Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/ Electrical)

Specification

Pearson BTEC Specialist qualification

First teaching August 2014

Issue 2: June 2016

Pearson Education Limited is one of the UK's largest awarding organisations, offering academic and vocational qualifications and testing to schools, colleges, employers and other places of learning, both in the UK and internationally. Qualifications offered include GCSE, AS and A Level, NVQ and our BTEC suite of vocational qualifications, ranging from Entry Level to BTEC Higher National Diplomas. Pearson Education Limited administers BTEC qualifications.

Through initiatives such as onscreen marking and administration, Pearson is leading the way in using technology to modernise educational assessment, and to support teachers and learners.

This specification is Issue 2. Key changes are listed in the summary table on the next page of the document. We will inform centres of any changes to this issue. The latest issue can be found on the Pearson website: qualifications.pearson.com

These qualifications were previously entitled:

Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical) (QCF)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body) (QCF)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical) (QCF)

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/Electrical) (QCF)

The QNs remain the same.

References to third party material made in this specification are made in good faith. Pearson does not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.)

All information in this specification is correct at time of publication.

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Summary of Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical) specification Issue 2 changes

Summary Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body) specification Issue 2 changes

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical) specification Issue 2 changes

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/Electrical) specification Issue 2 changes

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Summary of changes made between previous issue and this current issue	**Page/section number**
All references to QCF have been removed throughout the specification	
Definition of TQT added	Section 1
Definition of sizes of qualifications aligned to TQT	Section 1
Credit value range removed and replaced with lowest credit value for the shortest route through the qualification	Section 2
TQT value added	Section 2
GLH range removed and replaced with lowest GLH value for the shortest route through the qualification	Section 2
Reference to credit transfer within the QCF removed	Section 5
QCF references removed from unit titles and unit levels in all units	Section 12
Guided learning definition updated	Section 12

Earlier issue(s) show(s) previous changes.

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

Contents

Purpose of this specification

The purpose of a specification as defined by Ofqual is to set out:

- the qualification's objective
- any other qualification that a learner must have completed before taking the qualification
- any prior knowledge, skills or understanding that the learner is required to have before taking the qualification
- units that a learner must have completed before the qualification will be awarded and any optional routes
- any other requirements that a learner must have satisfied before they will be assessed or before the qualification will be awarded
- the knowledge, skills and understanding that will be assessed as part of the qualification (giving a clear indication of their coverage and depth)
- the method of any assessment and any associated requirements relating to it
- the criteria against which the learner's level of attainment will be measured (such as assessment criteria)
- any specimen materials
- any specified levels of attainment.

1 Introducing Pearson BTEC Specialist qualifications

What are BTEC Specialist qualifications?

BTEC Specialist qualifications are work-related qualifications available from Entry to Level 3 in a range of sectors. They give learners the knowledge, understanding and skills they need to prepare for employment in a specific occupational area. The qualifications also provide career development opportunities for those already in work. The qualifications may be offered as full-time or part-time courses in schools or colleges. Training centres and employers may also offer these qualifications.

Sizes of Specialist qualifications

For all regulated qualifications, we specify a total number of hours that learners are expected to undertake in order to complete and show achievement for the qualification – this is the Total Qualification Time (TQT). The TQT value indicates the size of a qualification.

Within the TQT, we identify the number of Guided Learning Hours (GLH) that a centre delivering the qualification needs to provide. Guided learning means activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study.

As well as guided learning, there may be other required learning that is directed by tutors or assessors. This includes, for example, private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

As well as TQT and GLH, qualifications can also have a credit value – equal to one tenth of TQT, rounded to the nearest whole number.

TQT and credit values are assigned after consultation with users of the qualifications.

BTEC Specialist qualifications are available in the following sizes:

- Award – a qualification with a TQT value of 120 or less (equivalent to a range of 1–12 credits)
- Certificate – a qualification with a TQT value in the range of 121–369 (equivalent to a range of 13–36 credits)
- Diploma – a qualification with a TQT value of 370 or more (equivalent to 37 credits and above).

2 Qualification summary and key information

Qualification title	Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical)
Qualification Number (QN)	600/9740/1
Regulation start date	13/06/2013
Operational start date	01/08/2014
Approved age ranges	16 – 18 19+
Credit value	27
Assessment	Centre-devised assessment (internal assessment)
Total Qualification Time (TQT)	270
Guided learning hours	224
Grading information	The qualification and units are at pass grade.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Pearson Access and Recruitment policy (see *Section 10 Access and recruitment*)

Qualification title	Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body)
Qualification Number (QN)	600/9739/5
Regulation start date	13/06/2013
Operational start date	01/08/2014
Approved age ranges	16 – 18 19+
Credit value	50
Assessment	Centre-devised assessment (internal assessment)
Total Qualification Time (TQT)	500
Guided learning hours	390
Grading information	The qualification and units are at pass grade.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Pearson Access and Recruitment policy (see *Section 10 Access and recruitment*)

Qualification title	Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical)
Qualification Number (QN)	600/9742/5
Regulation start date	13/06/2013
Operational start date	01/08/2014
Approved age ranges	16 – 18 19+
Credit value	37
Assessment	Centre-devised assessment (internal assessment)
Total Qualification Time (TQT)	370
Guided learning hours	312
Grading information	The qualification and units are at pass grade.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Pearson Access and Recruitment policy (see *Section 10 Access and recruitment*)

Qualification title	Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/Electrical)
Qualification Number (QN)	600/9741/3
Regulation start date	13/06/2013
Operational start date	01/08/2014
Approved age ranges	16 – 18 19+
Credit value	42
Assessment	Centre-devised assessment (internal assessment)
Total Qualification Time (TQT)	420
Guided learning hours	356
Grading information	The qualification and units are at pass grade.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Pearson Access and Recruitment policy (see *Section 10 Access and recruitment*)

Qualification number and qualification title

Centres will need to use the Qualification Number (QN) when they seek public funding for their learners. The qualification title, unit titles and QN will appear on each learner's final certificate. You should tell your learners this when your centre recruits them and registers them with us. There is more information about certification in the *Edexcel Information Manual,* available on our website: www.edexcel.com

Objective of the qualification (Electrical)

The Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical) is for learners who work in, or want to work in the Passenger Transport Sector as a Bus/Coach Electrical Maintenance and Repair Technician for example.

They give learners the opportunity to:

- develop knowledge related to the maintenance, repair and diagnosis of electrical faults in buses and coaches
- demonstrate occupational competence and knowledge within electrical areas
- learn about bus and coach engineering and maintenance with specific reference to electrical components
- achieve a nationally-recognised Level 3 qualification
- develop their own personal growth and engagement in learning.

Objective of the qualification (Body)

The Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body) is for learners who work in, or want to work in the Passenger Transport Sector as a Bus/Coach Body Builder and Repairer for example.

They give learners the opportunity to:

- develop knowledge related to assessing and repairing structural and non-structural damage to bus and coach body work
- demonstrate occupational competence and knowledge within body cladding areas
- learn about bus and coach engineering and maintenance with specific reference to body components
- achieve a nationally-recognised Level 3 qualification
- develop their own personal growth and engagement in learning.

Objective of the qualification (Mechanical)

The Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical) is for learners who work in, or want to work in the Passenger Transport Sector as a Bus/Coach Mechanical Maintenance and Repair Technician for example.

They give learners the opportunity to:

- develop knowledge related to the diagnosis and rectification of bus and coach mechanical faults
- demonstrate occupational competence and knowledge within mechanical areas
- learn about bus and coach engineering and maintenance with specific reference to mechanical components
- achieve a nationally-recognised Level 3 qualification
- develop their own personal growth and engagement in learning.

Objective of the qualification (Mechanical/Electrical)

The Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/Electrical) are for learners who work in, or want to work in the Passenger Transport Sector as a Bus/Coach Diagnostic Technician for example.

They give learners the opportunity to:

- develop knowledge related to the diagnosis and rectification of bus and coach mechanical and electrical faults
- demonstrate occupational competence and knowledge within mechanical and electrical areas
- learn about bus and coach engineering and maintenance with specific reference to mechanical and electrical components
- achieve a nationally-recognised Level 3 qualification
- develop their own personal growth and engagement in learning.

Apprenticeships

People 1st approve the Pearson BTEC Level 3 Certificate and Level 3 Diplomas in Principles of Bus and Coach Engineering and Maintenance as knowledge components for the Advanced Apprenticeship in Bus and Coach Engineering and Maintenance.

Relationship with previous qualifications

These qualifications are direct replacements for the EDI Level 3 Certificate and Level 3 Diplomas in Principles of Bus and Coach Engineering and Maintenance.

Progression opportunities

Learners who have achieved the Level 3 Certificate and Level 3 Diplomas in Principles of Bus and Coach Engineering and Maintenance can progress to related competence qualifications, such as the Pearson Edexcel Level 3 NVQ Diplomas and Certificates in Bus and Coach Engineering and Maintenance. These are available in specialist pathways covering body cladding, mechanical and electrical maintenance and repair and form part of the advanced apprenticeship framework.

Industry support and recognition

These qualifications are supported by People 1st for GoSkills, the SSC for occupations in passenger transport.

Relationship with National Occupational Standards

These qualifications relate to the National Occupational Standards in Bus and Coach Engineering and Maintenance. The mapping document in *Annexe A* shows the links between the units within this qualification and the National Occupational Standards.

3 Qualification structures

Pearson BTEC Level 3 Certificate in Principles of Bus and Coach Engineering and Maintenance (Electrical)

The learner will need to meet the requirements outlined in the table below before Pearson can award the qualification.

