

Level 2 NVQ Diploma in Performing Engineering Operations

(7682-20)

August 2017 Version 1.1



Qualification at a glance

Subject area	Engineering
City & Guilds number	7682-20
Age group approved	Pre-16, 16-18, 19+
Entry requirements	Level 2
Assessment	By portfolio
Support materials	Centre handbook Unit pack Learning Assistant
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	GLH	TQT	City & Guilds number	Accreditation number
Level 2 NVQ Diploma in Performing Engineering Operations (Engineering Practices)	214	640	7682-20	600/9471/0
Level 2 NVQ Diploma in Performing Engineering Operations (Technical Support)	214	640	7682-20	600/9471/0

Version and date	Change detail	Section
1.1 August 2017	Added TQT details	Qualification at a glance, Structure
	Deleted QCF	Throughout



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1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	It is for learners who have some knowledge and basic skills in production or maintenance engineering to enable them to progress safely into the workplace/employment or who want increase their skills and progress onto more advanced qualifications in the engineering sector.
What does the qualification cover?	It allows learners to learn, develop and apply the skills required for employment and/or career progression in the engineering sector.
Is the qualification part of a framework or initiative?	This qualification forms a major component of Semta's engineering apprenticeship framework.
What opportunities for progression are there?	It allows learners to progress into employment or onto the following City & Guilds qualifications: <ul style="list-style-type: none">• City & Guilds Level 3 NVQ Diploma/Extended Diploma in Mechanical Manufacturing Engineering (1712)• City & Guilds Level 2/3 NVQ Diploma/Extended Diploma in Fabrication and Welding Engineering (1782)• City & Guilds Level 3 NVQ Diploma/Extended Diploma in Engineering Technical Support (1786)• City & Guilds Level 3 NVQ Diploma/Extended Diploma in Engineering Maintenance (1788)• City & Guilds Level 2/3 NVQ Diploma/Extended Diploma in Aeronautical Engineering (1789)

Structure

Level 2 NVQ Diploma in Performing Engineering Operations (Engineering Practices)

Total Credits	40
Credits from mandatory units	3 mandatory units (13 credits) from 201-203
Credits from optional units	27 credits from a minimum of 3 units from 204–261, 265-273
Barred Units:	Barred Units: <ul style="list-style-type: none">• only one unit from 204, 232, 261 may be included in the learners choice of three.• If unit 265 is selected units 205, 206, 208, 211, 212, 215, 216, 217 cannot be included in the learner’s choice of three units.• If unit 266 is selected units 210, 222, 223, 225, 226, 227, 228, 229, 230, 234 cannot be included in the learner’s choice of three units.• If unit 267 is selected units 233, 235, 236, 240 cannot be included in the learner’s choice of three units.• If unit 268 is selected units 219, 221, 237, 238, 239, 240, 258, 259 cannot be included in the learner’s choice of three units.

Level 2 NVQ Diploma in Performing Engineering Operations (Technical Support)

Total Credits	64
Credits from mandatory units	3 mandatory units (13 credits) from 201-203
Credits from optional units	A minimum of 51 Credits from the optional units, which much include: <ul style="list-style-type: none">• A minimum of 11 credits from optional group A (units 204, 232, 261)• A minimum of 16 credits from optional group B (units 262 – 264)• A minimum of 24 credits from optional group C (units 265 – 268).

Unit accreditation number	City & Guilds unit number	Unit title	Credit value
Mandatory			
L/600/5781	Unit 201	Working safely in an engineering environment	5
D/600/5784	Unit 202	Carrying out engineering activities efficiently and effectively	4
M/600/5790	Unit 203	Using and communicating technical information	4

Engineering Practices Pathway

In addition to the mandatory units, learners must achieve a minimum of **27** credits from at least **3** units in this pathway.

Optional

Unit accreditation number	City & Guilds unit number	Unit title	Credit value	Excluded combination of units (if any)
F/504/6348	Unit 204	Producing Mechanical Engineering Drawings using a CAD System	11	232, 261
J/504/6349	Unit 205	Producing Components using Hand Fitting Techniques	14	265
F/504/6351	Unit 206	Producing Mechanical Assemblies	15	265
L/504/6353	Unit 207	Forming and Assembling Pipework Systems	14	
R/504/6354	Unit 208	Carrying Out Aircraft Detail Fitting Activities	14	265
L/504/6367	Unit 209	Installing Aircraft Mechanical Fasteners	11	

L/504/6370	Unit 210	Producing Aircraft Detail Assemblies	14	266
Y/504/6372	Unit 211	Preparing and Using Lathes for Turning Operations	15	265
K/504/6375	Unit 212	Preparing and Using Milling Machines	15	265
T/504/6377	Unit 213	Preparing and Using Grinding Machines	15	
F/504/6379	Unit 214	Preparing and Proving CNC Machine Tool Programs	14	
F/504/6382	Unit 215	Preparing and Using CNC Turning Machines	14	265
L/504/6384	Unit 216	Preparing and Using CNC Milling Machines	14	265
D/504/6387	Unit 217	Preparing and Using CNC Machining Centres	14	265
D/504/6390	Unit 218	Preparing and Using Industrial Robots	14	
T/504/6394	Unit 219	Maintaining Mechanical Devices and Equipment	14	268
J/504/6397	Unit 220	Assembling and Testing Fluid Power Systems	14	
F/504/6401	Unit 221	Maintaining Fluid Power Equipment	14	268
J/504/6402	Unit 222	Producing Sheet Metal Components and Assemblies	14	266
L/504/6403	Unit 223	Producing Platework Components and Assemblies	14	266

