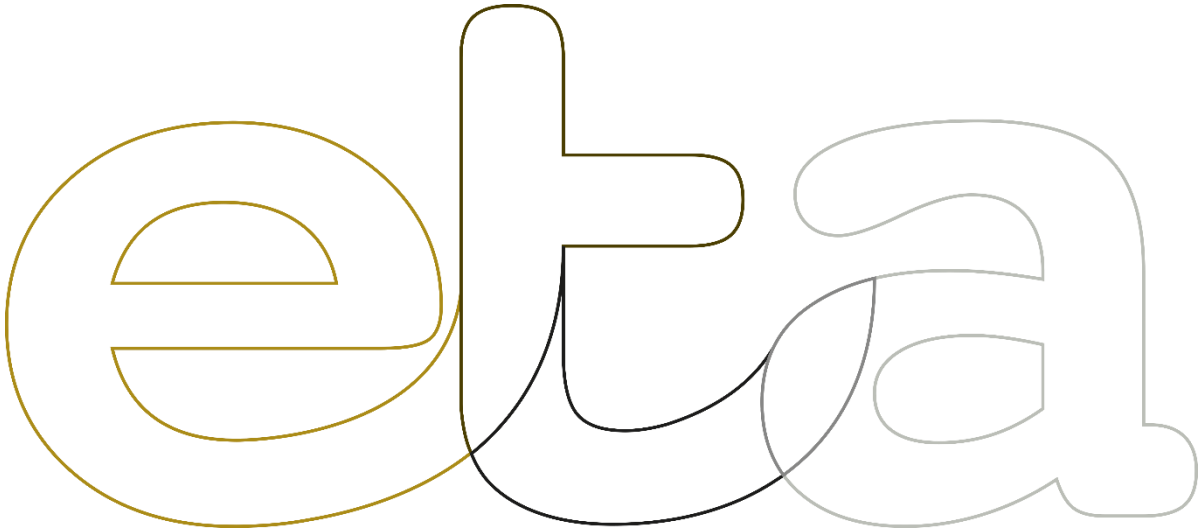

ETCAL Level 2 Diploma in Performing Engineering Operations (Northern Ireland)
603/5276/0

Qualification aim

This qualification has been designed for those learners who are either:

- acquiring engineering competencies in a realistic, sheltered and controlled environment, or
- employed but require additional engineering competencies as part of an existing job role or to enable career progression.

Qualification introduction

This ETCAL Level 2 Diploma in Performing Engineering Operations (Northern Ireland) qualification has been developed as part of the curriculum reform of NI Apprenticeships and Youth Training programmes.

This qualification is made up of three mandatory units that will help learners to develop an understanding of organisational safety requirements, team working and using technical information. Mandatory units cover those areas which have a common approach such as:

- organisational safety requirements,
- team working and
- using technical information

There are 2 pathways offering a choice of pathway specific optional units applicable to individual workplaces and working environments in:

- Engineering Practices
- Technical Support

Assessment

In order to achieve this qualification a learner must complete all mandatory units and the applicable optional units relevant to their pathway. 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.

Progression

On completion of this qualification learners will be prepared to progress to level 3 qualifications in a range of occupations within the sector, this could include but is not limited to apprenticeships.

Qualification Number		603/5276/0
Qualification Framework		RQF
Title		ETCAL Level 2 Diploma in Performing Engineering Operations (Northern Ireland)
Qualification Level		Level 2
Guided Learning Hours		214 GLH
Total Qualification Time		400 TQT
Qualification Credit Value		40 Credits
Qualification Grading Structure		Pass / Fail

Qualification Structure

Learners must achieve a minimum of 40 credits to gain the qualification. 13 credits must be achieved by completing the 3 mandatory units and the remaining credits achieved by completing 3 units from the Engineering Practices pathway or 5 units from the Technical Support pathway.

Mandatory Units – all units must be completed

Unit Title	Mandatory/Optional	GLH	Credit Value	Grading
Working safely in an engineering environment	M	33	5	Pass / Fail
Working efficiently and effectively in Engineering	M	29	4	Pass / Fail
Using and communicating technical information	M	29	4	Pass / Fail

Engineering Practices **Optional Pathway** – a minimum of 3 units must be selected.

