for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.' The size of a qualification is determined by the TQT.

TQT is made up of the GLH plus all other time taken in preparation, study or any other form of participation in education or training but not under the direct supervision of a lecturer, supervisor or tutor.

TQT is calculated at qualification level and not unit/component level.

Examples of unsupervised activities that could contribute to TQT include:

- Researching a topic and writing a report
- Watching an instructional online video at home/e-learning
- Watching a recorded webinar
- Compiling a portfolio in preparation for assessment
- Completing an unsupervised practical activity or work
- Rehearsing a presentation away from the classroom
- Practising skills unsupervised
- Requesting guidance via email – will not guarantee an immediate response.