R/504/6404	Unit 224	Cutting and Shaping Materials using Thermal Cutting Equipment	14	
Y/504/6405	Unit 225	Preparing and Proving CNC Fabrication Machine Tool Programs	14	266
D/504/6406	Unit 226	Preparing and Using CNC Fabrication Machinery	14	266
K/504/6408	Unit 227	Preparing and Using Manual Metal Arc Welding Equipment	15	266
M/504/6409	Unit 228	Preparing and Using Manual TIG or Plasma-arc Welding Equipment	15	266
H/504/6410	Unit 229	Preparing and Using Semi-automatic MIG, MAG and Flux cored arc Welding Equipment	15	266
Y/504/6419	Unit 230	Preparing and Using Manual Oxy/fuel Gas Welding Equipment	14	266
L/504/6420	Unit 231	Preparing and Using Manual Flame Brazing and Braze Welding Equipment	11	
R/504/6421	Unit 232	Producing Electrical or Electronic Engineering Drawings using a CAD System	11	
Y/504/6422	Unit 233	Wiring and Testing Electrical Equipment and Circuits	14	267
D/504/6423	Unit 234	Forming and Assembling Electrical Cable Enclosure and Support Systems	13	266
H/504/6424	Unit 235	Assembling, Wiring and Testing Electrical Panels/Components Mounted in Enclosures	14	267

K/504/6425	Unit 236	Assembling and Testing Electronic Circuits	14	267
M/504/6426	Unit 237	Maintaining Electrical Equipment/Systems	15	268
T/504/6427	Unit 238	Maintaining Electronic Equipment/Systems	15	268
A/504/6428	Unit 239	Maintaining and Testing Process Instrumentation and Control Devices	15	268
F/504/6429	Unit 240	Wiring and Testing Programmable Controller Based Systems	15	267, 268
T/504/6430	Unit 241	Using Wood for Pattern, Modelmaking and Other Engineering Applications	15	
A/504/6431	Unit 242	Assembling Pattern, Model and Engineering Woodwork Components	14	
F/504/6432	Unit 243	Producing Composite Mouldings using Wet Lay-up Techniques	14	
L/504/6434	Unit 244	Producing Composite Mouldings using Pre-Preg Techniques	14	
R/504/6435	Unit 245	Producing Composite Mouldings using Resin Flow Infusion Techniques	14	
Y/504/6436	Unit 246	Producing Composite Assemblies	14	
D/504/6437	Unit 247	Producing Components by Rapid Prototyping Techniques	11	
H/504/6438	Unit 248	Producing and Preparing Sand Moulds and Cores for Casting	14	

K/504/6439	Unit 249	Producing and Preparing Molten Materials for Casting	14	
D/504/6440	Unit 250	Producing Cast Components by Manual Means	13	
H/504/6441	Unit 251	Fettling, Finishing and Checking Cast Components	11	
M/504/6443	Unit 252	Finishing Surfaces by Applying Coatings or Coverings	9	
T/504/6444	Unit 253	Finishing Surfaces by Applying Treatments	9	
A/504/6445	Unit 254	Carrying Out Heat Treatment of Engineering Materials	9	
F/504/6446	Unit 255	Carrying Out Hand Forging of Engineering Materials	9	
J/504/6447	Unit 256	Stripping and Rebuilding Motorsport Vehicles (Pre-Competition)	14	
L/504/6448	Unit 257	Inspecting a Motorsport Vehicle During a Competition	14	
R/504/6449	Unit 258	Diagnosing and Rectifying Faults on Motorsport Vehicle Systems (During Competition)	15	268
J/504/6450	Unit 259	Carrying out Maintenance Activities on Motorsport Vehicle Electrical Equipment	15	268
L/504/6451	Unit 260	Stripping and Rebuilding Motorsport Engines (Pre-Competition)	14	
R/504/6452	Unit 261	Producing CAD Models (Drawings) using a CAD System	11	204, 232

K/504/6456	Unit 265	General Machining, Fitting and Assembly Applications	12	205, 206, 208, 211, 212, 215, 216, 217
M/504/6457	Unit 266	General Fabrication and Welding Applications	12	210, 222, 223, 225, 226, 227, 228, 229, 230, 234
T/504/6458	Unit 267	General Electrical and Electronic Engineering Applications	12	233, 235, 236, 240
A/504/6459	Unit 268	General Maintenance Engineering Applications	12	219, 221, 237, 238, 239, 240, 258, 259
L/503/4056	Unit 269	Joining Public Service Vehicle Components by Mechanical Processes	11	
R/503/4057	Unit 270	Assembling Structural Sub Assemblies to Produce a Public Service Vehicle	14	
Y/503/4058	Unit 271	Fitting Sub Assemblies and Components to Public Service Vehicles	14	
R/503/7198	Unit 272	Preparing and Manoeuvring Armoured Fighting Vehicles (AFVs) for Maintenance and Transportation	14	
J/504/3404	Unit 273	Producing Composite Mouldings using Resin Film Infusion Techniques	14	

Technical support pathway

In addition to the mandatory units, learners must achieve a minimum of **51 credits** from this pathway. This **must** be achieved from **11 credits and 1 unit** from Optional group A, **16 credits and 2 units** from Optional group B and **24 credits and 2 units** from Optional group C.

