



ETCAL Level 3 NVQ Diploma in Fabrication and Welding Engineering  
601/1853/2  
Structure

## Qualification aim

This qualification is designed to support those learners training in Fabrication and Welding, however, it is also available for individuals who are not following an apprenticeship. It provides a structured individualised route with knowledge and skills for those who wish to achieve a qualification in Fabrication and Welding Engineering.

## Qualification introduction

This qualification is made up of 3 mandatory units that will help learners to develop an understanding of the knowledge and skills required as relevant to their capabilities and aspirations. Its mandatory units form a foundation to extend the understanding and skills in specific areas through the optional routes, in addition to these learners are required to achieve additional units selected from a suite of 7 Pathways and in accordance with the achievement definition. Learners who complete the qualification will be equipped with the knowledge and skills to underpin career development within the industry.

## Assessment

In order to achieve this qualification a learner must complete all units as mandatory. The assessment criteria determine the standard required to achieve each unit and allow for a variety of assessment methods to be used as appropriate to the environment the qualification is delivered in. There is no examined assessment element in this qualification.

## Achievement

Learners must achieve a minimum of 124 credits to gain the qualification. 15 credits must be achieved by completing the 3 mandatory units and the remaining credits achieved by completing the required optional units from the suite of Pathways.

<b>Qualification Number</b>		601/1853/2
<b>Qualification Framework</b>		RQF
<b>Title</b>		ETCAL Level 3 NVQ Diploma in Fabrication and Welding Engineering
<b>Qualification Level</b>		Level 3
<b>Total Qualification Time</b>		1240 TQT
<b>Guided Learning Hours</b>		477 GLH
<b>Qualification Credit Value</b>		124 Credits
<b>Qualification Grading Structure</b>		Pass / Fail

Unit Title	Mandatory/Optional	GLH	TQT	Credit Value	Grading
<b>Mandatory Group – all units must be completed</b>					
Complying with Statutory Regulations and Organisational Safety Requirements	M	35		5	Pass/Fail
Using and Interpreting Engineering Data and Documentation	M	25		5	Pass/Fail
Working efficiently and effectively in engineering	M	25		5	Pass/Fail
<b>Manual Welding - Must complete any one unit from the following:</b>					
Welding Materials by the Manual Metal Arc Process	O	322		175	Pass/Fail
Welding Materials by the Manual MIG/MAG and Flux-Cored Wire Processes	O	322		175	Pass/Fail
Welding Materials by the Manual TIG and Plasma Arc Welding Process	O	322		175	Pass/Fail
Welding Materials by the Manual Oxy/Fuel Gas Welding Process	O	308		170	Pass/Fail
Welding Pipe/Tube using Multiple Manual Arc Welding Processes	O	329		180	Pass/Fail
Welding Plate using Multiple Manual Arc Welding Processes	O	329		180	Pass/Fail

<b>Welding Machine Setting and Operating - Must complete two units from the following:</b>					
Resolving Engineering Problems (ETS3.43 from L3 Engineering Technical Support)	O	96		40	Pass/Fail
Implementing Engineering Activities (ETS3.45 from L3 Engineering Technical Support)	O	106		40	Pass/Fail
Monitoring Engineering Activities (ETS3.46 from L3 Engineering Technical Support)	O	106		40	Pass/Fail
<b>Plus one more unit from the following:</b>					
Preparing Mechanised Arc Welding Equipment for Production	O	245		70	Pass/Fail
Preparing Resistance Spot, Seam and Projection Welding Machines for Production	O	147		45	Pass/Fail
Preparing Laser Welding Machines for Production	O	245		70	Pass/Fail
Preparing Electron Beam Welding Machines for Production	O	245		70	Pass/Fail
Preparing Friction Welding Machines for Production	O	238		65	Pass/Fail
Preparing Brazing Machines for Production	O	147		45	Pass/Fail
<b>Plus one more unit from the following:</b>					
Welding Materials with Mechanised Arc Welding Equipment (FAB2.09 from L2 Fabrication and Welding Engineering)	O	140		37	Pass/Fail
Welding Materials using Resistance Spot, Seam and Projection Welding Machines (FAB2.10 from L2 Fabrication and Welding Engineering)	O	129		35	Pass/Fail
Welding Materials using Laser Welding Machines (FAB2.11 from L2 Fabrication and Welding Engineering)	O	140		37	Pass/Fail
Welding Materials using Electron Beam Welding Machines (FAB2.12 from L2 Fabrication and Welding Engineering)	O	140		37	Pass/Fail
Welding Materials using Friction Welding Machines (FAB2.13 from L2 Fabrication and Welding Engineering)	O	129		35	Pass/Fail
Joining Materials using Brazing Machines	O	84		20	Pass/Fail
<b>Sheetmetal Working (3mm or less) - Must complete the following units:</b>					
Marking Out Components for Metalwork	O	77		21	Pass/Fail
Cutting Sheetmetal to Shape using Hand and Machine Tools	O	133		35	Pass/Fail
Forming Sheetmetal using Hand and Machine Tools	O	140		40	Pass/Fail
<b>Plus two more units from the following:</b>					
Producing Sheetmetal Assemblies	O	140		43	Pass/Fail
Heat Treating Materials for Fabrication Activities	O	42		12	Pass/Fail
Developing and Marking Out Templates for Metalwork	O	91		28	Pass/Fail
<b>Plus one more from the following:</b>					
Joining Fabricated Components using Mechanical Fasteners	O	77		21	Pass/Fail

