Qualification Manual

Level 3 Certificate, Subsidiary Diploma, Diploma and Extended Diploma in:

Engineering Technologies

Qualification Codes: 601/5800/1 (Certificate)
601/5799/9 (Subsidiary Diploma)
601/5801/3 (Diploma)
601/5802/5 (Extended Diploma)

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Engineering Technologies

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1.0 About EAL

Since 1964 EAL (Excellence Achievement and Learning) has been the specialist awarding organisation for the industry and related sectors. Our commitment to partnering industry together with the focus on our core sectors gives us an unrivalled understanding of the skills employers need. This results in qualifications that carry weight and respect with employers which deliver real career benefits for learners.

We support the delivery network with an unparalleled level of service to ensure that learners are well prepared for the roles they plan to take on. Through its programme of continuous improvement, EAL strives to meet the demand from employers for high performing, high quality products.

1.1 Equal opportunities and diversity

EAL expects its centres to enable Learner's to have equal access to training and assessment for qualifications in line with the Equality Act 2010 and protected characteristics. Further details can be located in the EAL Equal Opportunities and Diversity Policy:
http://www.eal.org.uk/centre-support/centre-support/policies-and-important-documents

1.2 Customer service and feedback

Customer service is a fundamental part of EAL's commitment to you. EAL aims to ensure that all customers receive a high quality efficient service. We are always interested in feedback and if you have any comments or feedback on our qualifications, products or services, please contact the customer services team:

EAL Customer Services
Tel: +44 (0)1923 652 400
Email: customercare@eal.org.uk

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2.0 Introduction to the qualifications

What are these qualifications?

These qualifications have been developed to provide learners with an advanced knowledge and understanding of the practices and processes of engineering technologies. They cover knowledge, understanding and skills that have been identified in order to operate effectively in a job role within the Engineering Sector and are relevant to a wide variety of study routes.

These qualifications do not require evidence of occupational competence in the workplace and can be delivered in the classroom and workshop environment. They are based on National Occupational Standards (NOS) for engineering, which are statements of performance that describe what competent people in a particular occupation or task are expected to be able to do, and so contribute to developing the skills and knowledge that have been identified to operate effectively in job roles within the Engineering Sector.

These qualifications are graded; learners can achieve a Pass, Merit or Distinction. Please refer to Section 8: Grading for further details.

Who are these qualifications for?

These qualifications have been specifically designed for learners undertaking a range of pathways within an advanced Apprenticeship or 16-19 year old learners in full time education who are interested in pursuing a career in the engineering sector, including occupations and job roles such as maintenance engineer, mechanical engineer, welder and/or fabricator, and electrical and/or electronic engineer. These qualifications may also be suitable for other learners, including adults, who are interested in engineering technology and/or are considering a career change.

It is suitable for learners aged:
- 16-18
- 19+.

What do these qualifications cover?

These qualifications have one core mandatory unit (which provides learners with knowledge and understanding of engineering and environmental health and safety) and pathways within the optional units, from which a learner will select one from the following:

- Aerospace technology,
- Mechanical engineering technology,
- Maintenance engineering technology,
- Fabrication and welding technology,
- Electrical and electronics technology,
- Engineering technical support technology,
- Engineering technology,
- Rail engineering technology.

2.1 Accreditation and industry support for these qualifications

The EAL Level 3 Suite of Engineering Technologies qualifications have been developed in consultation with colleges, training associations and industry to ensure that they meet the needs of learners and the engineering sector. These qualifications are:

- Regulated by Ofqual at Level 3
- Endorse by a number of post-16 providers as facilitating progression to a range of Engineering Apprenticeships or a range of post-16 learning programmes at level 2 and 3
- Supported by the Society of Operations Engineers (SOE)
- Included in the following Apprenticeship Framework:
    - Level 3 Advanced Level in Engineering Manufacture (Craft and technician).

2.2 Achievement of the qualifications

The **EAL Level 3 Certificate in Engineering Technologies** will be awarded when the learner has successfully completed:
Pathways QCET3A, QCET3B, QCET3C, QCET3D and QCET3F:

- One mandatory core unit
- One mandatory pathway unit from Group A
- One optional unit from Group B

From the units listed in Section 3.

Pathway QCET3E:

- One mandatory core unit
- Two optional unit from Group B

From the units listed in Section 3.

The qualification has 28-29 credits, 225 guided learning hours and 280 Total Qualification Time.

*** Please note**: Only ONE Unit from QET3/002*, QET3/064* and QET3/077* may be included in the learner's choice of TWO units.

The **EAL Level 3 Subsidiary Diploma in Engineering Technologies** will be awarded when the learner has successfully completed:
Pathways QSDET3A, QSDET3B, QSDET3C, QSDET3D, QSDET3E, QSDET3F and QSDET3H:

- One mandatory core unit
- One mandatory pathway unit from Group A
- Three optional units from Group B

From the units listed in Section 3.

Pathway QSDET3G:

- One mandatory core unit
- Four optional units from Group B

From the units listed in Section 3.

The qualification has 48-49 credits, 375 guided learning hours and 480 Total Qualification Time.

The **EAL Level 3 Diploma in Engineering Technologies** will be awarded when the learner has successfully completed:
Pathways QDET3A, QDET3B, QDET3C, QDET3D, QDET3E, QDET3F and QDET3H:

- One mandatory core unit
- One mandatory pathway unit from Group A
- Five optional units from Group B

From the units listed in Section 3.

Pathway QDET3G:

- One mandatory core unit
- Six optional units from Group B

From the units listed in Section 3.

The qualification has 68-69 credits, 525 guided learning hours and 680 Total Qualification Time.

The **EAL Level 3 Extended Diploma in Engineering Technologies** will be awarded when the learner has successfully completed:

- One mandatory core unit
- One optional unit from Group A
- Eight optional units from Group B

From the units listed in Section 3.

The qualification has 98-99 credits, 750 guided learning hours and 980 Total Qualification Time.

2.3 What are the progression opportunities?

The EAL suite of Engineering Technologies qualifications have been specifically designed to offer progression onto other engineering vocational based qualifications such as:

- EAL Level 3 NVQ Extended Diploma in Engineering Maintenance
- EAL Level 3 NVQ Extended Diploma in Installation and Commissioning
- EAL Level 3 NVQ Extended Diploma in Mechanical Manufacturing Engineering
- EAL Level 3 NVQ Extended Diploma in Fabrication and Welding Engineering
- EAL Level 3 NVQ Extended Diploma in Electrical and Electronic Engineering
- EAL Level 3 NVQ Extended Diploma in Engineering Technical Support
- EAL Level 3 NVQ Extended Diploma in Engineering Leadership
- EAL Level 4 NVQ Extended Diploma in Engineering Manufacture.
- EAL Level 3 NVQ Certificate in Rail Engineering Traction and Rolling Stock
- EAL Level 3 NVQ Diploma in Rail Engineering Track Maintenance
- EAL Level 3 NVQ Certificate in Rail Engineering Electrification Maintenance
- EAL Level 3 NVQ Diploma in Rail Engineering Signalling Maintainer and Fault Finder
- EAL Level 3 NVQ Diploma in Rail Engineering Signalling Installer
- EAL Level 3 NVQ Diploma in Rail Engineering Overhead Line Construction

Further information can be obtained from the EAL Website or alternatively contact:

EAL Customer Services
Tel: +44 (0)1923 652400
Email: customercare@eal.org.uk

2.4 Qualification support materials

The following materials are available for these qualifications:

- **Delivery packs**: which contain the qualification units, all relevant tutor guidance relating to the delivery and assessment and marking schemes for internally assessed practical and theory assessments
- **Learner assessment packs:** which contain the qualification units, the internally assessed practical and theory assessments, assessment checklists and all associated guidance for learners
- **Controlled knowledge assessments:** which contain knowledge assessments that must be completed by the learner under appropriately controlled conditions
- **Supplementary assessment materials:** which contain practical assessments that are set by EAL and marked by the Centre should they not want to develop their own assessment against the specification (where appropriate)
- ***Practice question paper/s:** for the externally set and marked on-screen test, with feedback to learners on their performance.