Optional group A

F/504/6348	Unit 204	Producing Mechanical Engineering Drawings using a CAD System	11
R/504/6421	Unit 232	Producing Electrical or Electronic Engineering Drawings using a CAD System	11
R/504/6452	Unit 261	Producing CAD Models (Drawings) using a CAD System	11

Optional group B

Y/504/6453	Unit 262	Producing Engineering Project Plans	8
D/504/6454	Unit 263	Using Computer Software Packages to Assist with Engineering Activities	8
H/504/6455	Unit 264	Conducting Business Improvement Activities	8

Optional group C

K/504/6456	Unit 265	General Machining, Fitting and Assembly Applications	12
M/504/6457	Unit 266	General Fabrication and Welding Applications	12
T/504/6458	Unit 267	General Electrical and Electronic Engineering Applications	12
A/504/6459	Unit 268	General Maintenance Engineering Applications	12

Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	GLH	TQT
Level 2 NVQ Diploma in Performing Engineering Operations	214	640



2 Centre requirements

Approval

Centres approved to offer the 7582-20/21 Level 2 NVQ Diploma in Performing Engineering Operations qualification will receive automatic approval to run the new 7682-20.

Centres not already offering City & Guilds qualifications

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the *Centre Manual - Supporting Customer Excellence* for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

Resource requirements

Physical resources and site agreements

Centres can use specially designated areas within a centre to assess as long as it meets the Semta Assessment Strategy requirements.

The machinery, tools, materials, equipment and resources used must be representative of industry standards and there must be sufficient equipment/resources available for each learner to demonstrate their competence individually.

Centre staffing

Staff delivering this qualification must be able to demonstrate that they meet the following occupational expertise requirements. They must be occupationally competent or technically knowledgeable in the areas for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered.

Centre staff may undertake more than one role, eg tutor and assessor or internal quality assurer, but cannot internally verify their own assessments.

Assessors and Internal Quality Assurer

Assessors must be able to demonstrate that they have verifiable, relevant and sufficient technical competence to evaluate and judge performance and knowledge evidence requirements as set out in the relevant unit learning outcomes and associated assessment criteria. Technical competence is defined by Semta as a combination of practical skills, knowledge, and the ability to apply both of these, in familiar and new situations, within a real working environment.

This will be demonstrated either by holding a relevant technical qualification or by proven industrial experience of the technical areas to be assessed. The assessor's competence must, at the very least, be at the same level as that required of the learner(s) in the units being assessed.

Internal Quality Assessors must have a technical understanding of the areas covered by the qualifications. Technical understanding is defined here as having a good understanding of the technical activities being assessed, together with knowledge of relevant Health & Safety implications and requirements of the assessments.

Centre staff should hold, or be working towards, the relevant Assessor/Internal Quality Assurer TAQA qualification for their role in delivering, assessing and verifying this qualification, and meet the relevant experience requirements.

Continuing professional development (CPD)

Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training, assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

Learner entry requirements

City & Guilds does not set entry requirements for this qualification. However, centres must ensure that learners have the potential and opportunity to gain the qualification successfully.

Age restrictions

There is no age restriction for this qualification unless this is a legal requirement of the process or the environment.



3 Delivering the qualification

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs,
- support and guidance they may need when working towards their qualification.
- any units they have already completed, or credit they have accumulated which is relevant to the qualification.
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualification, their responsibilities as a learner, and the responsibilities of the centre. This information can be recorded on a learning contract.

Support materials

The following resources are available for this qualification:

Description	How to access
Unit pack (containing PEO optional units)	www.cityandguilds.com
Learning Assistant	http://www.learningassistant.com/

For further information to assist with the planning and development of the programme, please refer to each unit.

Recording documents

Candidates and centres may decide to use a paper-based or electronic method of recording evidence.

City & Guilds endorses several ePortfolio systems, including our own, **Learning Assistant**, an easy-to-use and secure online tool to support and evidence learners' progress towards achieving qualifications. Further details are available at: www.cityandguilds.com/eportfolios.

City & Guilds has developed a set of *Recording forms* including examples of completed forms, for new and existing centres to use as appropriate. *Recording forms* are available on the City & Guilds website.

Although new centres are expected to use these forms, centres may devise or customise alternative forms, which must be approved for use by the qualification consultant, before they are used by candidates and assessors at the centre. Amendable (MS Word) versions of the forms are available on the City & Guilds website.



4 Assessment

Candidates must have a completed portfolio of evidence for each unit. The minimum level of evidence required is determined by Semta.

Assessment strategy

Assessment requirements

The PEO Level 2 units are intended to have a wide application throughout the engineering sector. It is necessary therefore to have a flexible approach to the environment in which the units are delivered and assessed.

There will be learners who have been working in an industry for some time and wish to acquire a broad range of basic competencies as part of an existing job role or to enable career progression. The PEO units will satisfy that need. Where this is the case assessment should take place within the learner's normal workplace/environment.

However, there is much to be gained by acquiring the basic engineering competencies whilst working in a sheltered environment. This is due to an ongoing emphasis on safety critical work activities and the need to ensure flexibility of assessment opportunities to both maintain and enhance the provision of competent personnel within the industry. This assessment method will allow a minimum safe level of skills, knowledge and understanding to be achieved and demonstrated by the learner prior to being exposed to the hazards of the industrial environment, thus minimising the risk of injury to themselves and other employees.

It is recognised that not all learners who wish to achieve PEO NVQ units would require this form of assessment. Only those who are judged to be potentially at risk would need to provide evidence of a minimum level of skills, knowledge and understanding to enter the industrial environment.

Examples of this are:

- Where the hazardous nature of the engineering occupations mean that the learner requires close supervision whilst they provide evidence of competence involving safety critical activities.
- For reasons of age, people entering an industrial training environment are gradually introduced to the "world of work", this helps them mature and grow in confidence as well as providing evidence of their engineering competence.