Engineering Practices pathway excluded units:

If this unit is chosen:	These units cannot be included in the choice of three:
Producing Mechanical Engineering Drawings Using a CAD System	Producing Electrical or Electronic Engineering Drawings Using a CAD System, Producing CAD Models (Drawings) Using a CAD System
Producing Electrical or Electronic Engineering Drawings Using a CAD System	Producing CAD Models (Drawings) Using a CAD System, Producing Mechanical Engineering Drawings Using a CAD System
Producing Cad Models (Drawings) Using a CAD System	Producing Electrical or Electronic Engineering Drawings Using a CAD System, Producing Mechanical Engineering Drawings Using a CAD System

General Machining, Fitting and Assembly Applications	Producing Components Using Hand Fitting Techniques, Producing Mechanical Assemblies, Carrying Out Aircraft Detail Fitting Activities, Preparing and Using Lathes for Turning Operations, Preparing and Using Milling Machines, Preparing and Using CNC Turning Machines, Preparing and Using CNC Milling Machines, Preparing and Using CNC Machining Centres
General Fabrication and Welding Applications	Producing Aircraft Detail Assemblies, Producing Sheet Metal Components and Assemblies, Producing Platework Components and Assemblies, Preparing and Proving CNC Fabrication Machine Tool Programs, Preparing and Using CNC Fabrication Machinery, Preparing and Using Manual Metal Arc Welding Equipment, Preparing and Using Manual TIG or Plasma-Arc Welding Equipment, Preparing and Using Semi-Automatic MIG, MAG and Flux Cored Arc Welding Equipment, Preparing and Using Manual Gas Welding Equipment, Forming and Assembling Electrical Cable Enclosure and Support Systems
General Electrical and Electronic Engineering Applications	Wiring and Testing Electrical Equipment and Circuits, Assembling, Wiring and Testing Electrical Panels/Components Mounted in Enclosures, Assembling and Testing Electronic Circuits, Wiring and Testing Programmable Controller Based Systems
General Maintenance Engineering Applications	Maintaining Mechanical Devices and Equipment, Maintaining Fluid Power Equipment, Maintaining Electrical Equipment/Systems, Maintaining Electronic Equipment/Systems, Maintaining and Testing Process Instrumentation and Control Devices, Wiring and Testing Programmable Controller Based Systems, Diagnosing and Rectifying Faults on Motorsport Vehicle Systems (During Competition), Carrying Out Maintenance Activities on Motorsport Vehicle Electrical Equipment

Optional Units – a minimum of 3 units must be selected.

Unit Title	Mandatory/Optional	GLH	Credit Value	Grading
Producing mechanical engineering drawings using a CAD system	O	61	11	Pass / Fail
Producing Components using Hand Fitting Techniques	O	64	14	Pass / Fail
Producing Mechanical Assemblies	O	68	15	Pass / Fail
Forming and Assembling Pipework Systems	O	64	14	Pass / Fail
Carrying Out Aircraft Detail Fitting Activities	O	64	14	Pass / Fail
Installing Aircraft Mechanical Fasteners	O	61	11	Pass / Fail
Producing Aircraft Detail Assemblies	O	64	14	Pass / Fail
Preparing and Using Lathes for Turning Operations	O	68	15	Pass / Fail
Preparing and Using Milling Machines	O	68	15	Pass / Fail
Preparing and Using Grinding Machines	O	68	15	Pass / Fail
Preparing and Proving CNC Machine Tool Programs	O	64	14	Pass / Fail
Preparing and Using CNC Turning Machines	O	64	14	Pass / Fail
Preparing and Using CNC Milling Machines	O	64	14	Pass / Fail
Preparing and Using CNC Machining Centres	O	64	14	Pass / Fail
Preparing and Using Industrial Robots	O	64	14	Pass / Fail

Maintaining Mechanical Devices and Equipment	O	64	14	Pass / Fail
Assembling and Testing Fluid Power Systems	O	64	14	Pass / Fail
Maintaining Fluid Power Equipment	O	64	14	Pass / Fail
Producing Sheet Metal Components and Assemblies	O	64	14	Pass / Fail
Producing Platework Components and Assemblies	O	64	14	Pass / Fail
Cutting and Shaping Materials using Thermal Cutting Equipment	O	64	14	Pass / Fail
Preparing and Proving CNC Fabrication Machine Tool Programs	O	64	14	Pass / Fail
Preparing and Using CNC Fabrication Machinery	O	64	14	Pass / Fail
Preparing and Using Manual Metal Arc Welding Equipment	O	68	15	Pass / Fail
Preparing and Using Manual TIG or Plasma-arc Welding Equipment	O	68	15	Pass / Fail
Preparing and using semi-automatic MIG, MAG and flux cored arc welding equipment	O	68	15	Pass / Fail
Preparing and Using Manual Oxy/fuel Gas Welding Equipment	O	64	14	Pass / Fail
Preparing and Using Manual Flame Brazing and Braze Welding Equipment	O	61	11	Pass / Fail
Producing Electrical or Electronic Engineering Drawings using a CAD System	O	61	11	Pass / Fail
Wiring and Testing Electrical Equipment and Circuits	O	64	14	Pass / Fail
Forming and Assembling Electrical Cable Enclosure and Support Systems	O	65	13	Pass / Fail