*The practice papers are available to schedule online as per externally set and marked examinations.

All other materials can be accessed by EAL registered Centres from the EAL Website **www.eal.org.uk**

3.0 Rule of combination (qualification structure)

EAL Level 3 Certificate in Engineering Technologies

This qualification will be obtained by the learner once they have successfully completed the **one mandatory core unit, one mandatory pathway unit** from **Group A** and **one optional unit** from **Group B** from the units listed below for pathways QCET3A-QCET3D and QCET3F. For pathway QCET3E, **one mandatory core unit and two optional units** from **Group B** from the units listed below must be successfully completed.
The qualification has 28-29 credits, 225 guided learning hours and 280 Total Qualification Time.

Mandatory core unit:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/001A	Engineering and environmental health and safety	9	75	L/507/0328

Pathway QCET3A: Mechanical Engineering Technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/039	Mechanical engineering principles	10	75	F/507/0357

Optional units: Group B - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/040	Toolmaking/ presswork/extrusion design	10	75	J/507/0358
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/044	Precision grinding	10	75	L/507/0362
QET3/045	Gear cutting	10	75	R/507/0363
QET3/046	Advanced milling	10	75	Y/507/0364
QET3/047	Advanced turning	10	75	H/507/0366
QET3/048	Specialised machining	10	75	Y/507/0722
QET3/049	Advanced manufacturing techniques	10	75	K/507/0370
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QCET3B: Maintenance Engineering Technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/028	Maintenance engineering principles	10	75	Y/507/0347

Optional units: Group B - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/009	Electrical and electronic principles	10	75	J/507/0683
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/030	General engineering maintenance techniques	10	75	J/507/0540
QET3/031	Building mechanical maintenance systems and services	10	75	L/507/0541
QET3/032	Maintenance of refrigeration systems	10	75	R/507/0542
QET3/033	Maintenance of fluid power systems and components	10	75	D/507/0544
QET3/034	Maintenance of hydraulic systems and components	10	75	H/507/0545
QET3/035	Maintenance of pneumatic systems and components	10	75	T/507/0355
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/037	Engineering instrumentation	10	75	A/507/0356
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QCET3C: Fabrication and Welding Technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/016	Fabrication and welding principles	10	75	Y/507/0316

Optional units: Group B - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/017	Pattern development	10	75	H/507/0321
QET3/018	Manual metal-arc (MMA) welding	10	75	F/507/0326
QET3/019	Metal inert gas, Mmetal active gas (MIG/MAG)welding	10	75	J/507/0327
QET3/020	Tungsten inert gas (TIG) welding process	10	75	F/507/0715
QET3/021	Mechanised welding processes	10	75	L/507/0331
QET3/022	Automated welding processes	10	75	Y/507/0333
QET3/023	Producing sheet metal fabrications	10	75	Y/507/0543
QET3/023A	Sheet metalwork technology	10	75	K/507/0353
QET3/024	Producing plate fabrications	10	75	K/507/0546
QET3/025	Producing pipework fabrications	10	75	F/507/0343
QET3/026	Managing fabrication activities	10	75	M/507/0547
QET3/027	Shipbuilding operations	10	75	T/507/0548
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/041	Advanced manufacture techniques – Computer Numerical Control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QCET3D: Electrical and Electronics Technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/009	Electrical and electronics principles	10	75	J/507/0683

Optional units: Group B - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/011	Measurement methods and control engineering	10	75	K/507/0305
QET3/012	Analogue electronics	10	75	M/507/0306
QET3/013	Digital electronics	10	75	T/507/0310
QET3/014	Microelectronics	10	75	A/507/0311
QET3/015	Electrical testing and commissioning	10	75	M/507/0712
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/057	Radio and radar principles	10	75	M/507/0385
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/061	Analogue systems engineering	10	75	J/507/0389
QET3/062	Panel wiring for engineering applications	10	75	D/507/0608
QET3/063	Electrical power for engineering applications	10	75	H/507/0612
QET3/064	Engineering communications	10	75	A/507/0390
QET3/076	Digital systems	10	75	F/507/0391

Pathway QCET3E: Engineering Technology
Optional units: Group B - TWO units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002*	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/011	Measurement methods and control engineering	10	75	K/507/0305
QET3/012	Analogue electronics	10	75	M/507/0306
QET3/013	Digital electronics	10	75	T/507/0310
QET3/014	Microelectronics	10	75	A/507/0311
QET3/015	Electrical testing and commissioning	10	75	M/507/0712
QET3/016	Fabrication and welding principles	10	75	Y/507/0316
QET3/017	Pattern development	10	75	H/507/0321
QET3/018	Manual metal-arc (MMA) welding	10	75	F/507/0326
QET3/019	Metal inert gas, Mmetal active gas (MIG/MAG)welding	10	75	J/507/0327
QET3/020	Tungsten inert gas (TIG) welding process	10	75	F/507/0715
QET3/021	Mechanised welding processes	10	75	L/507/0331
QET3/022	Automated welding processes	10	75	Y/507/0333
QET3/023	Producing sheet metal fabrications	10	75	Y/507/0543
QET3/023A	Sheet metalwork technology	10	75	K/507/0353
QET3/024	Producing plate fabrications	10	75	K/507/0546
QET3/025	Producing pipework fabrications	10	75	F/507/0343
QET3/026	Managing fabrication activities	10	75	M/507/0547
QET3/027	Shipbuilding operations	10	75	T/507/0548
QET3/028	Maintenance engineering principles	10	75	Y/507/0347
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/030	General engineering maintenance techniques	10	75	J/507/0540
QET3/031	Building mechanical maintenance systems and services	10	75	L/507/0541
QET3/032	Maintenance of refrigeration systems	10	75	R/507/0542

Pathway QCET3E: Engineering Technology
Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/033	Maintenance of fluid power systems and components	10	75	D/507/0544
QET3/034	Maintenance of hydraulic systems and components	10	75	H/507/0545
QET3/035	Maintenance of pneumatic systems and components	10	75	T/507/0355
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/037	Engineering instrumentation	10	75	A/507/0356
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/040	Toolmaking/ presswork/extrusion design	10	75	J/507/0358
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/044	Precision grinding	10	75	L/507/0362
QET3/045	Gear cutting	10	75	R/507/0363
QET3/046	Advanced milling	10	75	Y/507/0364
QET3/047	Advanced turning	10	75	H/507/0366
QET3/048	Specialised machining	10	75	Y/507/0722
QET3/049	Advanced manufacturing techniques	10	75	K/507/0370
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/051	Fixed wing theory of flight	10	75	T/507/0551
QET3/052	Principles of rotorywing aircraft flight	10	75	A/507/0552
QET3/053	Rotorywing aircraft structures and transmissions	10	75	R/507/0380
QET3/054	Rotorywing aircraft gas turbine engines	10	75	L/507/0555
QET3/055	Rotorywing aircraft systems	10	75	H/507/0383
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384
QET3/057	Radio and radar principles	10	75	M/507/0385
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/061	Analogue systems engineering	10	75	J/507/0389
QET3/062	Panel wiring for engineering applications	10	75	D/507/0608
QET3/063	Electrical power for engineering applications	10	75	H/507/0612
QET3/064*	Engineering communications	10	75	A/507/0390
QET3/076	Digital systems	10	75	F/507/0391

Pathway QCET3E: Engineering Technology
Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/077*	Workplace improvement	10	75	J/507/0392
QET3/078	Aircraft maintenance and manufacturing engineering procedures	10	75	F/507/0634
QET3/079	Manufacturing aircraft structures	10	75	R/507/0394
QET3/080	Assembling aircraft structures and components	10	75	Y/507/0395
QET3/081	Maintenance of aircraft structures	10	75	D/507/0396
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/090	Railway infrastructure - railway civil engineering	10	75	T/615/3603
QET3/091	Railway infrastructure - track engineering	10	75	A/615/3604
QET3/092	Railway infrastructure - track engineering construction	10	75	F/615/3605
QET3/093	Railway infrastructure - track engineering maintenance	10	75	J/615/3606
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624
QET3/095	Railway infrastructure - overhead line equipment maintenance	10	75	D/615/3627
QET3/096	Railway infrastructure - overhead line equipment construction	10	75	D/615/3630
QET3/097	Rail vehicle traction systems	10	75	H/615/3631
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	10	75	K/615/3632
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	10	75	M/615/3633
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	10	75	T/615/3634

*** Please note**: Only ONE Unit from QET3/002*, QET3/064* and QET3/077* may be included in the learner's choice of TWO units.