- Learners with special assessment requirements benefit from the close supervision offered by this type of environment whilst providing evidence of competence.
- Adult learners new to the industry or to a specific skill area can provide evidence with out fear of making mistakes which could prove to be dangerous and/or expensive.
- Where equipment to be used or worked on by approved, licensed or competent people (such as the aircraft industry) learners can only provide the necessary evidence that they have achieved a level of skills, knowledge and understanding in-order that they may prepare themselves for future employment.
- Penal institutions where learners wish to provide evidence of a vocational achievement in-order that they may prepare themselves for future employment.

For the above reasons the assessment of a learners competence in a sheltered environment is acceptable for this qualification, where the environment replicates that expected in industry.

Workpieces or work outcomes assessed must be the learners own work and should be actual work examples that combine the skills, techniques required by the units so that achievement will properly reflect the learners competence as specified in the unit assessment criteria

Assessors must therefore ensure that the competency is fully transferable to the workplace. Other aspects that should be considered could include:

- environmental conditions such as lighting conditions, noise levels and the presence of hazards
- pressure of work such as time constraints and repetitive activities
- producing actual workpieces or work outcomes and the consequence of making mistakes and the effect this has on customer, supplier and departmental relationships.

Carrying Out Assessment

The NVQ units were specifically developed to cover a wide range of activities. The evidence produced for the units will, therefore, depend on the learners choice of “bulleted items” listed in the unit assessment criteria.

Where the assessment criteria gives a choice of bulleted items (for example ‘any three from five’), assessors should note that learners do not need to provide evidence of the other items to complete the unit (in this example, two) items, particularly where these additional items may relate to other activities or methods that are not part of the learners normal workplace activity or area of expertise.

Minimum Performance Evidence requirements

Performance evidence must be the main form of evidence gathered. In order to demonstrate consistent, competent performance for a unit, a minimum of three different examples of performance must be provided, and must be sufficient to show that the assessment criteria have been

achieved to the prescribed standards. It is possible that some of the bulleted items in the assessment criteria may be covered more than once. The assessor and learner need to devise an assessment plan to ensure that performance evidence is sufficient to cover all the specified assessment criteria and which maximises the opportunities to gather evidence. Where applicable, performance evidence may be used for more than one unit.

The most effective way of assessing competence, is through direct observation of the learner. Assessors must make sure that the evidence provided reflects the learner's competence and not just the achievement of a training programme.

Evidence that has been produced from team activities, for example, maintenance or installation activities is only valid when it clearly relates to the learners specific and individual contribution to the activity, and not to the general outcome(s).

Each example of performance evidence will often contain features that apply to more than one unit, and can be used as evidence in any unit where appropriate.

Performance evidence must be a combination of:

- outputs of the learner's work, such as items that have been manufactured, installed, maintained, designed, planned or quality assured, and documents produced as part of a work activity

together with:

- evidence of the way the learner carried out the activities such as witness testimonies, assessor observations or authenticated learner reports, records or photographs of the work/activity carried out, etc.

Competent performance is more than just carrying out a series of individual set tasks. Many of the units contain statements that require the learner to provide evidence that proves they are capable of combining the various features and techniques. Where this is the case, separate fragments of evidence would not provide this combination of features and techniques and will not, therefore, be acceptable as demonstrating competent performance.

If there is any doubt as to what constitutes valid, authentic and reliable evidence, the internal and/or external verifier should be consulted.

Assessing knowledge and understanding

Knowledge and understanding are key components of competent performance, but it is unlikely that performance evidence alone will provide enough evidence in this area. Where the learners knowledge and understanding (and the handling of contingency situations) is not apparent from performance evidence, it must be assessed by other means and be supported by suitable evidence.

Knowledge and understanding can be demonstrated in a number of different ways. Semta expects oral questioning and practical

demonstrations to be used, as these are considered the most appropriate for these units. Assessors should ask enough questions to make sure that the learner has an appropriate level of knowledge and understanding, as required by the unit.

Evidence of knowledge and understanding will **not** be required for those bulleted items in the assessment criteria that have not been selected by the learner.

The achievement of the specific knowledge and understanding requirements of the units cannot simply be inferred by the results of tests or assignments from other units, qualifications or training programmes. Where evidence is submitted from these sources, the assessor must, as with any assessment, make sure the evidence is valid, reliable, authentic, directly attributable to the learner, and meets the full knowledge and understanding requirements of the unit.

Where oral questioning is used the assessor must retain a record of the questions asked, together with the learner's answers.

Witness testimony

Where 'observation' is used to obtain performance evidence, this must be carried out against the unit assessment criteria. Best practice would require that such observation is carried out by a qualified Assessor. If this is not practicable, then alternative sources of evidence may be used.

For example, the observation may be carried out against the assessment criteria by someone else that is in close contact with the learner. This could be a team leader, supervisor, mentor or line manager who may be regarded as a suitable witness to the learners competency. However, the witness must be technically competent in the process or skills that they are providing testimony for, to at least the same level of expertise as that required of the learner. It will be the responsibility of the assessor to make sure that any witness testimonies accepted as evidence of the learner's competency are reliable, auditable and technically valid.

Recognition of prior learning (RPL)

Recognition of prior learning means using a person's previous experience or qualifications which have already been achieved to contribute to a new qualification.

RPL is allowed and is also sector specific.