Bonding Engineering Materials using Adhesives (FAB2.29 from L2 Fabrication and Welding Engineering)	O	56		14	Pass/Fail
Joining Materials by Resistance Spot Welding (FAB2.30 from L2 Fabrication and Welding Engineering)	O	35		7	Pass/Fail
Producing Fillet Welded Joints using a Manual Welding Process	O	252		76	Pass/Fail
Operating CNC Fabrication Equipment	O	133		40	Pass/Fail
<b>Plateworking (3mm upwards) - Must complete one unit from the following:</b>					
Marking Out Components for Metalwork	O	77		21	Pass/Fail
Developing and Marking Out Templates for Metalwork	O	91		28	Pass/Fail
<b>Plus one more from the following:</b>					
Cutting Plate and Sections using Shearing Machines	O	91		28	Pass/Fail
Cutting and Shaping Materials using Portable Thermal Cutting Equipment	O	133		35	Pass/Fail
Cutting Materials using Saws and Abrasive Discs (FAB2.35 from L2 Fabrication and Welding Engineering)	O	42		13	Pass/Fail
Operating CNC Fabrication Equipment	O	133		40	Pass/Fail
<b>Plus two more units from the following:</b>					
Bending and Forming Plate using Press Brakes or Bending Machines	O	133		35	Pass/Fail
Forming Platework using Power Rolling Machines	O	133		35	Pass/Fail
Producing and Finishing Holes using Drilling Machines	O	56		14	Pass/Fail
Producing Platework Assemblies	O	133		35	Pass/Fail
<b>Plus two more units from the following:</b>					
Joining Fabricated Components using Mechanical Fasteners	O	77		21	Pass/Fail
Producing Fillet Welded Joints using a Manual Welding Process	O	252		76	Pass/Fail
Slinging, Lifting and Moving Materials and Components	O	56		14	Pass/Fail
<b>Structural Steelwork - Must complete one unit from the following:</b>					
Marking Out Components for Metalwork	O	77		21	Pass/Fail
Developing and Marking Out Templates for Metalwork	O	91		28	Pass/Fail
<b>Plus one unit from the following:</b>					
Cutting Plate and Sections using Shearing Machines	O	252		76	Pass/Fail
Cutting and Shaping Materials using Portable Thermal Cutting Equipment	O	133		35	Pass/Fail
Cutting Materials using Saws and Abrasive Discs (FAB2.35 from L2 Fabrication and Welding Engineering)	O	42		13	Pass/Fail
Operating CNC Fabrication Equipment	O	133		40	Pass/Fail
<b>Plus two more units from the following:</b>					
Forming Structural Sections using Machines	O	133		35	Pass/Fail
Producing Structural Steel Ancillary Components	O	98		28	Pass/Fail
Producing Major Structural Components/Sub-assemblies	O	140		40	Pass/Fail

Producing and Finishing Holes using Drilling Machines	O	56		14	Pass/Fail
<b>Plus two more units from the following:</b>					
Joining Fabricated Components using Mechanical Fasteners	O	77		21	Pass/Fail
Producing Fillet Welded Joints using a Manual Welding Process	O	252		76	Pass/Fail
Erecting Structural Steelwork	O	140		40	Pass/Fail
Slinging, Lifting and Moving Materials and Components	O	56		14	Pass/Fail
<b>Pipe and Tube Fabrication - Must complete one unit from the following:</b>					
Marking Out Components for Metalwork	O	77		21	Pass/Fail
Developing and Marking Out Templates for Metalwork	O	91		28	Pass/Fail
<b>Plus one more unit from the following:</b>					
Cutting and Shaping Materials using Portable Thermal Cutting Equipment	O	133		35	Pass/Fail
Cutting Materials using Saws and Abrasive Discs (FAB2.35 from L2 Fabrication and Welding Engineering)	O	42		13	Pass/Fail
Bonding Engineering Materials using Adhesives (FAB2.29 from L2 Fabrication and Welding Engineering)	O	56		14	Pass/Fail
<b>Plus two more units from the following:</b>					
Forming Pipework by Machine Bending	O	140		40	Pass/Fail
Producing Pipe Fabrications	O	140		40	Pass/Fail
Producing and Finishing Holes using Drilling Machines	O	56		14	Pass/Fail
<b>Plus one more unit from the following:</b>					
Joining Fabricated Components using Mechanical Fasteners	O	77		21	Pass/Fail
Producing Socket and Flange Fillet Welded Joints in Pipe using a Manual Welding Process	O	210		86	Pass/Fail
<b>Rail Welding - Must complete one of the following pairs of units:</b>					
<b>Either:</b>					
Welding Rails using Aluminothermic Welding Process	O	168		63	Pass/Fail
Restore Rails to Operational Condition using an Arc Welding Process	O	147		48	Pass/Fail
<b>Or:</b>					
Preparing Flash Welding Machines for Operation	O	161		61	Pass/Fail
Joining Rails using Flash Welding Equipment	O	147		50	Pass/Fail
<b>Unit numbers 47 to 55 and 60 to 65 not used</b>					