Pathway QCET3F: Rail engineering technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624

Optional units: Group B - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/043	Engineering design process	10	75	J/507/0361
QET3/077	Workplace improvement	10	75	J/507/0392
QET3/090	Railway infrastructure - railway civil engineering	10	75	T/615/3603
QET3/091	Railway infrastructure - track engineering	10	75	A/615/3604
QET3/092	Railway infrastructure - track engineering construction	10	75	F/615/3605
QET3/093	Railway infrastructure - track engineering maintenance	10	75	J/615/3606
QET3/095	Railway infrastructure - overhead line equipment maintenance	10	75	D/615/3627
QET3/096	Railway infrastructure - overhead line equipment construction	10	75	D/615/3630
QET3/097	Rail vehicle traction systems	10	75	H/615/3631
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	10	75	K/615/3632
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	10	75	M/615/3633
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	10	75	T/615/3634

EAL Level 3 Subsidiary Diploma in Engineering Technologies
This qualification will be obtained by the learner once they have successfully completed the **one mandatory core unit, one mandatory pathway unit** from **Group A** and **three optional units** from **Group B** from the units listed below for pathways QSDET3A-QSDET3F and QSDET3H. For pathway QSDET3G, **one mandatory core unit and four optional units** from **Group B** from the units listed below must be successfully completed.
The qualification has 48-49 credits, 375 guided learning hours and 480 Total Qualification Time.

EAL Level 3 Diploma in Engineering Technologies
This qualification will be obtained by the learner once they have successfully completed the **one mandatory core unit, one optional pathway unit** from **Group A** and **five optional units** from **Group B** from the units listed below for pathways QSDET3A-QSDET3F and QSDET3H. For pathway QSDET3G, **one mandatory core unit and six optional units** from **Group B** from the units listed below must be successfully completed.
The qualification has 68-69 credits, 525 guided learning hours and 680 Total Qualification Time.

Mandatory core unit:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/001A	Engineering and environmental health and safety	9	75	L/507/0328

Pathway QSDET3A and QDET3A: Aerospace Technology
Optional units: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/051	Fixed wing theory of flight	10	75	T/507/0551
QET3/052	Principles of rotorywing aircraft flight	10	75	A/507/0552
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384

Optional units: Group B - Choose units NOT already undertaken above.
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/009	Electrical and electronic principles	10	75	J/507/0683
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/051	Fixed wing theory of flight	10	75	T/507/0551
QET3/052	Principles of rotorywing aircraft flight	10	75	A/507/0552
QET3/053	Rotorywing aircraft structures and transmissions	10	75	R/507/0380
QET3/054	Rotorywing aircraft gas turbine engines	10	75	L/507/0555
QET3/055	Rotorywing aircraft systems	10	75	H/507/0383
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384

Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/064	Engineering communications	10	75	A/507/0390
QET3/078	Aircraft maintenance and manufacturing engineering procedures	10	75	F/507/0634
QET3/079	Manufacturing aircraft structures	10	75	R/507/0394

Pathway QSDET3B and QDET3B: Mechanical Engineering Technology
Optional unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/039	Mechanical engineering principles	10	75	F/507/0357

Optional units: Group B
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/machining	10	75	Y/507/0297
QET3/040	Toolmaking/ presswork/extrusion design	10	75	J/507/0358
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/044	Precision grinding	10	75	L/507/0362
QET3/045	Gear cutting	10	75	R/507/0363
QET3/046	Advanced milling	10	75	Y/507/0364
QET3/047	Advanced turning	10	75	H/507/0366
QET3/048	Specialised machining	10	75	Y/507/0722
QET3/049	Advanced manufacturing techniques	10	75	K/507/0370
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QSDET3C and QDET3C: Maintenance Engineering Technology
Optional unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/028	Maintenance engineering principles	10	75	Y/507/0347

Optional units: Group B
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/008	Advanced personal computer (PC) maintenance	9	75	D/507/0298
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/030	General engineering maintenance techniques	10	75	J/507/0540
QET3/031	Building mechanical maintenance systems and services	10	75	L/507/0541
QET3/032	Maintenance of refrigeration systems	10	75	R/507/0542
QET3/033	Maintenance of fluid power systems and components	10	75	D/507/0544
QET3/034	Maintenance of hydraulic systems and components	10	75	H/507/0545
QET3/035	Maintenance of pneumatic systems and components	10	75	T/507/0355
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/037	Engineering instrumentation	10	75	A/507/0356
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QSDET3D and QDET3D: Fabrication and Welding Technology
Optional unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/016	Fabrication and welding principles	10	75	Y/507/0316

Optional units: Group B
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/machining	10	75	Y/507/0297
QET3/017	Pattern development	10	75	H/507/0321
QET3/018	Manual metal-arc (MMA) welding	10	75	F/507/0326
QET3/019	Metal inert gas, metal active gas (MIG/MAG)welding	10	75	J/507/0327
QET3/020	Tungsten inert gas (TIG) welding process	10	75	F/507/0715
QET3/021	Mechanised welding processes	10	75	L/507/0331
QET3/022	Automated welding processes	10	75	Y/507/0333
QET3/023	Producing sheet metal fabrications	10	75	Y/507/0543
QET3/023A	Sheet metalwork technology	10	75	K/507/0353
QET3/024	Producing plate fabrications	10	75	K/507/0546
QET3/025	Producing pipework fabrications	10	75	F/507/0343
QET3/026	Managing fabrication activities	10	75	M/507/0547
QET3/027	Shipbuilding operations	10	75	T/507/0548
QET3/028	Maintenance engineering principles	10	75	Y/507/0347
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QSDET3E and QDET3E: Electrical and Electronic Technology
Optional unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/009	Electrical and electronics principles	10	75	J/507/0683

Optional units: Group B
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/machining	10	75	Y/507/0294
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/011	Measurement methods and control engineering	10	75	K/507/0305
QET3/012	Analogue electronics	10	75	M/507/0306
QET3/013	Digital electronics	10	75	T/507/0310
QET3/014	Microelectronics	10	75	A/507/0311
QET3/015	Electrical testing and commissioning	10	75	M/507/0712
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/057	Radio and radar principles	10	75	M/507/0385
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/061	Analogue systems engineering	10	75	J/507/0389
QET3/062	Panel wiring for engineering applications	10	75	D/507/0608
QET3/063	Electrical power for engineering applications	10	75	H/507/0612
QET3/064	Engineering communications	10	75	A/507/0390
QET3/076	Digital systems	10	75	F/507/0391
*QET3/104	Power network apparatus and design: transmission and distribution	10	75	H/650/4726
*QET3/105	Managing resources in the power industry: transmission and distribution	10	75	J/650/4727

***Subsidiary Diploma only**

Pathway QSDET3F and QDET3F: Engineering Technical Support Technology
Optional units: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/machining	10	75	Y/507/0297
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361

Optional units: Group B - Choose units NOT already undertaken above.
Subsidiary Diploma - THREE units must be completed; **Diploma** - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/machining	10	75	Y/507/0297
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/064	Engineering communications	10	75	A/507/0390

