Level 3 NVQ Diploma in

Automotive Engineering

ENGINEERING

Qualification Specification

Overview
This qualification involves the skills and knowledge to work effectively in a range of automotive engineering activities. to provide essential basic engineering training for apprentices in England and Wales.

Typical Job
Motorsport Technician (mechanical, electrical/electronic), vehicle builder, vehicle development technician, vehicle test technician.

Qualification code:	600/0750/3
Level:	3
Total qualification time:	1160Hours
Guided learning hours:	330
Credits:	116
Minimum age	16

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Purpose of the qualification

This qualification enables learners to:

- Develop skills and competencies relating to their specific role
- Meet the competence requirement of Semta's engineering manufacture apprenticeship at level 3 for the automotive pathway
- Gain a recognised qualification to support their progress to further learning and greater responsibility in the workplace.

What does this qualification cover?

Learners will take three mandatory units, , and one of nine job-specific pathways. These pathways cover a wide range of areas including vehicle fitting and body building, vehicle electric and electronic wiring and assembly, commercial and passenger carrying vehicle body building, and experimental/new model development.

Who is this qualification designed for?

Learners working towards an engineering manufacture Apprenticeship at level 3 in England or Wales

What could this qualification lead to?

On completion of this qualification it can form part of an apprenticeship framework at Level 3, providing a base for other level 3 qualifications, and progression to a range of Level 4 qualifications.

Entry Requirements

Learners must have the potential to achieve the assessment criteria set out in the units.

How is the qualification achieved?

The learner must present evidence (portfolio) which clearly shows they have met the assessment criteria and learning outcomes. The learner must achieve the mandatory and optional units relevant to their pathway (occupational role).

What will be assessed?

All evidence submitted by the learner against the assessment criteria.

How will it be assessed?

The level 3 units are assessed in the workplace via observation and the collation of evidence in a portfolio.

Structure

Structure of the EAL Level 3 NVQ Diploma

Rule of combination (qualification structure)
This qualification has 330 Guided Learning Hours (GLH), and 116 Credits. It has a Total Qualification Time (TQT) of 1160 hours which is the notional time required by the learner to complete the qualification.
This qualification can be obtained by following either one of the following pathways. The learner is required to complete the mandatory assessment routes, and may also be able to choose from a selection of optional assessment routes

Pathway QAUA: Vehicle Fitting

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Three of the following assessment routes must be taken:

QAUE3/004	Assembling Sub-Assembly Units to Vehicles	3	55	98	T/600/5807
QAUE3/005	Assembling Power Plant Units	3	55	98	A/600/5808
QAUE3/006	Assembling the Rear Axle Sub-Assembly	3	55	98	F/600/5809
QAUE3/007	Assembling the Front Suspension Sub-Assembly	3	55	98	T/600/5810
QAUE3/008	Assembling Braking Systems to Vehicles	3	55	98	A/600/5811

Pathway QAUB: Vehicle Body Building

Mandatory assessment routes: All four assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

QAUE3/009	Assembling Vehicle Body Sub-Assemblies	3	60	105	F/600/5812
QAUE3/010	Assembling Body Sub-Assemblies to Produce a Vehicle	3	70	119	H/600/5818

Pathway QAUC: Vehicle Electrical and Electronic Wiring and Assembly

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

QAUE3/013	Assembling and Fitting Wiring Looms to Vehicles	3	55	98	A/600/5825
QAUE3/014	Assembling Electrical and Electronic Equipment to Vehicles	3	60	105	L/600/5828
QAUE3/015	Diagnosing and Rectifying Faults in Vehicle Electrical and Electronic Systems	3	58	105	R/600/5832

Pathway QAUD: Composite Manufacture

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Three of the following assessment routes must be taken:

QAUE3/023	Manufacturing Vehicle Composite Mouldings using Wet Lay-Up Techniques	3	86	210	Y/600/5850
QAUE3/024	Manufacturing Vehicle Composite Mouldings using Pre-Preg Laminating Techniques	3	86	210	H/600/5852
QAUE3/025	Manufacturing Vehicle Components by Resin Casting	3	86	210	L/601/5050
QAUE3/026	Manufacturing Vehicle Components by Vacuum Forming	3	50	98	K/600/5853
QAUE3/027	Manufacturing Vehicle Components by Acrylic Moulding	3	50	98	T/600/5872
QAUE3/028	Assembling Composite Vehicle Components	3	86	210	R/600/5877
QAUE3/029	Bonding Vehicle Composite Components	3	30	52	D/600/5882
QAUE3/030	Trimming Vehicle Composite Mouldings using Hand Tools	3	46	105	L/600/5893
QAUE3/031	Repairing Defects in Vehicle Composite Mouldings	3	77	161	K/600/5898
QAUE3/032	Applying Finishes to Vehicle Composite Mouldings	3	46	105	K/600/5903

Pathway QAUE: Experimental/New Model Development

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055
Optional assessment routes: Four of the following assessment routes must be taken:					
QAUE3/033	Marking Out Components for Experimental Vehicle Engineering	3	21	77	F/600/5910
QAUE3/034	Hand Fitting Techniques to Produce Components for Experimental Vehicle Engineering	3	55	105	K/600/5920
QAUE3/035	Assembling and Disassembling Mechanical Equipment on Experimental Vehicles	3	70	126	J/600/5942
QAUE3/036	and Disassembling Electrical and Electronic Equipment on Experimental Vehicles	3	70	126	R/600/5958
QAUE3/010	Assembling Body Sub-Assemblies to Produce a Vehicle	3	70	119	H/600/5818
QAUE3/037	Fabricating Structural Components for Experimental Vehicle Engineering	3	60	119	Y/600/5962
QAUE3/038	Machining Components for Experimental Vehicle Engineering	3	70	126	F/600/5969
QAUE3/039	Cutting and Shaping Sheet Metal for Experimental Vehicle Engineering	3	60	119	D/600/5977
QAUE3/040	Assembling Structures for Experimental Vehicle Engineering using Mechanical Fasteners	3	20	56	T/600/5984
QAUE3/041	Assembling Structures for Experimental Vehicle Engineering using a Manual Welding Process	3	60	168	R/600/5992

QAUE3/042	Assembling Components for Experimental Vehicle Engineering by Resistance Spot Welding	3	7	35	A/600/5999
QAUE3/043	Assembling Components for Experimental Vehicle Engineering by Manual Torch Brazing and Soldering	3	35	84	A/600/6005

Plus: One of the following assessment routes must be taken:

QAUE3/044	Carrying Out Fault Diagnosis on Experimental Vehicles	3	53	105	J/600/6010
QAUE3/045	Conducting and Monitoring Static Tests on Vehicles	3	60	105	Y/600/6013
QAUE3/046	Conducting and Monitoring Road Tests on Vehicles	3	60	105	H/600/6015

Pathway QAUF: Commercial and Passenger Carrying Vehicle Body Building

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Two of the following assessment routes must be taken:

QAUE3/047	Producing Commercial and Passenger Carrying Vehicle Body Sub-Assemblies	3	65	112	T/600/6018
QAUE3/048	Assembling Commercial and Passenger Carrying Vehicle Body Sub-Assemblies to Produce a Vehicle	3	70	119	T/600/6021
QAUE3/049	Repairing and Refurbishing Commercial and Passenger Carrying Vehicles	3	65	112	A/600/6022
QAUE3/050	Fitting Ancillary Units to Commercial and Passenger Carrying Vehicles	3	47	105	J/600/6024
QAUE3/054	Modifying Commercial and Passenger Carrying Vehicles	3	47	105	J/600/5553

Plus: One different assessment route from the following:

QAUE3/047	Producing Commercial and Passenger Carrying Vehicle Body Sub-Assemblies	3	65	112	T/600/6018
QAUE3/048	Assembling Commercial and Passenger Carrying Vehicle Body Sub-Assemblies to Produce a Vehicle	3	70	119	T/600/6021
QAUE3/049	Repairing and Refurbishing Commercial and Passenger Carrying Vehicles	3	65	112	A/600/6022
QAUE3/050	Fitting Ancillary Units to Commercial and Passenger Carrying Vehicles	3	47	105	J/600/6024
QAUE3/051	Fitting Internal and External Trim and Fitments to Commercial and Passenger Carrying Vehicles	3	20	56	L/600/6025