5 Units

Availability of units

The mandatory units are contained within this qualification handbook. The optional units are available in a series of unit packs from this qualification webpage on **www.cityandguilds.com** . They are also on The Register of Regulated Qualifications: **<http://register.ofqual.gov.uk/Unit>**

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- guided learning hours
- unit aim
- relationship to NOS, other qualifications and frameworks
- endorsement by a sector or other appropriate body
- learning outcomes which are comprised of a number of assessment criteria

Unit 201

Working safely in an engineering environment

UAN:	L/600/5781
Level:	2
Credit value:	5
GLH:	33
Relationship to NOS:	This unit has been derived from national occupational standard Performing Engineering Operations Unit No. 01: Working safely in an engineering environment (Suite 2)
Endorsement by a sector or regulatory body:	This unit is endorsed by SEMTA
Aim:	<p>This unit covers the skills and knowledge needed to prove the competences required to work safely in an engineering environment. It will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or it will act as a basis for the development of additional skills and occupational competences in the working environment. It covers carrying out the learner's work activities in accordance with instructions and by the use of safe working practices and procedures.</p> <p>The learner will be required to comply with all relevant regulations that apply to their area of work, as well as their general responsibilities as defined in the Health and Safety at Work Act. The learner must be able to identify the relevant qualified first aiders or appointed person, and know the location of the first aid facilities. The learner will have an understanding of the procedures to be adopted in the case of accidents involving injury, and in situations where there are dangerous occurrences or hazardous malfunctions of equipment, processes or machinery. The learner will also need to be fully conversant with the organisation's procedures for fire alerts and for the evacuation of premises.</p>

The learner will be required to identify hazardous situations, equipment, materials or conditions, and know how to take appropriate action to eliminate/minimise the risks to life, property and the environment within their immediate work surroundings. As part of hazard control, the learner will be required to recognise the hazards in the engineering environment in which they work, and to have an appreciation of the risk involved with those hazards and the precautions they can take to lower the risk of injury or damage to plant and equipment. Whilst working in the engineering environment, the learner will be required to note and report any changes in the work area or process that may affect their own safety or the safety of others.

The learner will be expected to dress, behave and maintain the workplace in a manner that is acceptable to the organisation in which they work and the type of activities being carried out. This will require the learner to observe all relevant statutory and organisation regulations, and to comply with codes of good practice and safe working procedures at all times.

The learner's responsibilities will require them to comply with organisational policy and procedures for the activities undertaken. The learner will need to take account of any potential difficulties or problems that may arise with the activities, and to seek appropriate help and advice in determining and implementing a suitable solution. The learner will work under a high level of supervision, whilst taking responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work, and will provide an informed approach to working safely in an engineering environment. The learner will understand the safety requirements and their application, to the required depth to provide a sound basis for carrying out their activities safely and correctly.

Learning outcome

The learner will:

1. work safely in an engineering environment

Assessment criteria

The learner can:

- 1.1 comply with their duties and obligations as defined in the health and safety at work act (HASAWA)
- 1.2 demonstrate their understanding of their duties and obligations to health and safety by carrying out all of the following:
 - a. applying in principle their duties and responsibilities as an individual under the Health and Safety at Work Act and other relevant current legislation
 - b. identifying, within their working environment, appropriate sources of information and guidance on health and safety issues, to include:
 - bi. eye protection and personal protective equipment
 - bii. COSHH regulations
 - biii. risk assessments
 - c. identifying the warning signs and labels of the main groups of hazardous or dangerous substances
 - d. complying at all times with the appropriate statutory regulations and specific regulations relevant to their work
- 1.3 apply safe working practices and procedures at all times
- 1.4 apply safe working practices in an engineering environment, to include all of the following:
 - a. present themselves in the workplace suitably dressed/prepared for the activities to be undertaken
 - b. observe personal protection and hygiene procedures at all times
 - c. act in a responsible manner at all times within the working environment
 - d. maintain a tidy workplace, with exits and gangways free from obstructions
 - e. use tools and equipment safely and only for the purpose intended
 - f. carry out their work activities in accordance with legal requirements and the organisations safety policies
 - g. take measures to protect others from harm resulting from any work that they are carrying out
- 1.5 follow organisational accident and emergency procedures
- 1.6 comply with all emergency requirements, to include:
 - a. identifying the appropriate qualified first aiders or appointed person, and the location of first aid facilities
 - b. identifying the procedures to be followed in the event of injury to themselves or others
 - c. following organisational procedures in the event of fire/fire drills and for the evacuation of premises/work area
 - d. identifying and using the procedures to be followed in the event of dangerous occurrences or hazardous malfunctions of equipment, processes or machinery
- 1.7 recognise and control hazards in the workplace to minimise risks

- 1.8 identify the hazards and risks that are associated with all of the following:
 - a. their working environment (such as working at height, in confined spaces, hot work)
 - b. the tools and equipment that they use (such as machines, power tools, cutting tools)
 - c. materials and substances that they use (such as cutting fluids/oils, hydraulic fluids, fluxes)
 - d. using working practices that do not follow laid-down procedures
- 1.9 use correct manual lifting and carrying techniques
- 1.10 demonstrate the following methods of manual lifting and carrying techniques:
 - a. lifting alone
 plus one more of the following:
 - b. with assistance of others
 - c. with mechanical assistance