Pathway QSDET3G and QDET3G: Engineering Technology
Optional units: Group B
Subsidiary Diploma - FOUR units must be completed; **Diploma** - SIX units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/011	Measurement methods and control engineering	10	75	K/507/0305
QET3/012	Analogue electronics	10	75	M/507/0306
QET3/013	Digital electronics	10	75	T/507/0310
QET3/014	Microelectronics	10	75	A/507/0311
QET3/015	Electrical testing and commissioning	10	75	M/507/0712
QET3/016	Fabrication and welding principles	10	75	Y/507/0316
QET3/017	Pattern development	10	75	H/507/0321
QET3/018	Manual metal-arc (MMA) welding	10	75	F/507/0326
QET3/019	Metal inert gas, Mmetal active gas (MIG/MAG)welding	10	75	J/507/0327
QET3/020	Tungsten inert gas (TIG) welding process	10	75	F/507/0715
QET3/021	Mechanised welding processes	10	75	L/507/0331
QET3/022	Automated welding processes	10	75	Y/507/0333
QET3/023	Producing sheet metal fabrications	10	75	Y/507/0543
QET3/023A	Sheet metalwork technology	10	75	K/507/0353
QET3/024	Producing plate fabrications	10	75	K/507/0546
QET3/025	Producing pipework fabrications	10	75	F/507/0343
QET3/026	Managing fabrication activities	10	75	M/507/0547
QET3/027	Shipbuilding operations	10	75	T/507/0548
QET3/028	Maintenance engineering principles	10	75	Y/507/0347
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/030	General engineering maintenance techniques	10	75	J/507/0540
QET3/031	Building mechanical maintenance systems and services	10	75	L/507/0541
QET3/032	Maintenance of refrigeration systems	10	75	R/507/0542

Pathway QSDET3G and QDET3G: Engineering Technology
Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/033	Maintenance of fluid power systems and components	10	75	D/507/0544
QET3/034	Maintenance of hydraulic systems and components	10	75	H/507/0545
QET3/035	Maintenance of pneumatic systems and components	10	75	T/507/0355
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/037	Engineering instrumentation	10	75	A/507/0356
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/040	Toolmaking/ presswork/extrusion design	10	75	J/507/0358
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/044	Precision grinding	10	75	L/507/0362
QET3/045	Gear cutting	10	75	R/507/0363
QET3/046	Advanced milling	10	75	Y/507/0364
QET3/047	Advanced turning	10	75	H/507/0366
QET3/048	Specialised machining	10	75	Y/507/0722
QET3/049	Advanced manufacturing techniques	10	75	K/507/0370
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/051	Fixed wing theory of flight	10	75	T/507/0551
QET3/052	Principles of rotorywing aircraft flight	10	75	A/507/0552
QET3/053	Rotorywing aircraft structures and transmissions	10	75	R/507/0380
QET3/054	Rotorywing aircraft gas turbine engines	10	75	L/507/0555
QET3/055	Rotorywing aircraft systems	10	75	H/507/0383
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384
QET3/057	Radio and radar principles	10	75	M/507/0385
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/061	Analogue systems engineering	10	75	J/507/0389
QET3/062	Panel wiring for engineering applications	10	75	D/507/0608
QET3/063	Electrical power for engineering applications	10	75	H/507/0612
QET3/064	Engineering communications	10	75	A/507/0390
QET3/076	Digital systems	10	75	F/507/0391

Pathway QSDET3G and QDET3G: Engineering Technology
Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/077	Workplace improvement	10	75	J/507/0392
QET3/078	Aircraft maintenance and manufacturing engineering procedures	10	75	F/507/0634
QET3/079	Manufacturing aircraft structures	10	75	R/507/0394
QET3/080	Assembling aircraft structures and components	10	75	Y/507/0395
QET3/081	Maintenance of aircraft structures	10	75	D/507/0396
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/090	Railway infrastructure - railway civil engineering	10	75	T/615/3603
QET3/091	Railway infrastructure - track engineering	10	75	A/615/3604
QET3/092	Railway infrastructure - track engineering construction	10	75	F/615/3605
QET3/093	Railway infrastructure - track engineering maintenance	10	75	J/615/3606
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624
QET3/095	Railway infrastructure - overhead line equipment maintenance	10	75	D/615/3627
QET3/096	Railway infrastructure - overhead line equipment construction	10	75	D/615/3630
QET3/097	Rail vehicle traction systems	10	75	H/615/3631
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	10	75	K/615/3632
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	10	75	M/615/3633
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	10	75	T/615/3634
*QET3/104	Power network apparatus and design: transmission and distribution	10	75	H/650/4726
*QET3/105	Managing resources in the power industry: transmission and distribution	10	75	J/650/4727

***Subsidiary Diploma only**

Pathway QSDET3H - Rail engineering technology
Mandatory unit: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624

Optional Group B: Subsidiary Diploma: THREE units must be completed;
Diploma - FIVE units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/043	Engineering design process	10	75	J/507/0361
QET3/077	Workplace improvement	10	75	J/507/0392
QET3/090	Railway infrastructure - railway civil engineering	10	75	T/615/3603
QET3/091	Railway infrastructure - track engineering	10	75	A/615/3604
QET3/092	Railway infrastructure - track engineering construction	10	75	F/615/3605
QET3/093	Railway infrastructure - track engineering maintenance	10	75	J/615/3606
QET3/095	Railway infrastructure - overhead line equipment maintenance	10	75	D/615/3627
QET3/096	Railway infrastructure - overhead line equipment construction	10	75	D/615/3630
QET3/097	Rail vehicle traction systems	10	75	H/615/3631
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	10	75	K/615/3632
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	10	75	M/615/3633
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	10	75	T/615/3634

EAL Level 3 Extended Diploma in Engineering Technologies

This qualification will be obtained by the learner once they have successfully completed the **one mandatory core unit, one optional unit** from **Group A** and **eight optional units** from **Group B** from the units listed below.
The qualification has 98-99 credits, 750 guided learning hours and 980 Total Qualification Time.

Mandatory core unit:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/001A	Engineering and environmental health and safety	9	75	L/507/0328

Optional units: Group A - ONE unit must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/016	Fabrication and welding principles	10	75	Y/507/0316
QET3/028	Maintenance engineering principles	10	75	Y/507/0347
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624

Optional units: Group B - Choose units NOT already undertaken above. EIGHT units must be completed:

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/002	Engineering organisational efficiency and improvement	9	75	L/507/0670
QET3/003	Engineering mathematics	10	75	T/507/0291
QET3/003A	Further engineering mathematics	10	75	R/507/0329
QET3/004	Further electrical and electronic principles	10	75	Y/507/0672
QET3/005	Further engineering science	10	75	J/507/0294
QET3/006	Computer aided design (CAD) techniques	10	75	R/507/0296
QET3/007	Computer numerical control (CNC) programming/ machining	10	75	Y/507/0297
QET3/008	Advanced personal computer (PC) maintenance	10	75	D/507/0298
QET3/009	Electrical and electronics principles	10	75	J/507/0683
QET3/010	Programmable logic controllers (PLCs)	10	75	H/507/0688
QET3/011	Measurement methods and control engineering	10	75	K/507/0305
QET3/012	Analogue electronics	10	75	M/507/0306
QET3/013	Digital electronics	10	75	T/507/0310
QET3/014	Microelectronics	10	75	A/507/0311
QET3/015	Electrical testing and commissioning	10	75	M/507/0712
QET3/016	Fabrication and welding principles	10	75	Y/507/0316

Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/017	Pattern development	10	75	H/507/0321
QET3/018	Manual metal-arc (MMA) welding	10	75	F/507/0326
QET3/019	Metal inert gas, Mmetal active gas (MIG/MAG)welding	10	75	J/507/0327
QET3/020	Tungsten inert gas (TIG) welding process	10	75	F/507/0715
QET3/021	Mechanised welding processes	10	75	L/507/0331
QET3/022	Automated welding processes	10	75	Y/507/0333
QET3/023	Producing sheet metal fabrications	10	75	Y/507/0543
QET3/023A	Sheet metalwork technology	10	75	K/507/0353
QET3/024	Producing plate fabrications	10	75	K/507/0546
QET3/025	Producing pipework fabrications	10	75	F/507/0343
QET3/026	Managing fabrication activities	10	75	M/507/0547
QET3/027	Shipbuilding operations	10	75	T/507/0548
QET3/028	Maintenance engineering principles	10	75	Y/507/0347
QET3/029	Maintenance of mechanical systems	10	75	D/507/0348
QET3/030	General engineering maintenance techniques	10	75	J/507/0540
QET3/031	Building mechanical maintenance systems and services	10	75	L/507/0541
QET3/032	Maintenance of refrigeration systems	10	75	R/507/0542
QET3/033	Maintenance of fluid power systems and components	10	75	D/507/0544
QET3/034	Maintenance of hydraulic systems and components	10	75	H/507/0545
QET3/035	Maintenance of pneumatic systems and components	10	75	T/507/0355
QET3/036	Electrical maintenance in buildings	10	75	Y/507/0770
QET3/037	Engineering instrumentation	10	75	A/507/0356
QET3/038	Installation of electrical equipment	10	75	L/507/0538
QET3/039	Mechanical engineering principles	10	75	F/507/0357
QET3/040	Toolmaking/ presswork/extrusion design	10	75	J/507/0358
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	10	75	L/507/0359
QET3/042	Engineering inspection and quality control	10	75	F/507/0665
QET3/043	Engineering design process	10	75	J/507/0361
QET3/044	Precision grinding	10	75	L/507/0362
QET3/045	Gear cutting	10	75	R/507/0363
QET3/046	Advanced milling	10	75	Y/507/0364
QET3/047	Advanced turning	10	75	H/507/0366
QET3/048	Specialised machining	10	75	Y/507/0722
QET3/049	Advanced manufacturing techniques	10	75	K/507/0370

Optional units: Group B - continued

Unit	Unit title	Credit	GLH	Ofqual Code
QET3/050	Data communications and networking	10	75	D/507/0723
QET3/051	Fixed wing Theory of Flight	10	75	T/507/0551
QET3/052	Principles of rotorywing aircraft flight	10	75	A/507/0552
QET3/053	Rotorywing aircraft structures and transmissions	10	75	R/507/0380
QET3/054	Rotorywing aircraft gas turbine engines	10	75	L/507/0555
QET3/055	Rotorywing aircraft systems	10	75	H/507/0383
QET3/056	Mechanical engineering principles for aircraft technicians	10	75	K/507/0384
QET3/057	Radio and radar principles	10	75	M/507/0385
QET3/058	Servicing cardiovascular equipment	10	75	T/507/0386
QET3/059	Servicing physiological monitoring and infusion equipment	10	75	M/507/0600
QET3/060	Servicing medical therapeutic equipment	10	75	F/507/0388
QET3/061	Analogue systems engineering	10	75	J/507/0389
QET3/062	Panel wiring for engineering applications	10	75	D/507/0608
QET3/063	Electrical power for engineering applications	10	75	H/507/0612
QET3/064	Engineering communications	10	75	A/507/0390
QET3/076	Digital systems	10	75	F/507/0391
QET3/077	Workplace improvement	10	75	J/507/0392
QET3/078	Aircraft maintenance and manufacturing engineering procedures	10	75	F/507/0634
QET3/079	Manufacturing aircraft structures	10	75	R/507/0394
QET3/080	Assembling aircraft structures and components	10	75	Y/507/0395
QET3/081	Maintenance of aircraft structures	10	75	D/507/0396
QET3/089	Railway infrastructure - mechanical engineering principles	10	75	M/615/3602
QET3/090	Railway infrastructure - railway civil engineering	10	75	T/615/3603
QET3/091	Railway infrastructure - track engineering	10	75	A/615/3604
QET3/092	Railway infrastructure - track engineering construction	10	75	F/615/3605
QET3/093	Railway infrastructure - track engineering maintenance	10	75	J/615/3606
QET3/094	Railway infrastructure - electrical engineering	10	75	L/615/3624
QET3/095	Railway infrastructure - overhead line equipment maintenance	10	75	D/615/3627
QET3/096	Railway infrastructure - overhead line equipment construction	10	75	D/615/3630
QET3/097	Rail vehicle traction systems	10	75	H/615/3631
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	10	75	K/615/3632
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	10	75	M/615/3633
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	10	75	T/615/3634

4.0 Centre and qualification approval

Centres wishing to run the qualifications will need to comply with the Qualification Manual and EAL's centre recognition criteria for these qualifications upon accreditation and launch. Centres must also put in place the appropriate physical and human resources and administration systems to effectively run the qualifications. Please refer to Section 5 for the requirements of centre staff involved in the delivery of the qualifications.

For existing EAL centres to put the qualification on your centre remit:

- To add these qualifications to your centre qualification remit, create and complete a qualification approval application form in Smarter Touch and submit to EAL.

For non EAL centres to gain centre approval to run the qualification:

- Please contact the EAL Customer Services Department who will be delighted to hear from you:
  Tel: +44 (0)1923 652400
  Email: customercare@eal.org.uk

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5.0 Profiles and requirements

The staff involved in the delivery of these qualifications at the Centre must meet ALL of the requirements in this section.

5.1 Staff responsible for registering and certificating learners

Centres are required to appoint a suitable member of staff who can take responsibility for registering learners onto the qualification, submitting entries for externally set assessments to EAL, and taking receipt of external assessment procedures. They may also be responsible for applying to EAL for learner certificates.
The role may be undertaken by the same person who undertakes quality assurance (see Section 5.4).

5.2 Teaching staff

Teaching staff must have knowledge and understanding of:

- The occupations covered by this qualification.
- The qualification structure and content.
- The learning outcomes and assessment criteria they are delivering.

Teaching staff will also:

- Have 2 years' experience in teaching/training.
  or
- Be working towards an appropriate teaching/training qualification.
  or
- Hold an appropriate teaching/training qualification (e.g. Cert Ed or Learning and Development trainer units).

5.3 Assessors

The Centre MUST provide EAL with the names of any teachers, trainers or other individuals who will undertake internal assessment (referred to as assesors), so that these can be approved prior to them carrying out an assessment role.

Assessors must have:

- A minimum of 2 years occupational experience within the area they are assessing.
- Knowledge and understanding of the assessment criteria they are assessing.
- Knowledge and understanding of the qualification structure, content and assessment components.
- Understand the assessment process.

Assessors will also:

- Have 2 years' experience in assessment of knowledge-based qualifications.
  or
- Be working towards an appropriate assessment qualification, such as the 'Level 3 Award in Assessing Vocationally Related Achievement'.
  (Note: 'Candidate assessors' who are working towards their assessor qualifications must be countersigned by a qualified assessor. Candidate assessors must have a clear action plan for achieving the Assessor qualification(s). Assessor approval will be withdrawn if a relevant qualification has not been attained within 18 months.)
  or
- Hold an appropriate assessment qualification (as above).

Assessors that hold either 'D' or 'A' units must also have evidence of Continuing Professional Development (CPD) to demonstrate compliance with the current assessor standards.

There will be instances where the teaching staff will also take on the role of the internal assessors.
In such cases, the member of staff must be able to demonstrate that they satisfy the requirements of both teaching staff and assessor criteria as listed above.

Assessor continuing professional development
The occupational competence of assessors must be updated on a regular basis and be periodically confirmed via continuing professional development (CPD) via the Assessment Centre. Evidence of CPD will be sought by the External Quality Assurer for all approved Assessors at the Centre.

It is the responsibility of each assessor to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.
It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

5.4 Quality assurance staff

This relates to staff undertaking internal verification of assessment. The Centre MUST provide EAL with the names of any teachers, trainers or other individuals who will undertake internal quality assurance, so that these can be approved prior to them carrying out this role.