Minimum number of credits that must be achieved	27
Minimum number of credits that must be achieved at level 3 or above	16
Number of mandatory credits that must be achieved	23
Number of optional credits that must be achieved	4

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/8468	Understanding Health, Safety and Good Housekeeping in the Bus and Coach Environment	2	3	30
2	L/502/8466	Understanding Effective Working Relationships with Colleagues in the Bus and Coach Work Environment	3	3	20
3	R/502/8467	Understanding Materials, Fabrication, Tools and Measuring Devices Used in the Bus and Coach Environment	2	4	40
16	L/502/8483	Understand how to Carry Out Scheduled Electrical Maintenance on Buses and Coaches	3	4	30
17	M/502/8489	Understand how to Diagnose and Repair Electrical Faults in Bus and Coach Systems and Components	3	9	74

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
4	F/502/8500	Understand how to Identify, Locate and Rectify Electrical Faults in Bus and Coach Systems and Components	2	8	60
5	D/502/8469	Understand how to Provide Roadside Assistance and Recovery Assistance and Recovery for Buses and Coaches	2	6	47
6	D/502/8472	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Engine Systems and Components	2	8	60
7	H/502/8392	Understand Thermal Joining to Bus/Coach Components	3	10	60
8	R/502/8470	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Transmission Systems and Components	2	8	60
9	Y/502/8471	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Chassis Systems and Components	2	8	60
11	T/502/8493	Understand how to Conduct Inspections of Buses and Coaches	3	5	40
13	F/502/8481	Understand how to Install and Configure Bus and Coach Ancillary Systems	3	6	45
18	A/502/8477	Understand how to Remove and Transport Buses and Coaches	3	4	30
19	M/502/8492	Understand how to Recondition Electrical Components in Buses/Coaches	3	8	60
20	R/502/8484	Understand how to Diagnose and Repair Mechanical Faults in Bus and Coach Systems and Components	3	14	122
Unit	**Unit reference number**	**Optional unit (Mandatory for Apprenticeship Learners)**	**Level**	**Credit**	**Guided learning hours**
23	L/602/5934	Employment Rights and Responsibilities in the Passenger Transport Sector	2	3	18

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body)

The learner will need to meet the requirements outlined in the table below before Pearson can award the qualification.

Minimum number of credits that must be achieved	50
Minimum number of credits that must be achieved at level 3 or above	38
Number of mandatory credits that must be achieved	45
Number of optional credits that must be achieved	5

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/8468	Understanding Health, Safety and Good Housekeeping in the Bus and Coach Environment	2	3	30
2	L/502/8466	Understanding Effective Working Relationships with Colleagues in the Bus and Coach Work Environment	3	3	20
3	R/502/8467	Understanding Materials, Fabrication, Tools and Measuring Devices Used in the Bus and Coach Environment	2	4	40
7	H/502/8392	Understand Thermal Joining to Bus/Coach Components	3	10	60
12	L/502/8399	Understand how to Assemble Bus/Coach Body Panels and Components	3	9	73
14	A/502/8415	Understand how to Assess and Repair Damage to Bus/Coach Body Panels and Components	3	10	94
15	F/502/8397	Understand Scheduled Body Maintenance to Bus/Coach Body Components	3	6	33

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
4	F/502/8500	Understand how to Identify, Locate and Rectify Electrical Faults in Bus and Coach Systems and Components	2	8	60
6	D/502/8472	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Engine Systems and Components	2	8	60
8	R/502/8470	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Transmission Systems and Components	2	8	60
9	Y/502/8471	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Chassis Systems and Components	2	8	60
10	R/502/8419	Understand how to Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components	3	13	65
11	T/502/8493	Understand how to Conduct Inspections of Buses and Coaches	3	5	40
13	F/502/8481	Understand how to Install and Configure Bus and Coach Ancillary Systems	3	6	45
Unit	**Unit reference number**	**Optional unit (Mandatory for Apprenticeship Learners)**	**Level**	**Credit**	**Guided learning hours**
23	L/602/5934	Employment Rights and Responsibilities in the Passenger Transport Sector	2	3	18

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical)

The learner will need to meet the requirements outlined in the table below before Pearson can award the qualification.

Minimum number of credits that must be achieved	37
Minimum number of credits that must be achieved at level 3 or above	26
Number of mandatory credits that must be achieved	33
Number of optional credits that must be achieved	4

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/8468	Understanding Health, Safety and Good Housekeeping in the Bus and Coach Environment	2	3	30
2	L/502/8466	Understanding Effective Working Relationships with Colleagues in the Bus and Coach Work Environment	3	3	20
3	R/502/8467	Understanding Materials, Fabrication, Tools and Measuring Devices Used in the Bus and Coach Environment	2	4	40
11	T/502/8493	Understand how to Conduct Inspections of Buses and Coaches	3	5	40
20	R/502/8484	Understand how to Diagnose and Repair Mechanical Faults in Bus and Coach Systems and Components	3	14	122
22	F/502/8478	Understand how to Carry Out Scheduled Mechanical Maintenance on Buses and Coaches	3	4	30

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
5	D/502/8469	Understand how to Provide Roadside Assistance and Recovery Assistance and Recovery for Buses and Coaches	2	6	47
6	D/502/8472	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Engine Systems and Components	2	8	60
7	H/502/8392	Understand Thermal Joining to Bus/Coach Components	3	10	60
8	R/502/8470	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Transmission Systems and Components	2	8	60
9	Y/502/8471	Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Chassis Systems and Components	2	8	60
13	F/502/8481	Understand how to Install and Configure Bus and Coach Ancillary Systems	3	6	45
17	M/502/8489	Understand how to Diagnose and Repair Electrical Faults in Bus and Coach Systems and Components	3	9	74
18	A/502/8477	Understand how to Remove and Transport Buses and Coaches	3	4	30
19	M/502/8492	Understand how to Recondition Electrical Components in Buses/Coaches	3	8	60
21	K/502/8491	Understand how to Recondition Mechanical Components in Buses/Coaches	3	8	60
Unit	**Unit reference number**	**Optional unit (Mandatory for Apprenticeship Learners)**	**Level**	**Credit**	**Guided learning hours**
23	L/602/5934	Employment Rights and Responsibilities in the Passenger Transport Sector	2	3	18

Pearson BTEC Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical/Electrical)

The learner will need to meet the requirements outlined in the table below before Pearson can award the qualification.

Minimum number of credits that must be achieved	42
Minimum number of credits that must be achieved at level 3 or above	31
Number of mandatory credits that must be achieved	38
Number of optional credits that must be achieved	4

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/8468	Understanding Health, Safety and Good Housekeeping in the Bus and Coach Environment	2	3	30
2	L/502/8466	Understanding Effective Working Relationships with Colleagues in the Bus and Coach Work Environment	3	3	20
3	R/502/8467	Understanding Materials, Fabrication, Tools and Measuring Devices Used in the Bus and Coach Environment	2	4	40
11	T/502/8493	Understand how to Conduct Inspections of Buses and Coaches	3	5	40
17	M/502/8489	Understand how to Diagnose and Repair Electrical Faults in Bus and Coach Systems and Components	3	9	74
20	R/502/8484	Understand how to Diagnose and Repair Mechanical Faults in Bus and Coach Systems and Components	3	14	122

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
5	D/502/8469	Understand how to Provide Roadside Assistance and Recovery Assistance and Recovery for Buses and Coaches	2	6	47
7	H/502/8392	Understand Thermal Joining to Bus/Coach Components	3	10	60
13	F/502/8481	Understand how to Install and Configure Bus and Coach Ancillary Systems	3	6	45
16	L/502/8483	Understand how to Carry Out Scheduled Electrical Maintenance on Buses and Coaches	3	4	30
18	A/502/8477	Understand how to Remove and Transport Buses and Coaches	3	4	30
19	M/502/8492	Understand how to Recondition Electrical Components in Buses/Coaches	3	8	60
21	K/502/8491	Understand how to Recondition Mechanical Components in Buses/Coaches	3	8	60
22	F/502/8478	Understand how to Carry Out Scheduled Mechanical Maintenance on Buses and Coaches	3	4	30
Unit	**Unit reference number**	**Optional unit (Mandatory for Apprenticeship Learners)**	**Level**	**Credit**	**Guided learning hours**
23	L/602/5934	Employment Rights and Responsibilities in the Passenger Transport Sector	2	3	18

4 Assessment

The table below gives a summary of the assessment methods used in the qualifications.

Units	Assessment method
All units	Centre-devised assessment

Centre-devised assessment (internal assessment)

Each unit has specified learning outcomes and assessment criteria. To pass an internally assessed unit, learners must meet all the learning outcomes. Centres may find it helpful if learners index and reference their evidence to the relevant learning outcomes and assessment criteria.

Centres need to write assignment briefs for learners to show what evidence is required. Assignment briefs should indicate clearly which assessment criteria are being targeted.

Assignment briefs and evidence produced by learners must meet any additional requirements in the *Information for tutors* section of the unit.

Unless otherwise indicated in *Information for tutors*, the centre can decide the form of assessment evidence (for example, performance observation, presentations, projects, tests, extended writing) as long as the methods chosen allow learners to produce valid, sufficient and reliable evidence of meeting the assessment criteria.

Centres are encouraged to give learners realistic scenarios and maximise the use of practical activities in delivery and assessment.

To avoid over-assessment centres are encouraged to link delivery and assessment across units.

There is more guidance about internal assessment on our website. See *Section 13. Further information and useful publications*.

5 Recognising prior learning and achievement

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Pearson encourages centres to recognise learners' previous achievements and experiences in and outside the workplace, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. If the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be sufficient, reliable and valid.

Further guidance is available in the policy document *Recognition of Prior Learning Policy and Process*, which is on our website: www.edexcel.com.

6 Centre resource requirements

As part of the approval process, centres must make sure that the resource requirements below are in place before offering the qualification.

- Centres must have appropriate physical resources (for example, equipment, IT, learning materials, teaching rooms) to support the delivery and assessment of the qualifications.
- Staff involved in the assessment process must have relevant expertise and occupational experience.
- There must be systems in place to ensure continuing professional development for staff delivering the qualifications.
- Centres must have appropriate health and safety policies in place relating to the use of equipment by learners.
- Centres must deliver the qualifications in accordance with current equality legislation. For further details on Pearson's commitment to the Equality Act 2010, please see *Section 10 Access and recruitment* and *Section 11 Access to qualifications for learners with disabilities or specific needs*. For full details on the Equality Act 2010, please go to the Home Office website: www.gov.uk/government/organisations/home-office

7 Centre recognition and approval centre recognition

Centres that have not previously offered Pearson qualifications need to apply for, and be granted, centre recognition as part of the process for approval to offer individual qualifications.

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by a new qualification and the conditions for automatic approval are met.

Guidance on seeking approval to deliver Pearson BTEC qualifications is available at www.edexcel.com.

Approvals agreement

All centres are required to enter into an approval agreement that is a formal commitment by the head or principal of a centre to meet all the requirements of the specification and any associated codes, conditions or regulations. Pearson will act to protect the integrity of the awarding of qualifications. If centres do not comply with the agreement, this could result in the suspension of certification or withdrawal of approval.

8 Quality assurance of centres

Quality assurance is at the heart of vocational qualifications. The centre assesses Pearson BTEC qualifications. The centre will use quality assurance to make sure that their managers, internal verifiers and assessors are standardised and supported. Pearson uses quality assurance to check that all centres are working to national standards. It gives us the opportunity to identify and provide support, if needed, to safeguard certification. It also allows us to recognise and support good practice.