QAUE3/052	Fitting Pipework Systems to Commercial and Passenger Carrying Vehicles	3	45	105	R/600/6026
QAUE3/053	Fitting Electrical and Electronic Components to Commercial and Passenger Carrying Vehicles	3	45	105	R/600/5524
QAUE3/054	Modifying Commercial and Passenger Carrying Vehicles	3	47	105	J/600/5553
QAUE3/055	Joining Components for Commercial and Passenger Carrying Vehicles using a Manual Welding Process	3	76	252	R/600/5569
QAUE3/056	Assembling Components for Commercial and Passenger Carrying Vehicles by Resistance Spot Welding	3	7	35	M/600/5577

Pathway QAUG: Motorsport Vehicle Technician (Mechanical)

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

QAUE3/058	Setting up Motorsport Vehicles	3	60	105	D/600/5638
QAUE3/059	Carrying out Motorsport Vehicle Inspections during a Competition	3	50	105	F/600/5647

Plus: Three of the following assessment routes must be taken:

QAUE3/060	Removing and Re-fitting Motorsport Engines and Ancillary Components	3	65	112	M/600/5658
QAUE3/061	Removing and Re-fitting Transmissions on Motorsport Vehicles	3	65	112	Y/600/5668
QAUE3/062	Removing and Re-fitting Suspension Systems on Motorsport Vehicles	3	65	112	M/600/5675
QAUE3/063	Removing and Re-fitting Braking Systems on Motorsport Vehicles	3	60	105	A/600/5680
QAUE3/064	Removing and Re-fitting Steering Systems on Motorsport Vehicles	3	60	105	J/600/5682
QAUE3/065	Removing and Re-fitting Chassis Sub-Assemblies and Components on Motorsport Vehicles	3	60	105	J/600/5830
QAUE3/066	Removing and Re-fitting Fuel Systems on Motorsport Vehicles	3	60	105	L/600/5831
QAUE3/067	Carrying out Fault Diagnosis and Rectification Activities on Motorsport Vehicles During a Competition	3	58	105	Y/600/5833

Plus: One of the following assessment routes must be taken:

QAUE3/068	Removing, Fitting and Trimming Bodywork to Motorsport Vehicles	3	25	63	H/600/5835
QAUE3/069	Removing and Re-fitting Electrical/Electronic Equipment on Motorsport Vehicles	3	65	112	M/600/5837
QAUE3/070	Restoring Motorsport Mechanical Components to Usable Condition by Repair	3	47	105	A/600/5839
QAUE3/074	Welding Motorsport Vehicle Components using a Manual Welding Process	3	76	252	R/600/5846
QAUE3/078	Inspecting Motorsport Components by Penetrant Flaw Detection Techniques	3	52	105	M/600/5854

Optional assessment routes: One of the following assessment routes must be taken:

QAUE3/080	Motorsport Composite Mouldings using Pre-Preg Laminating Techniques	3	86	210	J/600/6072
QAUE3/081	Producing Motorsport Composite Mouldings using Wet Lay-up Techniques	3	86	210	L/600/6073
QAUE3/082	Producing Motorsport Composite Mouldings using Resin Infusion Laminating Techniques	3	86	210	D/600/6076
QAUE3/083	Producing Motorsport Composite Assemblies	3	86	210	K/600/6078

Plus: Two of the following assessment routes must be taken:

QAUE3/080	Motorsport Composite Mouldings using Pre-Preg Laminating Techniques	3	86	210	J/600/6072
QAUE3/081	Producing Motorsport Composite Mouldings using Wet Lay-up Techniques	3	86	210	L/600/6073
QAUE3/082	Producing Motorsport Composite Mouldings using Resin Infusion Laminating Techniques	3	86	210	D/600/6076
QAUE3/083	Producing Motorsport Composite Assemblies	3	86	210	K/600/6078
QAUE3/084	Bonding Motorsport Composite Mouldings	3	30	52	M/600/6079

QAUE3/085	Repairing Motorsport Composite Mouldings	3	77	161	H/600/6080
QAUE3/086	Applying Finishes to Motorsport Composite Mouldings	3	46	105	A/600/6084
QAUE3/087	Trimming Motorsport Composite Mouldings using hand Tools	3	46	105	F/600/6085
QAUE3/088	Identifying Defects in Motorsport Composite Mouldings	3	30	52	L/600/6087

Note: Two different assessment routes must be taken.