The main focus of internal quality assurance for this qualification is:

- The quality assurance of assessment procedures, including standardisation of assessment practice across different assessors within the Centre.
- Internal standardisation of marking and moderation of learner marks awarded for the units within the qualifications.

Internal quality assurance staff must:

- Be familiar with the occupation(s) covered by this qualification
- Have knowledge and understanding of the qualification structure and content
- Understand the assessment process and the role of quality assurance

Internal quality assurance staff must also:

- Have experience in quality management/internal verification
  or
- Hold an appropriate qualification, such as the 'Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice, or the 'Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice'

It is a recommendation that quality assurance staff have access to relevant 'occupational expertise', which will enable them to conduct their quality assurance role appropriately.

Continuing professional development of internal quality assurance staff
The occupational experience of quality assurance staff must be updated on a regular basis and be periodically confirmed via continuing professional development (CPD) via the Assessment Centre.
This will be quality assured by EAL.

It is the responsibility of each internal quality assurance staff member to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge. It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

5.5 Staff invigilating on-screen examinations

Members of staff with responsibility for invigilating on-screen examinations must know, understand and comply with the Procedures for Conducting the Exam Component within EAL Qualifications' (EAF 1), which are published by EAL. These members of staff must also:

- Have experience in conducting and controlling exam sessions
  or
- Be supervised by an individual experienced in conducting and controlling exam sessions .

Note: A teacher/tutor who has prepared the learners for the subject of the exam must not be the sole supervisor at any time during an exam for that subject(s).

5.6 Learners with particular requirements

There are no formal entry requirements for these qualifications; however centres should ensure that the learners have the potential to achieve these qualifications. Learners must have the minimum levels of literacy and numeracy to complete the learning outcomes and the external assessment.

Centres should make learners with particular requirements aware of the content of the qualification and they should be given every opportunity to successfully complete the qualification. EAL will consider any reasonable suggestions for, and from, those with disabilities that would help them to achieve the learning outcomes without compromising the standards required.

5.7 Age restrictions

Learners must be at least 16 years old.

6.0 Assessment

The following table indicates the assessment components that are included in the qualification and for each component:

- Who is responsible for setting and marking the component.
- How the component is quality assured.

Assessment component	Set by	Marked by	Method of quality assurance	
			Internal	External
On-screen examination[1]	EAL	EAL	Examination invigilation	Verification and continuous monitoring via EQA visits
Centre marked practical/ theory assessments[2]	EAL	Centre	On-going standardisation within the Centre	Verification and continuous monitoring via EQA visits

1. Refer to Section 6.1 External Assessment.
2. Refer to Section 6.2 Internal (EAL Set and Centre Marked) Assessments.

The learner must pass **ALL** assessments to achieve the qualification.

A breakdown showing the assessment requirements for each unit is shown in the table below:

EAL code	Unit title	On-screen exam	Centre marked practical/theory assessment
QET3/001A	Engineering and environmental health and safety	YES	NO
QET3/002	Engineering organisational efficiency and improvement	YES	NO
QET3/003	Engineering mathematics	NO	YES
QET3/003A	Further engineering mathematics	NO	YES
QET3/004	Further electrical and electronic principles	NO	YES
QET3/005	Further engineering science	NO	YES
QET3/006	Computer aided design (CAD) techniques	NO	YES
QET3/007	Computer numerical control (CNC) programming/ machining	NO	YES
QET3/008	Advanced personal computer (PC) maintenance	NO	YES
QET3/009	Electrical and electronics principles	NO	YES
QET3/010	Programmable logic controllers (PLCs)	NO	YES
QET3/011	Measurement methods and control engineering	NO	YES
QET3/012	Analogue electronics	NO	YES
QET3/013	Digital electronics	NO	YES
QET3/014	Microelectronics	NO	YES
QET3/015	Electrical testing and commissioning	NO	YES
QET3/016	Fabrication and welding principles	NO	YES
QET3/017	Pattern development	NO	YES
QET3/018	Manual metal-arc (MMA) welding	NO	YES
QET3/019	Metal inert gas, metal active gas (MIG/MAG)welding	NO	YES
QET3/020	Tungsten inert gas (TIG) welding process	NO	YES
QET3/021	Mechanised welding processes	NO	YES

Assessment - continued:

QET3/022	Automated welding processes	NO	YES
QET3/023	Producing sheet metal fabrications	NO	YES
QET3/023A	Sheet metalwork technology	NO	YES
QET3/024	Producing plate fabrications	NO	YES
QET3/025	Producing pipework fabrications	NO	YES
QET3/026	Managing fabrication activities	NO	YES
QET3/027	Shipbuilding operations	NO	YES
QET3/028	Maintenance engineering principles	NO	YES
QET3/029	Maintenance of mechanical systems	NO	YES
QET3/030	General engineering maintenance techniques	NO	YES
QET3/031	Building mechanical maintenance systems and services	NO	YES
QET3/032	Maintenance of refrigeration systems	NO	YES
QET3/033	Maintenance of fluid power systems and components	NO	YES
QET3/034	Maintenance of hydraulic systems and components	NO	YES
QET3/035	Maintenance of pneumatic systems and components	NO	YES
QET3/036	Electrical maintenance in buildings	NO	YES
QET3/037	Engineering instrumentation	NO	YES
QET3/038	Installation of electrical equipment	NO	YES
QET3/039	Mechanical engineering principles	NO	YES
QET3/040	Toolmaking/ presswork/extrusion design	NO	YES
QET3/041	Advanced manufacture techniques – computer numerical control (CNC)	NO	YES
QET3/042	Engineering inspection and quality control	NO	YES
QET3/043	Engineering design process	NO	YES
QET3/044	Precision grinding	NO	YES
QET3/045	Gear cutting	NO	YES
QET3/046	Advanced milling	NO	YES
QET3/047	Advanced turning	NO	YES
QET3/048	Specialised machining	NO	YES
QET3/049	Advanced manufacturing techniques	NO	YES
QET3/050	Data communications and networking	NO	YES
QET3/051	Fixed wing Theory of Flight	NO	YES
QET3/052	Principles of rotorywing aircraft flight	NO	YES
QET3/053	Rotorywing aircraft structures and transmissions	NO	YES
QET3/054	Rotorywing aircraft gas turbine engines	NO	YES
QET3/055	Rotorywing aircraft systems	NO	YES

Assessment - continued:

QET3/056	Mechanical engineering principles for aircraft technicians	NO	YES
QET3/057	Radio and radar principles	NO	YES
QET3/058	Servicing cardiovascular equipment	NO	YES
QET3/059	Servicing physiological monitoring and infusion equipment	NO	YES
QET3/060	Servicing medical therapeutic equipment	NO	YES
QET3/061	Analogue systems engineering	NO	YES
QET3/062	Panel wiring for engineering applications	NO	YES
QET3/063	Electrical power for engineering applications	NO	YES
QET3/064	Engineering communications	NO	YES
QET3/076	Digital systems	NO	YES
QET3/077	Workplace improvement	NO	YES
QET3/078	Aircraft maintenance and manufacturing engineering procedures	NO	YES
QET3/079	Manufacturing aircraft structures	NO	YES
QET3/080	Assembling aircraft structures and components	NO	YES
QET3/081	Maintenance of aircraft structures	NO	YES
QET3/089	Railway infrastructure - mechanical engineering principles	NO	YES
QET3/090	Railway infrastructure - railway civil engineering	NO	YES
QET3/091	Railway infrastructure - track engineering	NO	YES
QET3/092	Railway infrastructure - track engineering construction	NO	YES
QET3/093	Railway infrastructure - track engineering maintenance	NO	YES
QET3/094	Railway infrastructure - electrical engineering	NO	YES
QET3/095	Railway infrastructure - overhead line equipment maintenance	NO	YES
QET3/096	Railway infrastructure - overhead line equipment construction	NO	YES
QET3/097	Rail vehicle traction systems	NO	YES
QET3/098	Traction and rolling suspension, wheelsets, brakes and associated systems	NO	YES
QET3/099	Railway infrastructure - function and characteristics of railway signalling systems	NO	YES
QET3/100	Railway infrastructure - railway signalling systems testing and maintenance	NO	YES
QET3/104	Power network apparatus and design: transmission and distribution	NO	YES
QET3/105	Managing resources in the power industry: transmission and distribution	NO	YES

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6.1 External assessment

External assessment comprises an externally set and marked on-screen multiple-choice examination, which has been designed to assess the knowledge and understanding in the core mandatory unit.