For the qualifications in this specification, the Pearson quality assurance model will follow one of the processes listed below:

1 Delivery of the qualification as part of a BTEC apprenticeship ('single click' registration):

- an annual visit by a Standards Verifier to review centre-wide quality assurance systems and sampling of internal verification and assessor decisions

2 Delivery of the qualification outside the apprenticeship:

- an annual visit to the centre by a Centre Quality Reviewer to review centre-wide quality assurance systems
- Lead Internal Verifier accreditation. This involves online training and standardisation of Lead Internal Verifiers using our OSCA platform, accessed via Edexcel Online. Please note that not all qualifications will include Lead Internal Verifier accreditation. Where this is the case, we will allocate annually a Standards Verifier to conduct postal sampling of internal verification and assessor decisions for the Principal Subject Area.

For further details, go to the *UK BTEC Quality Assurance Handbook* on our website.

9 Programme delivery

Centres are free to offer the qualifications using any mode of delivery (for example, full time, part time, evening only, distance learning) that meets their learners' needs. Whichever mode of delivery is used, centres must make sure that learners have access to the resources identified in the specification and to the subject specialists delivering the units.

Those planning the programme should aim to enhance the vocational nature of the qualification by:

- liaising with employers to make sure a course is relevant to learners' specific needs
- accessing and using non-confidential data and documents from learners' workplaces
- developing up-to-date and relevant teaching materials that make use of scenarios that are relevant to the sector
- giving learners the opportunity to apply their learning in practical activities
- including sponsoring employers in the delivery of the programme and, where appropriate, in the assessment
- making full use of the variety of experience of work and life that learners bring to the programme.

Centres must make sure that any legislation taught is up to date.

10 Access and recruitment

Pearson's policy regarding access to our qualifications is that:

- they should be available to everyone who is capable of reaching the required standards
- they should be free from any barriers that restrict access and progression
- there should be equal opportunities for all those wishing to access the qualifications.

Centres are required to recruit learners to Pearson BTEC Specialist qualifications with integrity.

Applicants will need relevant information and advice about the qualification to make sure it meets their needs.

Centres should review the applicant's prior qualifications and/or experience, considering whether this profile shows that they have the potential to achieve the qualification.

For learners with disabilities and specific needs, this review will need to take account of the support available to the learner during teaching and assessment of the qualification. The review must take account of the information and guidance in *Section 11 Access to qualifications for learners with disabilities or specific needs*.

11 Access to qualifications for learners with disabilities or specific needs

Equality and fairness are central to our work. Pearson's Equality Policy requires all learners to have equal opportunity to access our qualifications and assessments. It also requires our qualifications to be awarded in a way that is fair to every learner.

We are committed to making sure that:

- learners with a protected characteristic (as defined by the Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve from undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

Learners taking a qualification may be assessed in British sign language or Irish sign language where it is permitted for the purpose of reasonable adjustments.

Further information regarding Access Arrangements can be found in the Joint Council for Qualifications (JCQ) document *Access Arrangements, Reasonable Adjustments and Special Consideration for General and Vocational qualifications.* Further details on how to make adjustments for learners with protected characteristics are given in the *Supplementary Guidance for Reasonable Adjustment and Special Consideration in Vocational Internally Assessed Units.*

These documents are available on our website, at www.edexcel.com/Policies

12 Units

Units have the following sections.

Unit title

This is the formal title of the unit that will appear on the learner's certificate.

Unit reference number

Each unit is assigned a unit reference number that appears with the unit title on the Register of Regulated Qualifications.

Level

All units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors defined by Ofqual, the qualifications regulator.

Credit value

When a learner achieves a unit, they gain the specified number of credits.

Guided learning hours

Guided Learning Hours (GLH) is the number of hours that a centre delivering the qualification needs to provide. Guided learning means activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study.

Unit aim

This gives a summary of what the unit aims to do.

Essential resources

This section lists any specialist resources needed to deliver the unit. The centre will be asked to make sure that these resources are in place when it seeks approval from Pearson to offer the qualification.

Assessment requirements

These requirements were set by People 1st (Go Skills) for all Bus and Coach knowledge qualifications.

Learning outcomes

The learning outcomes of a unit set out what a learner knows, understands or is able to do as the result of a process of learning.

Assessment criteria

Assessment criteria specify the standard required by the learner to achieve each learning outcome.

Unit 1: Understanding Health, Safety and Good Housekeeping in the Bus and Coach Environment

Unit reference number: Y/502/8468

Level: 2

Credit value: 3

Guided learning hours: 30

Unit aim

This unit covers the understanding required to maintain health and safety in a bus and coach environment. It includes knowledge of personal protective equipment, how to maintain a clean and orderly working environment, health and safety requirements and legislation, hazards, risks and personal responsibilities.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of use of personal and vehicle protection, cleaning the work environment and disposal of waste on two separate occasions.

Produce evidence of identifying risks which may result from at least two of the items listed below:

- the use and maintenance of machinery or equipment
- the use of materials or substances
- working practices which do not conform to laid down policies
- unsafe behaviour
- accidental breakages and spillages
- environmental factors.

Produce evidence of identifying risks.

Produce evidence of following at least **two** of the workplace policies listed below:

- the use of safe working methods and equipment
- the safe use of hazardous substances
- smoking, eating, drinking and drugs
- what to do in the event of an emergency
- personal presentation.

Produce evidence of following workplace policies.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the correct personal and vehicle protective equipment to be used within the bus and coach environment	1.1	Explain the importance of wearing the types of Personal Protective Equipment (PPE) required for a range of bus and coach repair activities			
		1.2	Identify vehicle protective equipment for a range of repair activities			
		1.3	Describe vehicle and personal safety considerations when working at the roadside			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand effective housekeeping practices in the bus and coach environment	2.1	Describe why the bus and coach environment should be properly cleaned and maintained			
		2.2	Describe requirements and systems which may be put in place to ensure a clean bus and coach environment			
		2.3	Describe how to minimise waste when using utilities and consumables			
		2.4	State the procedures and precautions necessary when cleaning and maintaining a bus and coach environment			
		2.5	Describe the selection and use of cleaning equipment when dealing with general cleaning, spillages and leaks in the bus and coach environment			
		2.6	Describe procedures for correct disposal of waste materials from a bus and coach environment			
		2.7	Describe procedures for starting and ending the working day which ensure effective housekeeping practices are followed			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand key health and safety requirements relevant to the bus and coach environment	3.1	List the main legislation relating to bus and coach environment health and safety			
		3.2	Describe the general legal duties of employers and employees required by current health and safety legislation			
		3.3	Describe key, current health and safety requirements relating to the bus and coach environment			
		3.4	Describe why workplace policies and procedures relating to health and safety are important			
4	Understand about hazards and potential risks relevant to the bus and coach environment	4.1	Identify key hazards and risks in a bus and coach environment			
		4.2	Describe policies and procedures for reporting hazards, risks, and health and safety matters in the bus and coach environment			
		4.3	State precautions and procedures which need to be taken when working with vehicles, associated materials, tools and equipment			
		4.4	Identify fire extinguishers in common use and which types of fire they should be used on			
		4.5	Identify key warning signs and their characteristics that are found in the vehicle repair environment			
		4.6	State the meaning of common product warning labels used in a bus and coach environment			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Understand personal responsibilities	5.1	Explain the importance of personal conduct in maintaining the health and safety of the individual and others			
		5.2	Explain the importance of personal presentation in maintaining health, safety and welfare			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- short answer written assessment
- observation of practical aspects during completion of other units.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 2: Understanding Effective Working Relationships with Colleagues in the Bus and Coach Work Environment

Unit reference number:	**L/502/8466**
Level:	**3**
Credit value:	**3**
Guided learning hours:	**20**

Unit aim

This unit covers the understanding of bus and coach organisational structure and function, how best to communicate in bus and coach engineering and maintenance roles, and how to work effectively with customers and colleagues in such organisations.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce witness testimony from your peers and supervisor or tutor that you have worked well with others.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand key organisational structures, functions and roles within the bus and coach work environment	1.1	Identify the purpose of different sections of a typical bus and coach work environment			
		1.2	Explain organisational structures and lines of communication within the bus and coach work environment			
		1.3	Explain levels of responsibility within specific job roles in bus and coach workplace. To include: • Trainee • Skilled technician • Supervisor • Manager			
2	Understand the importance of different types of communication within the bus and coach work environment	2.1	Explain where different methods of communication would be used within the bus and coach environment			
		2.2	Explain the factors which can determine your choice of communication			
		2.3	Explain how the communication of information can change with the target audience to include uninformed and informed people			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand communication requirements when carrying out vehicle repairs in the bus and coach work environment	3.1	Explain how to report using written and verbal communication			
		3.2	Explain the importance of documenting information relating to work carried out in the bus and coach environment			
		3.3	Explain the importance of working to agreed timescales			
4	Understand how to develop good working relationships with colleagues and customers in the bus and coach workplace	4.1	Explain why equality and diversity in the workplace is important			
		4.2	Describe how to develop positive working relationships with colleagues and customers			
		4.3	Explain the importance of developing positive working relationships			
		4.4	Explain the importance of accepting other people's views and opinions			
		4.5	Explain the importance of making and honouring realistic commitments to colleagues and customers			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- short answer written assessment
- observation of practical aspects during completion of other units.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 3: Understanding Materials, Fabrication, Tools and Measuring Devices Used in the Bus and Coach Environment

Unit reference number: R/502/8467

Level: 2

Credit value: 4

Guided learning hours: 40

Unit aim

This unit covers the understanding required to use a range of hand tools, measuring devices and workshop tools when carrying out fabrication and repairs to materials used in buses and coaches. It also covers understanding of material selection and how to apply automotive engineering, fabrication and fitting principles.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of undertaking basic routine checks of hand tools, measuring devices and workshop equipment covering all of those listed below:

- electrical
- mechanical
- pneumatic
- hydraulic.