Learning outcome
The learner will:
2. know how to work safely in an engineering environment
Assessment criteria
The learner can:
2.1 describe the roles and responsibilities of themselves and others under the health and safety at work act and other current legislation (such as the management of health and safety at work regulations; workplace health and safety and welfare regulations; personal protective equipment at work regulations; manual handling operations regulations; provision and use of work equipment regulations; display screen at work regulations, reporting of injuries, diseases and dangerous occurrences regulations)
2.2 describe the specific regulations and safe working practices and procedures that apply to their work activities (such as the electricity at work regulations, woodworking regulations)
2.3 describe the warning signs for the main groups of hazardous substances defined by classification, packaging and labelling of dangerous substances regulations
2.4 explain how to locate relevant health and safety information for their tasks, and the sources of expert assistance when help is needed
2.5 explain what constitutes a hazard in the workplace (such as moving parts of machinery, electricity, slippery and uneven surfaces, dust and fumes, handling and transporting, contaminants and irritants, material ejection, fire, working at height, environment, pressure/stored energy systems, volatile or toxic materials, unshielded processes)
2.6 describe their responsibilities for dealing with hazards and reducing risks in the workplace (such as hazard spotting and safety inspections; the use of hazard check lists, carrying out risk assessments, COSHH assessments and safe systems of working)
2.7 describe the risks associated with their working environment (such

as the tools, materials and equipment that they use, spillages of oil and chemicals, not reporting accidental breakages of tools or equipment and not following laid-down working practices and procedures)

- 2.8 describe the sources of information for safety (such as local work procedures, codes of practice or guidance, the severity of the accident or injury that the hazard may cause)
- 2.9 describe the control measures that can be used to eliminate/reduce the hazard (such as lock-off and permit to work procedures, provision of safe access and egress, use of guards and fume extraction equipment, use of personal protective equipment)
- 2.10 describe the first aid facilities that exist within their work area and within the organisation in general, and the procedures to be followed in the case of accidents involving injury
- 2.11 explain what constitute dangerous occurrences and hazardous malfunctions, and why these must be reported even if no-one was injured
- 2.12 describe the procedures for sounding the emergency alarms, evacuation procedures and escape routes to be used, and the need to report their presence at the appropriate assembly point
- 2.13 describe the organisational policy with regard to fire fighting procedures; the common causes of fire and what they can do to help prevent them
- 2.14 describe the personal protective equipment (PPE) and protective clothing that is available for their areas of activity
- 2.15 describe the need to observe personal protection and hygiene procedures at all times (such as skin care (barrier creams, gloves); eye protection (safety glasses, goggles, full face masks); hearing protection (ear plugs, ear defenders); respiratory protection (fume extraction, face masks, breathing apparatus; head protection (caps with hair restraints, protective helmets); foot protection (safety footwear); dangers of ingestion and the importance of washing hands)
- 2.16 explain how to act responsibly within the working environment (such as observing restricted area notices, complying with warning signs, walking not running, using equipment only for its intended purpose, not interfering with equipment or process that are not within their job role, following approved safety procedures at all times)
- 2.17 describe the methods of manually handling and moving loads (such as pushing, pulling, levering); how to lift and carry loads safely and correctly (such as from ground level, waist high, overhead, reaching over); and the manual and mechanical lifting and moving aids available
- 2.18 describe good housekeeping arrangements (such as maintaining cleanliness of their work area; removal of waste materials; storage of materials, tools and equipment and products; maintenance of access and egress (such as clear walkways, emergency exits))
- 2.19 explain when to act on their own initiative and when to seek help and advice from others
- 2.20 explain to whom they should report in the event of problems that they cannot resolve

Unit 202

Carrying out engineering activities efficiently and effectively

UAN:	D/600/5784
Level:	2
Credit value:	4
GLH:	29
Relationship to NOS:	This unit has been derived from national occupational standard Performing Engineering Operations Unit No. 2: Carrying out engineering activities efficiently and effectively (Suite 2)
Endorsement by a sector or regulatory body:	This unit is endorsed by SEMTA
Aim:	<p>This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or that will act as a basis for the development of additional skills and occupational competences in the working environment.</p> <p>Prior to undertaking the engineering activity, the learner will be required to carry out all necessary preparations, within the scope of their responsibility. This will include preparing the work area and ensuring that it is in a safe condition to carry out the intended activities. The learner will need to obtain the appropriate job documentation, work instructions, tools, equipment and materials required for the work activities undertaken, and to check they are in a safe and usable condition. Planning their work activities before they start them will also form part of this unit.</p> <p>On completion of the engineering activity, the learner will be required to return their immediate work area to an acceptable condition before undertaking further work. This may involve placing part-completed or</p>

completed work in the correct location, returning and/or storing any tools and equipment in the correct area, removing any waste and/or scrapped materials, and reporting any defects or damage to the tools and equipment used.

In order to be efficient and effective in the workplace, the learner will also be required to demonstrate that they can create and maintain effective working relationships with colleagues and supervisors. The learner will be expected to review objectives and targets for their personal development and to contribute to, and communicate any opportunities for, improvements that could be made to working practices and procedures.

The learner's responsibilities will require them to comply with health and safety requirements and organisational policy and procedures for the activities undertaken. The learner will need to take account of any potential difficulties or problems that may arise with the activities, and to seek appropriate help and advice in determining and implementing a suitable solution. The learner will work under a high level of supervision, whilst taking responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work, and will provide an informed approach to working efficiently and effectively in an engineering environment. The learner will understand the need to work efficiently and effectively, and will know about the items they need to consider when preparing and tidying up the work area. The learner will know how to contribute to improvements, deal with problems, maintain effective working relationships, and agree their development objectives and targets, in adequate depth to provide a sound basis for carrying out the activities safely and correctly.

The learner will understand the safety precautions required when carrying out the specific engineering activities. The learner will be required to demonstrate safe working practices throughout, and will understand the responsibility they owe to themselves and others in the workplace.