Assembling, Wiring and Testing Electrical Panels/Components Mounted in Enclosures	O	64	14	Pass / Fail
Assembling and Testing Electronic Circuits	O	64	14	Pass / Fail
Maintaining Electrical Equipment/Systems	O	68	15	Pass / Fail
Maintaining Electronic Equipment/Systems	O	68	15	Pass / Fail
Maintaining and Testing Process Instrumentation and Control Devices	O	68	15	Pass / Fail
Wiring and Testing Programmable Controller Based Systems	O	68	15	Pass / Fail
Using Wood for Pattern, Model Making and Other Engineering Applications	O	68	15	Pass / Fail
Assembling Pattern, Model and Engineering Woodwork Components	O	64	14	Pass / Fail
Producing Composite Mouldings using Wet Lay-up Techniques	O	64	14	Pass / Fail
Producing Composite Mouldings using Pre-Preg Laminating Techniques	O	64	14	Pass / Fail
Producing Composite Mouldings using Resin Infusion Techniques	O	64	14	Pass / Fail
Producing Composite Assemblies	O	64	14	Pass / Fail
Producing Components by Rapid Prototyping Techniques	O	61	11	Pass / Fail
Producing and Preparing Sand Moulds and Cores for Casting	O	64	14	Pass / Fail
Producing and Preparing Molten Materials for Casting	O	64	14	Pass / Fail
Producing Cast Components by Manual Means	O	65	13	Pass / Fail

Fettling, Finishing and Checking Cast Components	O	61	11	Pass / Fail
Finishing Surfaces by Applying Coatings or Coverings	O	41	9	Pass / Fail
Finishing Surfaces by Applying Treatments	O	41	9	Pass / Fail
Carrying Out Heat Treatment of Engineering Materials	O	41	9	Pass / Fail
Carrying Out Hand Forging of Engineering Materials	O	41	9	Pass / Fail
Stripping and Rebuilding Motorsport Vehicles (Pre-Competition)	O	64	14	Pass / Fail
Inspecting a Motorsport Vehicle During Competition	O	64	14	Pass / Fail
Diagnosing and Rectifying Faults on Motorsport Vehicle Systems (During Competition)	O	68	15	Pass / Fail
Carrying Out Maintenance Activities on Motor Sport Vehicle Electrical Equipment	O	68	15	Pass / Fail
Stripping and Rebuilding Motorsport Engines (Pre – Competition)	O	64	14	Pass / Fail
Producing CAD Models (Drawings) using a CAD System	O	61	11	Pass / Fail
General Machining, Fitting and Assembly Applications	O	55	12	Pass / Fail
General Fabrication and Welding Applications	O	55	12	Pass / Fail
General Electrical and Electronic Engineering Applications	O	55	12	Pass / Fail
General Maintenance Engineering Applications	O	55	12	Pass / Fail
Joining Public Service Vehicle Components by Mechanical Processes	O	61	11	Pass / Fail

Assembling Structural Sub-Assemblies to Produce a Public Service Vehicle	O	64	14	Pass / Fail
Fitting Sub-Assemblies and Components to Public Service Vehicles	O	64	14	Pass / Fail
Preparing and Manoeuvring Armoured Fighting Vehicles (AFVs) for Maintenance and Transportation	O	64	14	Pass / Fail
Producing Composite Mouldings using Resin Film Infusion Techniques	O	64	14	Pass / Fail

Technical Support **Optional Pathway** – a minimum of 5 units must be selected.

Learners must complete one of the following optional units:

Producing mechanical engineering drawings using a CAD system	O	61	11	Pass / Fail
Producing Electrical or Electronic Engineering Drawings using a CAD System	O	61	11	Pass / Fail
Producing CAD Models (Drawings) using a CAD System	O	61	11	Pass / Fail

Plus two of the following optional units:

Producing Engineering Project Plans	O	37	8	Pass / Fail
Using Computer software Packages to Assist with Engineering Activities	O	37	8	Pass / Fail
Conducting Business Improvement Activities	O	37	8	Pass / Fail

Plus two of the following optional units:

General Machining, Fitting and Assembly Applications	O	55	12	Pass / Fail
General Fabrication and Welding Applications	O	55	12	Pass / Fail
General Electrical and Electronic Engineering Applications	O	55	12	Pass / Fail
General Maintenance Engineering Applications	O	55	12	Pass / Fail