Produce evidence of fabricating at least one item from suitable materials to known tolerances, which includes the following processes:

- filing
- tapping threads
- cutting
- drilling
- joining.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to select, use and care for hand tools and measuring devices in the automotive environment	1.1	Identify and explain the use of common types of hand tools used for fabricating and fitting in the automotive environment			
		1.2	Identify and explain the use of common measuring devices used for fabrication and fitting in the automotive environment			
		1.3	Describe, within the scope of their responsibilities, how to select, prepare and maintain hand tools, measuring devices and PPE used for fabrication, repair and fitting in the automotive environment			
		1.4	State the limitations of common hand tools and measuring devices used for fabricating, repair and fitting in the automotive workplace			
		1.5	Explain how common hand tools and measuring devices used for fabricating, repair and fitting in the automotive environment should be stored and maintained			
		1.6	Identify common electrical measuring tools used in the repair of vehicles and components			
		1.7	Explain the preparation and safe and correct use of common electrical tools when measuring voltage, current and resistance			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand how to prepare and use common workshop equipment	2.1	Describe the preparation and safe use of workshop equipment			
		2.2	Explain the term: safe working load			
3	Understand how to select materials when fabricating, modifying and repairing vehicles and fitting components	3.1	Describe the properties, application and limitations of ferrous and non-ferrous metals, including their safe use			
		3.2	Describe the properties, application and limitations of common non-metallic materials, including their safe use			
		3.3	Define common terms relating to the properties of materials			
4	Understand how to apply automotive engineering, fabrication and fitting principles when modifying and repairing vehicles and components	4.1	Describe how to tap threads, file, cut and drill plastics and metals when modifying or repairing vehicles			
		4.2	Describe how to measure, mark out, shape and join materials when fabricating			
		4.3	Describe the selection and fitting procedures of the following: • gaskets and seals • sealants and adhesives • fittings and fasteners • electrical circuit components			
		4.4	Identify locking, fastening and fixing devices			
		4.5	State the importance of correct operating specifications for limits, fits and tolerances in the automotive environment			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical project/assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 4: Understand how to Identify, Locate and Rectify Electrical Faults in Bus and Coach Systems and Components

Unit reference number: F/502/8500

Level: 2

Credit value: 8

Guided learning hours: 60

Unit aim

This unit covers the knowledge and skills required to repair electrical faults, including understanding the basic operation of electrical starting and charging systems (batteries) and auxiliary systems, their testing and replacement.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor carrying out the identification and rectification of faults from three different systems out of the seven listed below:

- lighting systems
- wiper systems
- security and alarm systems
- comfort and convenience systems
- infotainment/communication systems
- engine starting systems
- engine charging systems.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand Bus and Coach electrical and electronic principles	1.1	Identify electrical symbols and units found in Bus and Coach circuits			
		1.2	Describe how to interpret Bus and Coach wiring diagrams			
		1.3	Describe the operation of key Bus and Coach circuit protection devices and why these are necessary			
		1.4	Describe earthing principles and earthing methods			
		1.5	Identify the use of different cables and connectors used in Bus and Coach circuits			
		1.6	Describe the operation of electrical and electronic sensors and actuators and their application			
		1.7	Describe the key electrical and electronic control principles that are related to Bus and Coach electrical circuits			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand how Bus and Coach batteries, starting and charging systems operate	2.1	Identify Bus and Coach batteries, starting and charging system components			
		2.2	Describe the construction and operation of Bus and Coach batteries, starting and charging system components			
		2.3	Describe how to remove and replace batteries, starting and charging system units and components			
		2.4	Compare Bus and Coach batteries, starting and charging system components and assemblies against alternatives to identify differences in construction and operation			
		2.5	State common terms used in conjunction with Bus and Coach batteries, starting and charging systems			
3	Understand how Bus and Coach auxiliary electrical systems operate	3.1	Identify Bus and Coach auxiliary system components			
		3.2	Describe the construction and operation of Bus and Coach auxiliary systems			
		3.3	Compare key Bus and Coach auxiliary system components and assemblies against alternatives to identify differences in construction and operation			
		3.4	State common terms used in Bus and Coach auxiliary system design			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Understand how to test, replace and check Bus and Coach electrical systems and components	4.1	Identify the key hazards and risks to be considered when carrying out fault finding and replacement activities on Bus and Coach electrical system units and components			
		4.2	Describe how to remove and replace Bus and Coach electrical system units and components			
		4.3	Describe how to select, prepare and use testing equipment and methods when carrying out electrical fault finding on Buses and Coaches			
		4.4	Describe common types of testing methods used to check the operation of Bus and Coach electrical systems and components and their purpose			
		4.5	Explain the types of reports used and the importance of accuracy when identifying faults in Bus and Coach electrical systems and components			
		4.6	Explain common faults found in Bus and Coach electrical systems and components			
		4.7	Describe the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Be able to carry out removal and replacement of Bus and Coach electrical units and components	5.1	Remove and replace the Bus and Coach electrical systems and components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved removal and replacement methods • recognised researched repair methods • health and safety requirements			
		5.2	Ensure that replaced electrical units and components conform to the vehicle operating specification and any legal requirements			
		5.3	Use suitable testing methods to evaluate the performance of the reassembled system			
		5.4	Ensure that the reassembled electrical systems perform to the vehicle operating specification and meet any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration
- short answer written assessment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 5: Understand how to Provide Roadside Assistance and Recovery Assistance and Recovery for Buses and Coaches

Unit reference number:	**D/502/8469**
Level:	**2**
Credit value:	**6**
Guided learning hours:	**47**

Unit aim

This unit covers the knowledge required to deal safely with breakdowns and emergency situations involving buses and coaches in transit, including complying with legislation and reporting requirements.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of providing roadside assistance for broken-down buses/coaches on **two** occasions, **one** of which must include a repair at the roadside.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand about organisational requirements and procedures	1.1	Explain operating, reporting and recording procedures for a typical organisation involved in roadside assistance and recovery			
		1.2	Explain how to complete records and the importance of doing so in a roadside assistance/recovery context			
2	Understand the legal requirements and codes of practice for site protection and recovery arrangements	2.1	Describe the legal requirements and industry codes of practice governing site protection and recovery operations			
		2.2	Explain the importance of wearing personal protective equipment			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand how to assess and secure a site	3.1	Describe the difference in requirements for securing and protecting a breakdown site and an accident site			
		3.2	Describe the sources of specialist advice and guidance			
		3.3	Describe how weather conditions affect the assessment			
		3.4	Explain how to approach the scene of an incident			
		3.5	Describe the circumstances in which to call for specialist assistance			
		3.6	Describe how to secure and protect incident sites in line with current industry codes of practice			
		3.7	Describe how to take steps to secure the safety of yourself and others			
		3.8	Describe how to communicate with customers and relevant authorities			
		3.9	Describe how to make an initial assessment of the extent of vehicle damage and/or faults			
		3.10	Describe the essential skills required to operate a roadside breakdown vehicle and rectify faults in a timely and efficient manner			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 6: Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Engine Systems and Components

Unit reference number: D/502/8472

Level: 2

Credit value: 8

Guided learning hours: 60

Unit aim

This unit enables learners to develop knowledge and skills required to diagnose and rectify engine mechanical, electrical, hydraulic and fluid systems faults including testing of performance following repair.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor carrying out the identification and rectification of faults from engine mechanical units and components from **three** different systems out of the **five** listed below:

- engine mechanical systems
- cooling systems
- air supply and exhaust systems
- fuel systems
- lubrication systems.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how the main Bus and Coach engine systems operate	1.1	Identify Bus and Coach engine system components			
		1.2	Describe the construction and operation of Bus and Coach compression ignition engine systems			
		1.3	Compare key Bus and Coach engine system components and assemblies against alternatives to identify differences in construction and operation			
		1.4	Identify the key engineering principles that are related to Bus and Coach engine systems			
		1.5	State common terms used in Bus and Coach engine systems			
2	Understand the legal requirements relating to European Emission Standards applicable to Buses and Coaches	2.1	Describe legal requirements relating to the production of exhaust emissions from Bus and Coach engines (EU requirements)			
		2.2	Describe the effects of regulated pollutants			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand how to test, replace and check engine system units and components	3.1	Identify the key hazards and risks to be considered when carrying out fault finding and replacement activities on Bus and Coach engine systems, units and components			
		3.2	Describe how to remove and replace Bus and Coach engine system units and components			
		3.3	Describe how to select, prepare and use testing equipment and methods when carrying out fault finding on Bus and Coach engines			
		3.4	Describe common types of testing methods used to check the operation of Bus and Coach engine systems and components and their purpose			
		3.5	Explain the types of reports used and the importance of accuracy when identifying faults in Bus and Coach engine systems and components			
		3.6	Explain common faults found in Bus and Coach engine systems and components			
		3.7	Describe the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Be able to carry out removal and replacement of Bus and Coach engine units and components	4.1	Remove and replace the Bus and Coach's engine systems and components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved removal and replacement methods • recognised researched repair methods • health and safety requirements			
		4.2	Ensure that replaced Bus and Coach engine units and components conform to the vehicle operating specification and any legal requirements			
		4.3	Use suitable testing methods to evaluate the performance of the reassembled system			
		4.4	Ensure that the reassembled Bus and Coach engine systems perform to the vehicle operating specification and meets any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration
- short answer written assessment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 7: Understand Thermal Joining to Bus/Coach Components

Unit reference number: H/502/8392

Level: 3

Credit value: 10

Guided learning hours: 60

Unit aim

The purpose of this unit is for learners to develop an understanding of how to prepare, complete and check compliance of welded Bus/Coach components.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of welding on bus/coach components covering a minimum of:

- **two** welding methods from MIG, TIG, MMA, Gas
- **three** different joints from butt, lap, fillet, plug
- **two** different welding positions from down hand, horizontal vertical, vertical up, vertical down, overhead.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the effects of applying heat to bus/coach components	1.1	Explain the effects of welding on bus/coach components			
		1.2	Explain what is meant by the terms used to describe welding processes			
2	Understand the techniques for making the different types and positions when welding bus/coach components	2.1	Identify the different welding methods used on bus/coach components			
		2.2	Identify the welding joints used on bus/coach components			
		2.3	Identify the weld positions used on bus/coach components			
		2.4	Describe the preparation required for welding bus/coach components			
		2.5	Describe the techniques used for welding bus/coach components			
		2.6	Explain the factors related to the design of production aids used for welding bus/coach components			
3	Understand the advantages and limitations of welding on bus/coach components	3.1	Select the welding method, type of weld and weld position			
		3.2	Explain the advantages and limitations of the different fastening and joining methods used to repair bus/coach body components			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Understand how to check compliance of welded bus/coach components	4.1	Identify typical welding faults and defects			
		4.2	Explain the common causes of the faults and defects in 4.1			
		4.3	Describe methods and tests used to check the quality of welds			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 8: Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Transmission Systems and Components