Pathway QAUI: Prototype Powertrain Development
Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: One of the following assessment routes must be taken:

QAUE3/015	Diagnosing and Rectifying Faults in Vehicle Electrical and Electronic Systems	3	58	105	R/600/5832
QAUE3/044	Carrying Out Fault Diagnosis on Experimental Vehicles	3	53	105	J/600/6010

Plus: Three of the following assessment routes must be taken:

QAUE3/035	Assembling and Disassembling Mechanical Equipment on Experimental Vehicles	3	70	126	J/600/5942
QAUE3/036	and Disassembling Electrical and Electronic Equipment on Experimental Vehicles	3	70	126	R/600/5958
QAUE3/136	Removal and Fitting Fuel Systems to Prototype Engines for Test	3	65	119	A/601/0393
QAUE3/137	Installing Electrical/Electronic Engine/Transmission Control Units to Prototype Vehicles	3	70	126	L/601/0396
QAUE3/138	Setting Up and Testing Prototype Vehicle Electrical/Electronic Engine/Transmission Control Units	3	60	105	R/601/0397
QAUE3/139	Setting Up and Testing Prototype Vehicle Data Acquisition Systems	3	60	105	J/601/0400
QAUE3/140	Stripping and Rebuilding Prototype Engines for Test	3	75	140	R/601/0402

QAUE3/141	Building Prototype Engines for Test	3	70	133	Y/601/0403
QAUE3/142	Testing Prototype Engines (Fixed Dynamometer)	3	60	105	D/601/0404
QAUE3/143	Testing Prototype Engines Installed in Vehicles	3	60	105	H/601/0405
QAUE3/144	Dressing Prototype Engines for Test	3	65	105	K/601/0406

Pathway QAUJ: Vehicle Painting and Finishing

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Two assessment routes must be taken:

QAUE3/011	Preparing Vehicle Body Surfaces for Finishing	3	60	119	T/504/2832
QAUE3/012	Spraying Vehicle Body Surfaces	3	80	133	A/504/2833
QAUE3/145	Flattening and Polishing Vehicle Bodies	3	60	119	H/505/9528

Pathway QAUK: Vehicle Trimming

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes:

Either: Three of the following assessment routes must be taken:

QAUE3/016	Trimming of Body Components for Vehicles	3	35	70	F/504/2834
QAUE3/017	Machining and Hand Sewing of Vehicle Trim Components	3	45	98	L/504/2836
QAUE3/018	Assembling Trim Components to Vehicles	3	30	70	R/504/2837
QAUE3/019	Making Vehicle Trim Prototypes and Patterns	3	50	119	Y/504/2838

Or: All of the following PMO 2 assessment routes:

QPMO2/003	Transferring materials	3	13	53	Y/601/3009
QPMO2/004	Preparing for manufacturing operations	3	9	42	L/601/3010
QPMO2/005	Concluding manufacturing operations	3	9	42	Y/601/3012

Plus: The following assessment routes:

QAUE3/019	Making Vehicle Trim Prototypes and Patterns	3	50	119	Y/504/2838

Plus: One of the following assessment routes:

QAUE3/016	Trimming of Body Components for Vehicles	3	35	70	F/504/2834

QAUE3/017	Machining and Hand Sewing of Vehicle Trim Components	3	45	98	L/504/2836
QAUE3/018	Assembling Trim Components to Vehicles	3	30	70	R/504/2837

Pathway QAUL: Vehicle Woodworking/Veneering

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

QAUE3/020	Producing and Assembling Substrates for Vehicle Components	3	48	105	D/504/2839
QAUE3/021	Veneering and Finishing Vehicle Components	3	46	98	R/504/2840
QAUE3/022	Lacquering and Polishing Veneered Vehicle Components	3	46	98	Y/504/2841

Pathway QAUM: Quality Inspection

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAUE3/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAUE3/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAUE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

QAUE3/146	Inspecting Manufactured Vehicles	3	142	287	D/505/9527
QAUE3/147	Implementing Quality Control Systems and Procedures in an Engineering Environment	3	40	106	H/600/5785