Learning outcome

The learner will:

1. work efficiently and effectively in engineering

Assessment criteria

The learner can:

- 1.1 work safely at all times, complying with health and safety legislation, regulations and other relevant guidelines
- 1.2 ensure that they apply all of the following checks and practices at all times during the engineering activities:
 - a. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment (PPE) and other relevant safety regulations
 - b. wear the appropriate personal protective equipment for the work area and specific activity being carried out
 - c. use all tools and equipment safely and correctly, and only for their intended purpose
 - d. ensure that the work area is maintained and left in a safe and tidy condition
- 1.3 plan the engineering activities before they start them
- 1.4 prepare for the specific engineering activity, by producing a work plan which includes all of the following:
 - a. documentation required (such as drawings, technical/reference documents - such as tapping drill sizes, imperial to metric conversion books, component specifications, quality documentation)
 - b. materials required (such as stock material, components, part-machined components, cables/wire, welding consumables)
 - c. equipment required (such as machine tools to be used, lifting and handling equipment, bending and forming equipment, anti-static equipment, test equipment)
 - d. workholding methods and equipment (such as machine or bench vice, clamps, special workholding arrangements), where appropriate
 - e. tools required (such as hand tools, portable power tools, cutting tools, soldering irons)
 - f. measuring equipment required (such as mechanical, electrical, pressure, flow, level, speed, sound)
 - g. the operating sequence to be followed
 - h. timescale required to complete the engineering operations
- 1.5 prepare the work area for carrying out the engineering activity
- 1.6 prepare to carry out the engineering activity, ensuring all of the following, as applicable to the work to be undertaken:
 - a. the work area is free from hazards and is suitably prepared for the activities to be undertaken
 - b. any required safety procedures are implemented
 - c. any necessary personal protection equipment is obtained, and is in a usable condition
 - d. tools and equipment required are obtained and checked that they are in a safe and usable condition
 - e. all necessary drawings, specifications and associated documents are obtained

- f. job instructions are obtained and understood
 - g. the correct materials or components are obtained
 - h. appropriate authorisation to carry out the work is obtained
- 1.7 obtain all necessary tools and equipment and check that they are in a safe and usable condition
- 1.8 deal promptly and effectively with problems within their control, and seek help and guidance from the relevant people if they have problems that they cannot resolve
- 1.9 deal with problems affecting the engineering activity, to include two of the following:
 - a. materials
 - b. tools and equipment
 - c. drawings
 - d. job specification
 - e. quality
 - f. people
 - g. timescales
 - h. safety
 - i. work activities or procedures
- 1.10 maintain effective working relationships with colleagues and supervisors
- 1.11 create and maintain effective working relationships, to include carrying out all of the following:
 - a. turning up at their place of work on time and suitably dressed for the work activities to be carried out
 - b. following instructions given to them and checking out any uncertainties before they start work
 - c. seeking information and assistance in a courteous and polite manner
 - d. taking advice from others in a positive way
 - e. dealing with disagreements in an amicable and constructive way
 - f. communicating with others nearby to make sure that they know about actions they are taking which may affect their work
 - g. showing respect for the views, rights and property of others
- 1.12 review personal training and development, as appropriate to the job role
- 1.13 contribute to developing their own engineering competence, to include all of the following:
 - a. describing the levels of skill, knowledge and understanding needed for competence in the areas of work expected of them
 - b. describing their development objectives/program, and how these were identified
 - c. providing information on their expectations and progress towards their identified objectives
 - d. using feedback and advice to improve their personal performance
- 1.14 tidy up the work area on completion of the engineering activity
- 1.15 complete the work activities, to include all of the following:
 - a. returning tools and equipment to the designated location
 - b. returning drawings and work instructions

	<ul style="list-style-type: none"> c. disposing of waste materials, in line with organisational and environmental requirements d. completing all necessary documentation accurately and legibly e. identifying, where appropriate, any damaged or unusable tools or equipment
1.16	contribute to, and communicate opportunities for, improvement to working practices and procedures
1.17	contribute to organisational procedures for identifying opportunities for improvement to one of the following: <ul style="list-style-type: none"> a. working practices b. working methods c. quality d. tools and equipment e. internal communication f. teamwork g. training and development h. safety i. other specific procedure

Learning outcome	
The learner will:	
2. know how to work efficiently and effectively in engineering	
Assessment criteria	
The learner can:	
2.1	describe the safe working practices and procedures to be followed whilst preparing and tidying up their work area
2.2	explain how to present themselves in the workplace suitably dressed for the activities to be undertaken (such as being neat, clean and dressed in clothes appropriate to the area of activity; ensuring that, if they have long hair, it is tied back or netted; and removing any jewellery or other items that can become entangled in the machinery)
2.3	describe the personal protective equipment (PPE) to be worn for the engineering activities undertaken (such as correctly fitting overalls, safety shoes, eye protection, ear protection)
2.4	describe the correct use of any equipment used to protect the health and safety of themselves and their colleagues
2.5	explain how to plan and prepare to carry out the engineering activity (such as obtaining the appropriate drawings/documentation to be used, determining the materials required, determining the tools and equipment required, determining a suitable sequence of operations, determining the quality checks to be made and equipment to be used)
2.6	describe the procedure for ensuring that all documentation relating to the work being carried out is available, prior to starting the activity
2.7	describe the procedure for ensuring that all tools and equipment are available prior to undertaking the activity
2.8	describe the checks to be carried out to ensure that tools and equipment are in full working order, prior to undertaking the