Unit reference number: R/502/8470

Level: 2

Credit value: 8

Guided learning hours: 60

Unit aim

This unit enables learners to develop knowledge of diagnosis and rectification of Bus and Coach gearboxes, hubs and bearings, driveline shafts, clutches, differentials and final drive units. It also covers the evaluation of performance of the systems.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor carrying out the identification and rectification of faults from **one** unit or component from **two** of the areas as listed below:

- clutch or fluid coupling
- gearbox (manual or automatic)
- drive line (shafts, couplings, hubs and bearings)
- final drive.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how the main Bus and Coach transmission systems operate	1.1	Identify Bus and Coach transmission system components			
		1.2	Describe the construction and operation of Bus and Coach transmission systems			
		1.3	Compare key Bus and Coach transmission system components and assemblies against alternatives to identify differences in construction and operation			
		1.4	Identify the key engineering principles that are related to Bus and Coach transmission systems			
		1.5	State common terms used in Bus and Coach transmission systems			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand how to test, replace and check transmission system units and components	2.1	Identify the key hazards and risks to be considered when carrying out fault finding and replacement activities on Bus and Coach transmission systems, units and components			
		2.2	Describe how to remove and replace Bus and Coach transmission system units and components			
		2.3	Describe how to select, prepare and use testing equipment and methods when carrying out fault finding on Bus and Coach transmission systems			
		2.4	Describe common types of testing methods used to check the operation of Bus and Coach transmission systems and components and their purpose			
		2.5	Explain the types of reports used and the importance of accuracy when identifying faults in Bus and Coach transmission systems and components			
		2.6	Explain common faults found in Bus and Coach transmission systems and components			
		2.7	Describe the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Be able to carry out removal and replacement of Bus and Coach transmission units and components	3.1	Remove and replace the Bus and Coach's transmission systems and components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved removal and replacement methods • recognised researched repair methods • health and safety requirements			
		3.2	Ensure that replaced Bus and Coach transmission units and components conform to the vehicle operating specification and any legal requirements			
		3.3	Use suitable testing methods to evaluate the performance of the reassembled system			
		3.4	Ensure that the reassembled Bus and Coach transmission system performs to the vehicle operating specification and meets any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration
- short answer written assessment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 9: Understand how to Identify, Locate and Rectify Mechanical Faults in Bus and Coach Chassis Systems and Components

Unit reference number: Y/502/8471

Level: 2

Credit value: 8

Guided learning hours: 60

Unit aim

This unit allows learners to demonstrate skills and knowledge to diagnose and rectify Bus and Coach braking, steering and suspension systems faults. It also covers the evaluation of performance of the replaced or repaired units and systems.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor carrying out the identification and rectification of faults from **three** different units or components – **one** from each system. Your evidence must include demonstration of skill in each aspect of mechanical and hydraulic and/or pneumatic unit or component removal and replacement:

- steering
- suspension
- braking.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how the main Bus and Coach chassis systems operate	1.1	Identify Bus and Coach chassis system components			
		1.2	Describe the construction and operation of Bus and Coach chassis systems			
		1.3	Compare key Bus and Coach chassis system components and assemblies against alternatives to identify differences in construction and operation			
		1.4	Identify the key engineering principles that are related to Bus and Coach chassis systems			
		1.5	State common terms used in Bus and Coach chassis systems			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand how to test, replace and check chassis system units and components	2.1	Identify the key hazards and risks to be considered when carrying out fault finding and replacement activities on Bus and Coach chassis systems, units and components			
		2.2	Describe how to remove and replace Bus and Coach chassis system units and components			
		2.3	Describe how to select, prepare and use testing equipment and methods when carrying out fault finding on Bus and Coach chassis systems			
		2.4	Describe common types of testing methods used to check the operation of Bus and Coach chassis systems and components and their purpose			
		2.5	Explain the types of reports used and the importance of accuracy when identifying faults in Bus and Coach chassis systems and components			
		2.6	Explain common faults found in Bus and Coach chassis systems and components			
		2.7	Describe the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Be able to carry out removal and replacement of Bus and Coach chassis units and components	3.1	Remove and replace the Bus and Coach's chassis systems and components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved removal and replacement methods • recognised researched repair methods • health and safety requirements			
		3.2	Ensure that replaced Bus and Coach chassis units and components conform to the vehicle operating specification and any legal requirements			
		3.3	Use suitable testing methods to evaluate the performance of the reassembled system			
		3.4	Ensure that the reassembled Bus and Coach chassis system performs to the vehicle operating specification and meets any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration
- short answer written assessment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 10: Understand how to Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components

Unit reference number: R/502/8419

Level: 3

Credit value: 13

Guided learning hours: 65

Unit aim

This unit enables learners to develop knowledge in order to prepare and paint Bus/Coach body panels and components.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of preparing and painting **one** flat, **one** shaped, **one** new, **one** repaired, **one** plastic and **one** metal panel or component.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to prepare Bus/Coach body panels and components for painting	1.1	Explain how to prepare bus/coach body panels and components for painting			
		1.2	Describe how to set up, use and maintain the tools and equipment used to paint bus/coach body panels and components			
		1.3	Explain the function of the materials used to paint bus/coach body panels and components			
		1.4	Describe the drying methods of the different types of paint used on bus/coach body panel's components			
		1.5	Explain the procedures used to assist in the drying of painted bus/coach body panels and components including the use of infra red lamps and ovens			
2	Understand how to paint Bus/Coach body panels and components	2.1	Explain the advantages and limitation of the different methods of paint application used on bus/coach body panels and components including spray and hand painting			
		2.2	Describe the order and procedures for applying the different paint coats to bus/coach body panels and components			
		2.3	Describe the causes, prevention and rectification of paint faults that occur during the preparation, application and drying of paint materials used on bus/coach body panels and components			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 11: Understand how to Conduct Inspections of Buses and Coaches

Unit reference number: T/502/8493

Level: 3

Credit value: 5

Guided learning hours: 40

Unit aim

This unit enables learners to develop knowledge in order to carry out a range of inspections on Buses and Coaches using a variety of testing and inspection methods.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of carrying out at least **two** different inspections from the following:

- pre-MOT inspection
- scheduled safety inspections (PMI)
- daily vehicle checks.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to carry out inspections on Buses and Coaches using prescribed methods	1.1	Explain the fundamental requirements of the 'O' licence with regards to maintaining vehicle roadworthiness			
		1.2	Identify the different systems to be inspected when using the prescribed inspection methods			
		1.3	Identify the procedures involved to carry out the systematic inspection of the prescribed inspection methods on Buses and Coaches			
		1.4	Identify conformity of vehicle systems and condition on Bus and Coach inspections			
		1.5	Compare test and inspection results against Bus and Coach specification and legal requirements			
		1.6	Explain how to record and complete the inspection results in the format required			
		1.7	Identify the recommendations that can be made based on results of the Bus and Coach inspections			
		1.8	Explain the implications of failing to carry out Bus and Coach inspection activities correctly			
		1.9	Explain the implications of signing workplace documentation and vehicle records			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		1.10	Explain the procedure for reporting damage to Bus and Coach components and units outside normal inspection items			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to carry out Bus and Coach inspections	2.1	Carry out Bus and Coach inspections, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved inspection methods • recognised researched inspection methods • health and safety requirements • workplace procedures			
		2.2	Ensure the inspected Bus and Coach complies to the vehicle operating specification and any legal requirements			
		2.3	Use suitable testing methods to evaluate the performance of the inspected systems			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- multiple choice questions
- practical demonstration
- short answer written assessment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 12: Understand how to Assemble Bus/Coach Body Panels and Components

Unit reference number: L/502/8399

Level: 3

Credit value: 9

Guided learning hours: 73

Unit aim

The purpose of this unit is for learners to develop an understanding of how to set out and assemble Bus/Coach body panels and components.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of setting out and assembling **two** different structural components from **two** of the four following areas:

- main frame members
- brackets and frame support
- chassis components
- structural body panels.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the purpose and interrelationship of the main bus/coach body panels and components	1.1	Explain the purpose of the main bus/coach structural components			
		1.2	Explain the interrelationship between bus/coach body panels and components			
		1.3	Explain the purpose of non-structural bus/coach body panels and components			
		1.4	Explain the function and operation of body components and parts			
		1.5	Describe how the properties of the materials influence the assembly sequence used			
		1.6	Compare the variables that influence the assembly of bus/coach body components			
2	Understand the loads acting on bus/coach body components	2.1	Identify the type of load acting on bus/coach body components			
		2.2	Calculate the loads acting on bus/coach body components			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand the advantages and limitations of the fastening and joining methods used in the repair of bus/coach body components	3.1	Explain the advantages and limitations of the different fastening and joining methods used to repair bus/coach body components			
		3.2	Compare the variables that influence the fastening and joining methods for bus/coach body components			
		3.3	Select fastening and joining methods for the repair of bus/coach body components given a range of supporting and conflicting variables			
4	Understand methods used to check the compliance of assembled Bus/Coach body panels and components	4.1	Interpret drawings and technical data to establish assembly sequence and compliance checks			
		4.2	Describe how to check bus/coach body panels and components for compliance			
		4.3	Select methods of checking bus/coach body panels and components for compliance			
		4.4	Identify the main critical stages in checking compliance.			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 13: Understand how to Install and Configure Bus and Coach Ancillary Systems

Unit reference number: F/502/8481

Level: 3

Credit value: 6

Guided learning hours: 45

Unit aim

This unit covers the essential knowledge and understanding required to install ancillary systems such as on-board communication equipment, telematics, ticketing systems and security equipment to manufacturer or organisational specifications. It also includes knowledge about their function, purpose and operation, with particular emphasis on underpinning electrical systems.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of installing and configuring **one** of the following systems:

- safety and security
- on-board communication equipment
- global positioning
- passenger comfort and convenience
- ticketing systems
- telematics.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how bus and coach ancillary systems operate	1.1	Identify the bus and coach ancillary systems and components fitted in: • safety and security • on-board communication equipment • global positioning • passenger comfort and convenience • ticketing systems • telematics			
		1.2	Explain the function and operation of the bus and coach ancillary systems and components			
		1.3	Explain how the ancillary may be limited by the existing bus and coach systems and fitments			
		1.4	Compare the advantages and disadvantages of carrying out the bus and coach customisation			
2	Understand how to use relevant information to carry out the task	2.1	Explain how to find, interpret and use technical information to support the bus and coach ancillary activities, by reviewing manufacturer and workshop information			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand how to specify and fit bus and coach ancillary and bus and coach electrical security systems	3.1	Explain the procedures involved in fitting electrical bus and coach ancillary equipment and systems			
		3.2	Explain how to follow manufacturer's requirements relating to the components that are fitted			
		3.3	Explain the interaction between electrical, electronic and mechanical components within the system defined			
		3.4	Explain how electrical systems interlink and interact, including multiplexing and fibre optics			
		3.5	Explain how installed electrical ancillaries can interact with factory fitted electrical components including network systems			
		3.6	Explain how to use dedicated and computer based equipment to configure bus and coach electronic controlled systems to operate correctly			
		3.7	Explain how to prepare and reconfigure electronically controlled bus and coach ancillary systems to allow them to function correctly with factory fit bus and coach systems			
4	Understand how to carry out checks to bus and coach electrical ancillary and bus and coach electrical security systems fitted	4.1	Describe the checks that are made to make sure the components are compatible with the bus and coach specification and the customer requirements			
		4.2	Explain how to test and evaluate the performance of any electrical ancillary fitted against bus and coach specification and the importance of doing so			
		4.3	Explain how to make adjustments to components and to any surrounding systems to ensure effective operation			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 14: Understand how to Assess and Repair Damage to Bus/Coach Body Panels and Components

Unit reference number: A/502/8415

Level: 3

Credit value: 10

Guided learning hours: 94

Unit aim

The purpose of this unit is for learners to develop an understanding of how to identify damage, and recommend and apply suitable repair techniques to Bus/Coach body panels and components.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of assessing and repairing structural damage using one of the following two methods:

- repair by replacement
- repair using reforming techniques.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the purpose and interrelationship of the main bus/coach body panels and components	1.1	Explain the purpose of the main bus/coach structural components			
		1.2	Explain the interrelationship between bus/coach body panels and components			
		1.3	Explain the purpose of non-structural bus/coach body panels and components			
		1.4	Explain the function and operation of body components and parts			
2	Understand methods used to assess damage to Bus/Coach body panels and components	2.1	Describe how the properties of the materials influence the repair method used			
		2.2	Compare the variables that influence the repair methods for the repair of bus/coach body components			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand the correct sequence when repairing damage to bus/coach body components	3.1	Select the repair method for damaged bus/coach body panels and components given a range of supporting and conflicting variables			
		3.2	Explain the principles of repair when applied to bus/coach body panels and components			
		3.3	Calculate material utilisation to include bending and cutting allowances used in fabrication			
		3.4	Calculate the relationship between feed speed, cutter speed, cutter diameter and cutter pitch mark			
		3.5	Compare the methods used to check repaired panels and components for compliance throughout the repair process			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 15: Understand Scheduled Body Maintenance to Bus/Coach Body Components

Unit reference number: F/502/8397

Level: 3

Credit value: 6

Guided learning hours: 33

Unit aim

The purpose of this unit is for learners to develop an understanding of how to identify and complete the body maintenance activities required to maintain roadworthiness.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor whilst carrying out the identification and rectification of faults from engine mechanical units and components from two different areas out of the four listed below:

- cab
- under body
- interior
- exterior.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand methods used to identify the maintenance requirements to Bus/Coach body panels and components	1.1	Interpret the various sources of technical and legislative information used to inform maintenance on bus/coach bodywork			
2	Understand the requirements of bus/coach scheduled body maintenance	2.1	Identify the areas which need to be checked as part of scheduled maintenance on bus/coach bodywork			
		2.2	Explain how to carry out scheduled maintenance on bus/coach bodywork			
		2.3	Explain how to check serviced body components for compliance			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 16: Understand how to Carry Out Scheduled Electrical Maintenance on Buses and Coaches

Unit reference number: L/502/8483

Level: 3

Credit value: 4

Guided learning hours: 30

Unit aim

This unit covers the understanding and skills required to carry out routine maintenance on electrical systems, including following the correct organisational and safety procedures, correctly inspecting the systems and ensuring components meet the required specification.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor whilst carrying out scheduled electrical maintenance on at least **two** different systems from the six listed below:

- battery charging and starting systems
- lighting systems
- auxiliary systems
- instrumentation and warning systems
- on-board diagnostic system
- electrical and electronic transmission.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to carry out Bus and Coach scheduled electrical maintenance	1.1	Identify various sources of technical and legislative information relating to Bus and Coach electrical maintenance procedures			
		1.2	Explain how to access, interpret and use the various sources of technical and legislative information			
		1.3	Identify the checks which need to be carried out as part of scheduled electrical maintenance on Buses and Coaches			
		1.4	Explain how to carry out scheduled maintenance of Bus and Coach electrical systems and components			
		1.5	Explain common faults found in Bus and Coach electrical systems			
		1.6	Explain the organisational procedures for obtaining authorisation to conduct extra work found as a result of scheduled electrical maintenance activities on Buses and Coaches			
		1.7	Explain how to examine, measure and make suitable adjustments to Bus and Coach electrical systems and components			
		1.8	Explain how to select, prepare and use maintenance equipment for Bus and Coach electrical systems			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		1.9	Describe the requirements of Bus and Coach maintenance arrangements as part of the Operator Licence criteria and organisational procedures			
		1.10	Explain the importance of accurately recording Bus and Coach maintenance activities			
		1.11	Explain the procedures for the correct disposal of waste materials produced as a result of maintenance activities			
		1.12	Explain the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to carry out Bus and Coach scheduled electrical maintenance activities	2.1	Carry out Bus and Coach scheduled electrical maintenance using prescribed methods, adhering to the correct specifications and tolerances for the vehicle and following: • the manufacturer's approved inspection methods • recognised researched inspection methods • health and safety requirements			
		2.2	Carry out adjustments, replacement of vehicle components and replenishment of consumable materials following the manufacturer's current specification for: • the particular maintenance interval • working methods and procedures • use of equipment • the tolerances for the vehicle			
		2.3	Ensure the examination methods identify accurately any vehicle system and/or component problems falling outside the maintenance schedule are specified			
		2.4	Ensure that the vehicle conforms to the vehicle operating specification and any legal requirements			
		2.5	Ensure any comparison of the vehicle against specification accurately identifies any: • differences from the vehicle specification • vehicle appearance and condition faults			
		2.6	Use suitable testing methods to evaluate the performance of all replaced and adjusted components and systems accurately			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 17: Understand how to Diagnose and Repair Electrical Faults in Bus and Coach Systems and Components

Unit reference number: M/502/8489

Level: 3

Credit value: 9

Guided learning hours: 74

Unit aim

This unit will help learners to develop the knowledge and skills required to diagnose and rectify Bus and Coach auxiliary electrical system faults. It also covers the evaluation of performance of the replaced or repaired units and systems.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor whilst carrying out the diagnosis and repair of faults from **three** different systems out of the six listed below:

- heating and ventilation systems
- security and alarm systems
- comfort and convenience systems
- infotainment/communication systems
- engine starting and charging systems
- multiplexing systems.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand bus and coach electrical and electronic principles	1.1	Explain the principles of electrical inputs, outputs, voltages and oscilloscope patterns, digital and fibre optics			
		1.2	Explain the principles of sensor inputs, computer processing and actuator outputs			
		1.3	Identify sensor types (passive and active)			
		1.4	Identify the electrical principles that are related to bus and coach electrical circuits			
2	Understand how bus and coach electrical systems operate	2.1	Identify bus and coach electrical system components			
		2.2	Explain the construction and operation of bus and coach electrical systems			
		2.3	Explain the interaction between electrical, electronic and mechanical components within the system defined			
		2.4	Explain the operation of the electrical and electronic systems for electric, hybrid and alternative fuel vehicles including regenerative braking systems			
		2.5	Explain how electrical systems interlink and interact, including multiplexing and fibre optics			
		2.6	Compare bus and coach electrical system components and assemblies against alternatives to identify differences in construction and operation			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand how to diagnose and repair faults in bus and coach electrical systems	3.1	Identify the key hazards and risks to be considered when carrying out diagnosis and repair activities on Bus and Coach electrical system units and components			
		3.2	Explain the symptoms and causes of faults found in bus and coach electrical systems			
		3.3	Explain systematic diagnostic techniques used in identifying bus and coach electrical system faults			
		3.4	Explain how to examine, measure and make suitable adjustments to components			
		3.5	Explain how to carry out the repair activities in order to correct the faults in the bus and coach electrical systems			
		3.6	Explain how to select, prepare and use diagnostic and repair equipment for bus and coach electrical systems			
		3.7	Explain how to evaluate and interpret test results found in diagnosing bus and coach electrical system faults against vehicle manufacturer specifications and settings			
		3.8	Explain how to evaluate the operation of components and systems following diagnosis and repair to confirm system performance			
		3.9	Describe the procedures for reporting workshop equipment failures, work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Be able to carry out bus and coach electrical diagnosis, repair and test activities	4.1	Use diagnostic methods that are relevant to the symptoms presented			
		4.2	Evaluate your assessment of dismantled sub-assemblies and identify their condition and suitability for repair or replacement accurately			
		4.3	Carry out all diagnostic and repair activities following: • manufacturers' instructions • recognised researched repair methods • health and safety requirements			
		4.4	Ensure all repaired or replacement components and units conform to the vehicle operating specification and any legal requirements			
		4.5	Adjust components and units correctly to ensure that they operate to meet system requirements			
		4.6	Use testing methods that are suitable for assessing the performance of the system rectified			
		4.7	Ensure the repaired electrical system performs to the vehicle operating specification and any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 18: Understand how to Remove and Transport Buses and Coaches

Unit reference number: A/502/8477

Level: 3

Credit value: 4

Guided learning hours: 30

Unit aim

This unit covers the understanding and knowledge required to safely provide a bus/ coach recovery service. It covers use of recovery equipment and the particular health and safety and operational requirements for attaching, lifting and towing vehicles.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of removing and transporting buses/coaches using one of the following methods:

- flat tow
- suspend tow and total lift fixed tow
- front lift
- tow pole/straight bar
- 'A frame' recovery equipment or towing 'Dolly'.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to work safely when using Bus and Coach recovery equipment	1.1	Identify the dangers associated with accident recovery operations and how to lessen the risks to yourself, customers and other road users			
		1.2	Describe the equipment and vehicle checks required prior to use			
		1.3	State the towing procedures and potential hazards			
		1.4	Explain the defensive driving requirements and potential hazards when driving a loaded vehicle			
		1.5	Define the limits of your authority for dealing with hazardous substances			
		1.6	Use suitable site to base communication methods			
		1.7	Identify the most suitable recovery method for the type of incident and the condition of the vehicle involved			
		1.8	Assess the effect of weather conditions on the feasibility of recovery operations and how they are conducted			
		1.9	Identify vehicles carrying hazardous substances			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to understand vehicle recovery equipment	2.1	Identify transporter recovery unit variations			
		2.2	Define flat tow, suspend tow and total lift			
		2.3	List the types of vehicle recovery equipment available and their uses			
		2.4	Define the appropriateness of using certain vehicle recovery equipment			
		2.5	Define the towing characteristics for vehicle recovery, to include: soft tow, tow poles, rapid deployment, A frame			
		2.6	Describe the preparation, deployment, loading and containment procedures for rapid deployment or A frame			
		2.7	Describe the unloading and stowing procedures for rapid deployment and A frame equipment			
		2.8	List the maintenance requirements for rapid deployment or A frame equipment			
		2.9	List the common problems associated with tow ropes/straps			
3	Be able to understand calculations related to vehicle recovery	3.1	Calculate the effects of placing a load on Bus and Coach Recovery Unit chassis' and equipment			
		3.2	Calculate resistance, to include: rolling resistance, damage resistance, gradient resistance and total resistance			
		3.3	Calculate the safe working loads for recovery equipment, axle weights and stability			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Be able to understand the principles of vehicle recovery methods and processes	4.1	Describe on site recovery planning and control techniques			
		4.2	Explain the instructions to be given to the driver of the towed casualty vehicle			
		4.3	Identify how to check for and deal with any vehicle system and load leakage			
		4.4	Describe how to position and rig recovery vehicles			
		4.5	Describe how to clear the site prior to moving off			
		4.6	Describe how to use suitable warning lights			
		4.7	Describe how to avoid damage to vehicles during transportation			
		4.8	Describe the steering techniques associated with using tow poles/straight bars			
		4.9	Describe the connecting and disconnecting procedures for tow poles/straight bars			
5	Be able to understand how to carry out a front lift on a casualty vehicle correctly	5.1	Explain how the vehicle and equipment should be checked prior to use			
		5.2	Describe the correct preparation and loading procedure of a casualty vehicle			
		5.3	Describe the correct unloading procedure			
6	Be able to understand how to report after a recovery	6.1	Explain how to complete recovery records and the importance of doing so			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 19: Understand how to Recondition Electrical Components in Buses/Coaches

Unit reference number: M/502/8492

Level: 3

Credit value: 8

Guided learning hours: 60

Unit aim

This unit covers the knowledge and skills required to recondition components to the required standards, the understanding of the assembly of components and the necessary specifications and testing requirements that apply.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of overhauling **two** different units from the list below:

- starter
- alternator
- motor.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to recondition Bus and Coach electrical components	1.1	Identify the key hazards and risks to be considered when carrying out assessment and reconditioning activities on Bus and Coach electrical system components			
		1.2	Identify Bus and Coach electrical components			
		1.3	Describe the construction and operation of Bus and Coach electrical systems and their associated components			
		1.4	Explain how to prepare, use and assess all of the reconditioning equipment			
		1.5	Explain how Bus and Coach electrical components are dismantled, reconditioned and reassembled			
		1.6	Explain common symptoms, causes and faults found in Bus and Coach electrical components			
		1.7	Explain methods used to identify electrical component faults			
		1.8	Explain how to examine, measure and make suitable adjustments to Bus and Coach electrical components			
		1.9	Explain how to evaluate and interpret test results found in assessing Bus and Coach electrical component faults and compare with manufacturers' specifications and settings			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		1.10	Explain how to evaluate the operation of components and systems following reconditioning to confirm system performance			
		1.11	Describe the procedures for reporting workshop equipment failures, work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to carry out the reconditioning of Bus and Coach electrical units	2.1	Carry out all reconditioning of Bus and Coach electrical components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved reconditioning methods • recognised researched repair methods • health and safety requirements • workplace procedures			
		2.2	Ensure the assessment of the dismantled component identifies accurately its condition and suitability for reconditioning			
		2.3	Inform the relevant person(s) promptly where reconditioning is uneconomic or unsatisfactory to perform			
		2.4	Use testing methods that comply with the manufacturer's requirements			
		2.5	Adjust the components correctly where necessary to ensure that they operate to meet the vehicle operating requirements			
		2.6	Ensure the reconditioned components and assemblies conform to the vehicle operating specification and any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 20: Understand how to Diagnose and Repair Mechanical Faults in Bus and Coach Systems and Components

Unit reference number: R/502/8484

Level: 3

Credit value: 14

Guided learning hours: 122

Unit aim

This unit covers the knowledge and skills required to diagnose and rectify mechanical faults in buses and coaches, understanding the function, operation and construction of components, the use of diagnostic equipment and analysing these results to repair components accordingly. It also covers the evaluation of performance of the replaced or repaired units and systems.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor whilst carrying out the diagnosis and repair of mechanical units and components from **six** different systems out of the twelve listed below:

- engine mechanical systems
- cooling systems
- air supply and exhaust systems
- fuel systems
- lubrication systems
- clutch or fluid coupling
- gearbox (manual or automatic)
- drive line (shafts, couplings, hubs and bearings)
- final drive
- steering
- suspension
- braking.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how Bus and Coach mechanical systems operate	1.1	Explain the construction and operation of Bus and Coach mechanical systems			
		1.2	Compare Bus and Coach mechanical system components and assemblies against alternatives to identify differences in construction and operation			
		1.3	Explain the engineering principles that are related to Bus and Coach mechanical systems			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand how to diagnose and repair mechanical faults in Bus and Coach systems	2.1	Describe how to analyse symptoms and causes of faults found in Bus and Coach mechanical systems			
		2.2	Explain systematic diagnostic techniques used in identifying mechanical system faults			
		2.3	Explain how to examine, measure and make suitable adjustments to the components			
		2.4	Explain how to carry out the diagnosis and repair activities in order to correct the faults in the Bus and Coach mechanical systems			
		2.5	Explain how to select, prepare and use diagnostic and repair equipment for Bus and Coach mechanical systems			
		2.6	Explain how to evaluate and interpret test results found in diagnosing Bus and Coach mechanical system faults against vehicle manufacturer specifications and settings			
		2.7	Explain how to evaluate the operation of components and systems following diagnosis and repair to confirm system performance			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Be able to carry out Bus and Coach mechanical system diagnosis, rectification and test activities	3.1	Use diagnostic methods that are relevant to the symptoms presented			
		3.2	Evaluate your assessment of dismantled sub-assemblies and identify their condition and suitability for repair or replacement accurately			
		3.3	Carry out all diagnostic and repair activities following: • manufacturers' instructions • recognised researched repair methods • workplace procedures • health and safety requirements			
		3.4	Ensure all repaired and replaced components and units conform to the vehicle operating specification and any legal requirements			
		3.5	Adjust components and units correctly to ensure that they operate to meet system requirements			
		3.6	Use testing methods that are suitable for assessing the performance of the system rectified			
		3.7	Ensure the Bus and Coach system rectified performs to the vehicle operating specification and any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 21: Understand how to Recondition Mechanical Components in Buses/Coaches

Unit reference number: K/502/8491

Level: 3

Credit value: 8

Guided learning hours: 60

Unit aim

This unit covers the understanding, knowledge and practical competence required to carry out reconditioning of bus and coach mechanical components in the workshop. This includes fault identification, examination, evaluation and testing techniques components, understanding health and safety and regulatory requirements and the necessary recording and reporting procedures.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Produce evidence of overhauling **one** unit, which includes either, an:

- engine
- gearbox
- final drive
- chassis system unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to recondition Bus and Coach mechanical components	1.1	Identify the key hazards and risks to be considered when carrying out assessment and reconditioning activities on Bus and Coach mechanical system components			
		1.2	Identify Bus and Coach mechanical components			
		1.3	Describe the construction and operation of Bus and Coach mechanical systems and their associated components			
		1.4	Explain how to prepare, use and assess all of the reconditioning equipment			
		1.5	Explain how Bus and Coach mechanical components are dismantled, reconditioned and reassembled			
		1.6	Explain common symptoms, causes and faults found in Bus and Coach mechanical components			
		1.7	Explain methods used to identify mechanical component faults			
		1.8	Explain how to examine, measure and make suitable adjustments to Bus and Coach mechanical components			
		1.9	Explain how to evaluate and interpret test results found in assessing Bus and Coach mechanical component faults and compare with manufacturers' specifications and settings			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		1.10	Explain how to evaluate the operation of components and systems following reconditioning to confirm system performance			
		1.11	Describe the procedures for reporting workshop equipment failures, work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to carry out the reconditioning of Bus and Coach mechanical units	2.1	Carry out all reconditioning of Bus and Coach mechanical components, adhering to the specifications and tolerances for the vehicle and following: • the manufacturer's approved reconditioning methods • recognised researched repair methods • health and safety requirements • workplace procedures			
		2.2	Ensure the assessment of the dismantled component identifies accurately its condition and suitability for reconditioning			
		2.3	Inform the relevant person(s) promptly where reconditioning is uneconomic or unsatisfactory to perform			
		2.4	Use testing methods that comply with the manufacturer's requirements			
		2.5	Adjust the components correctly where necessary to ensure that they operate to meet the vehicle operating requirements			
		2.6	Ensure the reconditioned components and assemblies conform to the vehicle operating specification and any legal requirements			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 22: Understand how to Carry Out Scheduled Mechanical Maintenance on Buses and Coaches

Unit reference number: F/502/8478

Level: 3

Credit value: 4

Guided learning hours: 30

Unit aim

This unit covers the understanding, knowledge and competence required to carry out scheduled maintenance to manufacturer's specifications, including interpreting and evaluating information, examining common faults, using maintenance equipment to repair identified faults, testing and then recording the work carried out.

Essential resources

There are no special resources needed for this unit.