A specification for the examination, indicating the number of questions to be set for each learning outcome is provided in Appendix 1.

Key Points

- The external examination is available on demand
- The examination must be undertaken by the learner under controlled examination conditions, in accordance with EAL's Procedures for Conducting the Exam Component within EAL Qualifications' (EAF 1)
- The EAL co-ordinator within the Centre will assume responsibility for liaison and correspondence regarding the external assessment component
- Centres will be sampled and spot checks will be carried out by EAL to ensure examinations are delivered in accordance with EAL published procedures.

Re-taking externally set and marked examinations

Learners who fail to achieve a pass or deemed to have underperformed in the externally set and marked examination will be permitted to re-take this examination after feedback and appropriate tuition has taken place. If the learner does undertake a resit, the higher mark will be applied to the grading of the unit.

The re-sits for externally set and marked examinations will be subject to the current published charges.

Practice papers

A practice paper is available to learners, which can be accessed via the EAL website (see Section 2.4). The practice paper is not part of the formal assessment arrangements and marks from this paper will therefore NOT count towards the qualification.

6.2 Internal assessment

Internal assessment includes practical and/or theory assessments, which have been designed to assess the knowledge, understanding and skills of learners for individual units. The internal assessment for each unit is set by EAL and marked by members of the delivery team at the Centre. All assessment decisions are then subject to internal standardisation and external quality assurance.

Internal assessments involve collecting and evaluating evidence that demonstrates achievement of the learning outcomes in each unit. The internal assessments are accompanied by marking criteria, checklists and other materials to ensure that the delivery team is consistent in their approach to internal assessments across learners. The internal assessments and the accompanying marking/assessment criteria can be found in the individual units within the Delivery and Learner Assessment Packs.
Centres are responsible for ensuring that internal assessments are suitably controlled to ensure that assessment decisions are valid and reliable, and that work submitted for assessment by learners is prepared and produced by them independently, without assistance from others, and free of plagiarism.

Where the assessment takes the form of written/short answer or multiple choice question papers, these should be treated as controlled assessments therefore imposing the necessary restrictions on the learner, as necessary. Guidance sheets have also been created to hand out to the learners, to ensure they are aware how to complete the multiple choice and short answer questions papers.

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All learning outcomes of the qualification must be assessed. In order to help meet this requirement it is advised that learners should produce a logbook/portfolio where they can file and make reference to evidence that shows their achievements against the learning outcomes. Centres should also maintain an assessment and feedback record for each learner, which details the evidence evaluated against the learning outcome and the feedback given to the learner. These records must be available to the External Quality Assurer.

Further guidance on assessment is provided within each unit Delivery Pack.

Re-taking internal assessments
Learners who fail to achieve a pass in the internally marked controlled assessment/s will be permitted ONE re-take opportunity after feedback and appropriate tuition has taken place. If the learner does undertake a resit, **a pass only** will be applied to the grading of the internal assessment/s irrespective of the mark the learner achieves for the assessment/s (The grading of the re-sit opportunity for internal assessments will apply from 01st September 2020).

Standardisation of internal assessments
Members of the internal quality assurance team at the Centre have an important role to play in ensuring that internal assessment is standardised. In particular, they should work with tutor/assessors to ensure that the correct procedures are being followed at all times, and to ensure that assessment decisions taken by different assessors are consistent, fair and reliable. Key activities will include:

- Meeting with tutor/assessors (individually and collectively) throughout the course to discuss quality assurance and standardisation issues and provide support and guidance where needed.
- Observing tutor/assessors and giving them feedback to help improve their assessment technique.
- Sampling learner evidence across different learner cohorts to ensure that appropriate standards have been met.
- Arranging cross-marking of learner work to compare results and agree benchmarks.

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7.0 External quality control of assessment

There are two major activities in which EAL interacts with the Centre in relation to the External Quality Control of Assessment for this qualification and these are:

- **Recognition:** When a Centre decides to offer the qualification, the EAL External Quality Assurer (EQA) ensures that the Centre is suitably equipped and prepared for delivery and assessment.
- **Engagement:** Throughout the ongoing delivery of the qualification EAL, through EQA monitoring and other mechanisms will review the quality and consistency of assessment and internal quality assurance and recommend actions to address issues of concern.

Recognition

In granting approval, EAL, normally through its EQAs, will ensure that the prospective Centre:

- Meets any procedural requirements specified by EAL.
- Has sufficient and appropriate physical and staff resources.
- Meets relevant health and safety and/or equality and access requirements.
- Has a robust plan for the delivery, assessment and QA for the qualifications (including, where appropriate, scope for involving employers).

EAL may decide to visit the Centre to view the evidence provided.

Engagement

EAL, through EQA Engagement and other mechanisms will ensure that:

- A strategy is developed and deployed for the on-going monitoring of the centre – this will be based on an active risk assessment of the Centre, and will include details of the learner, assessor and internal quality assurer's sampling strategy and the rationale behind this.
- The Centre's internal quality assurance processes are effective in learner assessment.
- Outcomes of internal assessment are verified, through sampling, to ensure standards are being maintained.
- Sanctions are applied to a Centre where necessary and that corrective actions are taken by the Centre and monitored by the EQA.
- Reviews of EAL's external auditing arrangements are undertaken.

8.0 Grading

Learners must achieve a Pass in ALL components for the qualification to be awarded. If learners are unsuccessful in one or more of the assessment components then the overall result for the qualification will be 'referred' and a certificate will not be awarded.

Providing learners are successful in ALL assessment components, the final grade for the qualification will be determined from the grades achieved by learners in the external examination within the mandatory units and the centre marked assessments within the optional units. Please refer to the Grading Criteria within the Delivery Packs and Learner Assessment Packs on how to grade individual units.

The overall grade for the qualification is determined as follows:

The grade from **each** unit should be converted to a mark:

Converting grades to marks	
Grade	Mark
Pass	1
Merit	2
Distinction	3

The converted mark for each unit should be added together. This mark will be used to determine the grade for the qualification using one of the following tables:

EAL Level 3 Certificate in Engineering Technologies	
Grade	Marks ranges
Pass	3-4
Merit	5-6
Distinction	7-9

EAL Level 3 Subsidiary Diploma in Engineering Technologies	
Grade	Marks ranges
Pass	5-7
Merit	8-12
Distinction	13-15

EAL Level 3 Diploma in Engineering Technologies	
Grade	Marks ranges
Pass	7-10
Merit	11-17
Distinction	18-21

EAL Level 3 Extended Diploma in Engineering Technologies	
Grade	Marks ranges
Pass	10-14
Merit	15-23
Distinction	24-30

Centres **must** use one of the Qualification Grading Template in Appendix 1. This must be made available to the External Quality Assurer during an EQA visit.

A1

Appendix 1: Qualification grading template
EAL Level 3 Certificate in Engineering Technologies

Learner name:

Assessor name:

Unit title	Mark		
	1	2	3
QET3/001A - Engineering and environmental health and safety			
QET3/			
QET3/			
Total			
Grade			

Converting marks to grade	
Grade	**Marks ranges**
Pass	3-4
Merit	5-6
Distinction	7-9

The marks for each unit should be totalled and the conversion chart used to determine the overall grade for the qualification.

ALL tasks must achieve at least a pass for a grade to be claimed.