Assessment requirements

Be observed by your assessor whilst carrying out scheduled mechanical maintenance on **two** different systems from the five listed below:

- engine compartment
- cab area
- vehicle interior
- vehicle exterior
- under floor.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand how to carry out Bus and Coach scheduled mechanical maintenance	1.1	Identify various sources of technical and legislative information relating to Bus and Coach mechanical maintenance procedures			
		1.2	Explain how to access, interpret and use the various sources of technical and legislative information			
		1.3	Identify the checks which need to be carried out as part of scheduled mechanical maintenance on Buses and Coaches			
		1.4	Explain how to carry out scheduled maintenance of Bus and Coach mechanical systems and components			
		1.5	Explain common faults found in Bus and Coach mechanical systems			
		1.6	Explain the organisational procedures for obtaining authorisation to conduct extra work found as a result of scheduled mechanical maintenance activities on Buses and Coaches			
		1.7	Explain how to examine, measure and make suitable adjustments to Bus and Coach mechanical systems and components			
		1.8	Explain how to select, prepare and use maintenance equipment for Bus and Coach mechanical systems			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		1.9	Describe the requirements of Bus and Coach maintenance arrangements as part of the Operator Licence criteria and organisational procedures			
		1.10	Explain the importance of accurately recording Bus and Coach maintenance activities			
		1.11	Explain the procedures for the correct disposal of waste materials produced as a result of maintenance activities			
		1.12	Explain the procedures for reporting work progress and completion			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to carry out Bus and Coach scheduled mechanical maintenance activities	2.1	Carry out Bus and Coach scheduled mechanical maintenance using prescribed methods, adhering to the correct specifications and tolerances for the vehicle and following: • the manufacturer's approved inspection methods • recognised researched inspection methods • health and safety requirements			
		2.2	Carry out adjustments, replacement of vehicle components and replenishment of consumable materials following the manufacturer's current specification for: • the particular maintenance interval • working methods and procedures • use of equipment • the tolerances for the vehicle			
		2.3	Ensure the examination methods identify accurately any vehicle system and/or component problems falling outside the maintenance schedule are specified			
		2.4	Ensure that the vehicle conforms to the vehicle operating specification and any legal requirements			
		2.5	Ensure any comparison of the vehicle against specification accurately identifies any: • differences from the vehicle specification • vehicle appearance and condition faults			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		2.6	Use suitable testing methods to evaluate the performance of all replaced and adjusted components and systems accurately			

Assessment

The centre will devise and mark the assessment for this unit.

Learners must meet all assessment criteria to pass the unit.

The recommended methods of assessment for centres to use when assessing this unit are:

- practical demonstration
- assignment.

This guidance has been developed in consultation with awarding organisations and industry representatives to ensure consistency in assessment methodologies across the awarding organisations.

Unit 23: Employment Rights and Responsibilities in the Passenger Transport Sector

Unit reference number: L/602/5934

Level: 2

Credit value: 3

Guided learning hours: 18

Unit aim

This unit covers essential knowledge and understanding of learners' own rights and responsibilities and those of their employer. It covers knowledge such as statutory rights and responsibilities as specified in employment law, and rights and responsibilities arising from employees' own contracts of employment or from company procedures, such as HR policies and codes of practice in health and safety. It also includes information on career pathways and sources of advice and support within the transport industry.

Essential resources

There are no special resources needed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know employment rights and responsibilities of the employee and employer	1.1	Identify the main points of legislation affecting employers and employees and their purpose relevant to own role, organisation and within own industry			
		1.2	Identify where to find information and advice on employment rights and responsibilities both internally in own organisation and externally			
		1.3	Identify sources of information and advice on own industry, occupation, training and own career pathway			
		1.4	Identify sources of information on the different types of representative bodies related to own industry and their main roles and responsibilities			
		1.5	Identify any issues of public concern that may affect own organisation and own industry			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand employment rights and responsibilities and how these affect organisations	2.1	Describe organisational procedures, policies and codes of practice used by own organisation on employment rights and responsibilities			
		2.2	Explain the purpose of following health, safety and other procedures and the effect on own organisation if they are not followed			
		2.3	Describe employer and employee responsibilities for equality and diversity within own organisation			
		2.4	Explain the benefits of making sure equality and diversity procedures are followed			
		2.5	Describe the career pathways available within own organisation and own industry			

Assessment

This unit should be assessed predominantly in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence that can be used.

13 Further information and useful publications

To get in touch with us visit our 'Contact us' pages:

- Pearson Edexcel: **www.edexcel.com/contactus**
- Pearson BTEC: **www.btec.co.uk/contactus**
- Pearson Work Based Learning: **www.pearsonwbl.com/contactus**
- Books, software and online resources for UK schools and colleges: **www.pearsonschools.co.uk/contactus**

Other sources of information and publications available include:

- *Pearson Equality Policy*
- *Edexcel Information Manual* (updated annually)
- *Access Arrangements, Reasonable Adjustments and Special Consideration for General and Vocational qualifications*
- *Supplementary Guidance for Reasonable Adjustment and Special Consideration in Vocational Internally Assessed Units*
- *Recognition of Prior Learning Policy and Process*
- *Quality Assurance Handbook* (updated annually)

Publications on the quality assurance of Pearson BTEC qualifications are available on our website.

Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please go to www.edexcel.com/resources/Pages/home.aspx

Additional resources

If you need further learning and teaching materials to support planning and delivery for your learners, there is a wide range of BTEC resources available.

Any publisher can seek endorsement for their resources, and if they are successful, we will list their BTEC resources on our website at: www.edexcel.com/resources

14 Professional development and training

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- developing effective assignments
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- Ask Edexcel: submit your question online to our Ask Edexcel online service at www.edexcel.com/ask and we will make sure your query is handled by a subject specialist.

Annexe A

Mapping with National Occupational Standards

The grid below maps the knowledge covered in the Pearson BTEC Level 3 Specialist qualifications in The Principles of Bus and Coach Engineering and Maintenance against the underpinning knowledge of the National Occupational Standards in Bus and Coach Engineering and Maintenance. Centres can use this mapping when planning holistic delivery and assessment activities.

KEY

\# indicates partial coverage of knowledge in the NOS unit

A blank space indicates no coverage of the knowledge

NOS / Pearson BTEC Specialist units		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12
1	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance	#		#		#	#		#	#			
2	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance		#										
3	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance			#							#		
7	Rectify Mechanical Faults in Bus/Coach Systems and Components	#	#	#			#		#	#			
8	Rectify Electrical Faults in Bus/Coach Systems and Components	#	#	#	#								
10	Identify and Locate Mechanical Faults in Bus/Coach Systems and Components	#	#	#			#		#	#			

NOS	Pearson BTEC Specialist units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12
11	Identify and Locate Electrical Faults in Bus/Coach Systems and Components	#	#	#	#								
14	Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components	#	#	#							#		
15	Provide Roadside Assistance for Broken Down Buses/Coaches	#	#	#	#	#	#		#				
16	Drive the Bus/Coach for Testing and Vehicle Recovery	#	#	#								#	
17	Complete Thermal Joining of Bus/Coach Components	#	#	#				#					#
18	Conduct Inspections of Buses/Coaches	#	#	#	#		#		#			#	
19	Carry Out Scheduled Mechanical Maintenance on Buses/Coaches	#	#	#			#		#	#			
20	Carry Out Scheduled Electrical Maintenance on Buses/Coaches	#	#	#	#								
21	Carry Out Scheduled Body Maintenance on Buses/Coaches	#	#	#									#
22	Diagnose Mechanical Faults in Bus/Coach Systems and Components	#	#	#			#		#	#			
23	Diagnose Electrical Faults in Bus/Coach Systems and Components	#	#	#	#								

NOS	Pearson BTEC Specialist units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12
24	Assess Body Damage to Buses/Coaches	#	#	#									#
25	Repair Mechanical Faults in Bus/Coach Systems and Components	#	#	#			#		#	#			
26	Repair Electrical Faults in Bus/Coach Systems and Components	#	#	#	#								
27	Repair Damage to Bus/Coach Body Components	#	#	#									#
28	Set Out and Assemble Bus/Coach Body Components	#	#	#									#
29	Recondition Mechanical Components in Buses/Coaches	#	#	#									
30	Recondition Electrical Components in Buses/Coaches	#	#	#									
31	Install Ancillary Systems and Components in Buses/Coaches	#	#	#									
32	Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	#	#	#	#		#						
33	Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	#	#	#	#		#						

NOS	Pearson BTEC Specialist units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12
34	Establish Customer Technical Requirements for Buses/Coaches	#	#	#	#		#						
35	Improve the Service Provided to Customers of Buses/Coaches	#	#	#									
36	Carry Out Roadside Recovery of Buses/Coaches	#	#	#		#							
37	Plan and Organise Work of Self and Others	#	#	#									
38	Support Learners by Coaching in the Workplace	#	#	#									
39	Support Learners by Mentoring in the Workplace												
41	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment												

NOS	Pearson BTEC Specialist units	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23
1	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance				#	#	#	#		#	#	#
2	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance											#
3	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance				#		#				#	
7	Rectify Mechanical Faults in Bus/Coach Systems and Components								#	#	#	
8	Rectify Electrical Faults in Bus/Coach Systems and Components	#			#	#		#				
10	Identify and Locate Mechanical Faults in Bus/Coach Systems and Components								#	#	#	
11	Identify and Locate Electrical Faults in Bus/Coach Systems and Components	#			#	#		#				
14	Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components											
15	Provide Roadside Assistance for Broken Down Buses/Coaches					#	#		#			
16	Drive the Bus/Coach for Testing and Vehicle Recovery						#					

NOS / Pearson BTEC Specialist units		Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23
17	Complete Thermal Joining of Bus/Coach Components		#									
18	Conduct Inspections of Buses/Coaches			#							#	
19	Carry Out Scheduled Mechanical Maintenance on Buses/Coaches								#		#	
20	Carry Out Scheduled Electrical Maintenance on Buses/Coaches	#			#	#		#				
21	Carry Out Scheduled Body Maintenance on Buses/Coaches			#								
22	Diagnose Mechanical Faults in Bus/Coach Systems and Components								#		#	
23	Diagnose Electrical Faults in Bus/Coach Systems and Components	#			#	#		#				
24	Assess Body Damage to Buses/Coaches	#	#									
25	Repair Mechanical Faults in Bus/Coach Systems and Components								#		#	
26	Repair Electrical Faults in Bus/Coach Systems and Components	#			#	#						
27	Repair Damage to Bus/Coach Body Components		#	#								

NOS	Pearson BTEC Specialist units	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23
28	Set Out and Assemble Bus/Coach Body Components		#	#								
29	Recondition Mechanical Components in Buses/Coaches									#		
30	Recondition Electrical Components in Buses/Coaches							#				
31	Install Ancillary Systems and Components in Buses/Coaches	#										
32	Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches					#			#			
33	Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches					#			#			
34	Establish Customer Technical Requirements for Buses/Coaches				#	#	#	#		#	#	#
35	Improve the Service Provided to Customers of Buses/Coaches											
36	Carry Out Roadside Recovery of Buses/Coaches											
37	Plan and Organise Work of Self and Others											#

NOS	Pearson BTEC Specialist units	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23
38	Support Learners by Coaching in the Workplace											
39	Support Learners by Mentoring in the Workplace											
41	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment											#

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