Assessor signature: _____ Date: _____

Learner signature: _____ Date: _____

IQA signature (if sampled): _____ Date: _____

Appendix 1: Qualification grading template
EAL Level 3 Subsidiary Diploma in Engineering Technologies

Learner name:

Assessor name:

Unit title	Mark		
	1	2	3
QET3/001A - Engineering and environmental health and safety			
QET3/			
QET3/			
QET3/			
QET3/			

Total	
Grade	

Converting marks to grade	
Grade	**Marks ranges**
Pass	5-7
Merit	8-12
Distinction	13-15

The marks for each unit should be totalled and the conversion chart used to determine the overall grade for the qualification.

ALL tasks must achieve at least a pass for a grade to be claimed.

Assessor signature: _____ Date: _____

Learner signature: _____ Date: _____

IQA signature (if sampled): _____ Date: _____

Appendix 1: Qualification grading template
EAL Level 3 Diploma in Engineering Technologies

Learner name: _____

Assessor name: _____

Unit title	Mark		
	1	2	3
QET3/001A - Engineering and environmental health and safety			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			

Total	
Grade	

Converting marks to grade	
Grade	**Marks ranges**
Pass	7-10
Merit	11-17
Distinction	18-21

The marks for each unit should be totalled and the conversion chart used to determine the overall grade for the qualification.

ALL tasks must achieve at least a pass for a grade to be claimed.

Assessor signature: _____ Date: _____

Learner signature: _____ Date: _____

IQA signature (if sampled): _____ Date: _____

Appendix 1: Qualification grading template
EAL Level 3 Extended Diploma in Engineering Technologies

Learner name:

Assessor name:

Unit title	Mark		
	1	2	3
QET3/001A - Engineering and environmental health and safety			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			
QET3/			

Total	
Grade	

Converting marks to grade	
Grade	**Marks ranges**
Pass	10-14
Merit	15-23
Distinction	24-30

The marks for each unit should be totalled and the conversion chart used to determine the overall grade for the qualification.

ALL tasks must achieve at least a pass for a grade to be claimed.

Assessor signature: _____ Date: _____

Learner signature: _____ Date: _____

IQA signature (if sampled): _____ Date: _____

Appendix 2: Examination specification

Unit: QET3/001A - Engineering and environmental health and safety

Assessment type: Multiple choice
Number of questions: 20
Time allowed: 40 minutes
The examination will cover the knowledge learning outcomes of the units as follows:

Nº	LO title	Nº of questions
1	Understand health and safety roles and responsibilities	5
2	Understand the application of health and safety in the engineering environment	5
3	Understand the safe moving and storing of materials	5
4	Understand environmental management	5

NOTE: The pass mark for the examination is normally expected to be around 60%.

Unit: QET3/002 - Engineering organisational efficiency and improvement

Assessment type: Multiple choice
Number of questions: 20
Time allowed: 40 minutes
The examination will cover the knowledge learning outcomes of the units as follows:

Nº	LO title	Nº of questions
1	Understand production activities	5
2	Understand application of quality control and quality assurance	6
3	Understand organisational improvement techniques and competitiveness	5
4	Understand personnel rights and responsibilities within an organisation	4

NOTE: The pass mark for the examination is normally expected to be around 60%.

Appendix 3: Total qualification time

In September 2015, Ofqual introduced their new Regulated Qualification Framework (RQF). They did this by publishing new General Conditions of Recognition[1] which require awarding organisations to take a consistent approach to determining the level, and describing the size, of regulated qualifications.

E7.1 of the new General Conditions of Recognition states:

In respect of each qualification which it makes available or proposes to make available, an awarding organisation must assign to that qualification a number of hours for –
(a) Total Qualification Time, and
(b) Guided Learning.

In Section J1 of the new General Conditions of Recognition, Ofqual provide the following definitions for Guided Learning and Total Qualification Time as:

Guided Learning - The activity of a Learner in being taught or instructed by – or otherwise participating in education or training under the Immediate Guidance or Supervision[2] of – a lecturer, supervisor, tutor or other appropriate provider of education or training.

For these purposes the activity of 'participating in education or training' shall be treated as including the activity of being assessed if the assessment takes place under the Immediate Guidance or Supervision of a lecturer, supervisor, tutor or other appropriate provider of education or training.

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.

Total Qualification Time is comprised of the following two elements –
(a) the number of hours which an awarding organisation has assigned to a qualification for Guided Learning, and
(b) an estimate of the number of hours a Learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by – but not under the Immediate Guidance or Supervision of – a lecturer, supervisor, tutor or other appropriate provider of education or training.

[1] https://www.gov.uk/government/publications/general-conditions-of-recognition

[2] Immediate Guidance or Supervision - The guidance or supervision provided to a Learner by a lecturer, supervisor, tutor or other appropriate provider of education or training –
(a) with the simultaneous physical presence of the Learner and that person, or
(b) remotely by means of simultaneous electronic communication.
For these purposes, the activity of Invigilation is to be regarded as a form of guidance or supervision.

Appendix 4: UCAS Points

UCAS Tariff Table

Qualification/family	Grade	New Tariff Total Points
EAL Level 3 Subsidiary Diploma in Engineering Technologies 601/5799/9 (375 GLH)	Distinction	48
	Merit	32
	Pass	16
EAL Level 3 Diploma in Engineering Technologies 601/5801/3 (525 GLH)	Distinction	72
	Merit	48
	Pass	24
EAL Level 3 Extended Diploma in Engineering Technologies 601/5802/5 (750 GLH)	Distinction	96
	Merit	64
	Pass	32

For more information on UCAS tables and qualifications please follow the link:
https://www.ucas.com/ucas/conservatoires/getting-started/entry-requirements/new-tariff

Appendix 5: Learner registration and certification

Learners must be registered with EAL on a code which relates to the qualification - this must be completed prior to assessment. Both learner registration and certification can be completed on line at the EAL Website www.eal.org.uk. For paper based registration and certification use forms CRF1, and CAF1A.
These are located on the EAL Website, for guidance on registration and Certification please refer to the Registration and Certification User Guide.

To register the learner on the chosen qualification/pathway code:

Qualification title	Code
EAL Level 3 Certificate in Engineering Technologies	
Pathway QCET3A - Mechanical engineering technology	601/5800/1A
Pathway QCET3B - Maintenance engineering technology	601/5800/1B
Pathway QCET3C - Fabrication and welding technology	601/5800/1C
Pathway QCET3D - Electrical and electronics technology	601/5800/1D
Pathway QCET3E - Engineering technology	601/5800/1E
Pathway QCET3F - Rail engineering technology	601/5800/1F
EAL Level 3 Subsidiary Diploma in Engineering Technologies	
Pathway QSDET3A - Aerospace technology	601/5799/9A
Pathway QSDET3B - Mechanical engineering technology	601/5799/9B
Pathway QSDET3C - Maintenance engineering technology	601/5799/9C
Pathway QSDET3D - Fabrication and welding technology	601/5799/9D
Pathway QSDET3E - Electrical and electronics technology	601/5799/9E
Pathway QSDET3F - Engineering technical support technology	601/5799/9F
Pathway QSDET3G - Engineering technology	601/5799/9G
Pathway QSDET3H - Rail engineering technology	601/5799/9H
EAL Level 3 Diploma in Engineering Technologies	
Pathway QDET3A - Aerospace technology	601/5801/3A
Pathway QDET3B - Mechanical engineering technology	601/5801/3B
Pathway QDET3C - Maintenance engineering technology	601/5801/3C
Pathway QDET3D - Fabrication and welding technology	601/5801/3D
Pathway QDET3E - Electrical and electronics technology	601/5801/3E
Pathway QDET3F - Engineering technical support technology	601/5801/3F
Pathway QDET3G - Engineering technology	601/5801/3G
Pathway QDET3H - Rail engineering technology	601/5801/3H
EAL Level 3 Extended Diploma in Engineering Technologies	601/5802/5

For further information please contact EAL Customer Services +44 (0)1923 652 400.