activity

- 2.9 describe the checks to be carried out to ensure that all materials required are correct and complete, prior to undertaking the activity
- 2.10 describe the action that should be taken if documentation, tools and equipment or materials are incomplete or do not meet the requirements of the activity
- 2.11 describe their role in helping to develop their own skills and knowledge (such as checking with their supervisor about the work they are expected to carry out and the standard they need to achieve; the safety points to be aware of and the skills and knowledge they will need to develop)
- 2.12 describe the benefits of continuous personal development, and the training opportunities that are available in the workplace
- 2.13 describe the importance of reviewing their training and development with trainers and supervisors, of comparing the skills, knowledge and understanding that they have at any given point with the competences they need to develop, and of setting objectives to overcome any shortfall or address any development needs
- 2.14 describe their responsibilities for providing evidence of their performance and progress (such as submitting work for assessment or the completion of assignments or tests)
- 2.15 describe the importance of maintaining effective working relationships within the workplace (such as listening attentively to instructions told to them by their supervisor, making sure they ask for help and advice in a polite and courteous manner, responding positively to requests for help from others)
- 2.16 describe the reason for informing others of their activities which may have impact on their work (such as the need to temporarily disconnect a shared resource like electricity or compressed air supply; making undue noise or creating sparks, fumes or arc flashes from welding)
- 2.17 explain how to deal with disagreements with others in ways which will help to resolve difficulties and maintain long term relationships
- 2.18 describe the organisational procedures to deal with and report any problems that can affect working relationships
- 2.19 describe the difficulties that can occur in working relationships, and how to resolve them
- 2.20 describe the sorts of attitudes and requests that are likely to create conflict or negative responses
- 2.21 describe the regulations that affect how they should be treated at work (such as equal opportunities and equal pay, race relations and sex discrimination, working time directive, disabled persons acts)
- 2.22 describe the importance of making a contribution to improving working practices and procedures, and the procedure and format for making suggestions for improvements
- 2.23 describe the benefits to them and to the organisation if improvements can be identified and implemented
- 2.24 describe the need to dispose of waste materials and consumables (such as oils and chemicals) in a safe and environmentally friendly way
- 2.25 explain where tools and equipment should be stored and located, and the importance of returning all tools and documentation to their designated area on completion of their work activities
- 2.26 explain when to act on their own initiative and when to seek help

and advice from others

2.27 describe the importance of leaving the work area in a safe condition on completion of their activities (such as equipment correctly isolated, cleaning the work area and removing and disposing of waste)

Unit 203

Using and communicating technical information

UAN:	M/600/5790
Level:	2
Credit value:	4
GLH:	29
Relationship to NOS:	This unit has been derived from national occupational standard Performing Engineering Operations Unit No. 3: Using and communicating technical information (Suite 2)
Endorsement by a sector or regulatory body:	This unit is endorsed by SEMTA
Aim:	<p>This unit covers the skills and knowledge needed to prove the competences required to make full use of text, numeric and graphical information, by interpreting and using technical information extracted from a range of documentation such as engineering drawings, technical manuals, technical specifications, reference tables and charts, electronic displays, planning and quality control documentation.</p> <p>This will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or will act as a basis for the development of additional skills and occupational competences in the working environment.</p> <p>The learner will be required to extract the necessary data from the various specifications and related documentation, in order to establish and carry out the work requirements, and to make valid decisions about the quality and accuracy of the work carried out. The learner will also need to be able to communicate and record technical information, using a range of different methods such as producing detailed sketches, preparing work planning documentation, producing technical reports and recording data from testing activities.</p>

The learner's responsibilities will require them to comply with organisational policy and procedures for obtaining, using and communicating the technical information applicable to the activity. The learner will need to take account of any potential difficulties or problems that may arise with the activities, and to seek appropriate help and advice in determining and implementing a suitable solution. The learner will work under a high level of supervision, whilst taking responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of the types of documentation available for use, and will provide an informed approach to applying and communicating engineering instructions and procedures. The learner will be able to read and interpret the documentation available, and will know about the conventions, symbols and abbreviations to the required depth to provide a sound basis for carrying out the activities to the required specification.

Learning outcome
The learner will: 1. use and communicate technical information
Assessment criteria
The learner can: 1.1 use the approved source to obtain the required data, documentation or specifications to include all of the following: a. check the currency and validity of the data and documentation used b. exercise care and control over the documents at all times c. correctly extract all necessary data in order to carry out the required tasks d. seek out additional information where there are gaps or deficiencies in the information obtained e. deal with or report any problems found with the data f. make valid decisions based on the evaluation of the engineering information g. return all documentation to the approved location on completion of the work h. complete all necessary production documentation 1.2 extract and interpret information from engineering drawings and other related documentation 1.3 use information extracted from engineering documentation, to

include one or more of the following:

- a. detailed component drawings
- b. general assembly drawings
- c. repair drawings
- d. fluid power drawings
- e. wiring/circuit diagrams
- f. installation drawings
- g. approved sketches
- h. illustrations
- i. visual display screens
- j. modification drawings
- k. sub-assembly drawings
- l. schematic diagrams
- m. fabrication drawings
- n. pattern drawings
- o. welding drawings
- p. casting drawings
- q. operational diagrams
- r. physical layouts
- s. manufacturers' manuals/drawings
- t. photographic representations
- u. contractual specifications

1.4 use information extracted from related documentation, to include two from the following:

- a. job instructions
- b. drawing instructions
- c. test schedules
- d. manufacturers' instructions
- e. welding procedure specifications
- f. material specifications
- g. finishing specifications
- h. reference tables/charts
- i. national, international and organisational standards
- j. planning documentation
- k. quality control documents
- l. operation sheets
- m. process specifications

1.5 extract information that includes three of the following:

- a. materials or components required
- b. dimensions
- c. tolerances
- d. build quality
- e. installation requirements
- f. connections to be made
- g. surface texture requirements
- h. location/orientation of parts
- i. process or treatments required
- j. assembly sequence
- k. inspection requirements
- l. part numbers for replacement parts

	<ul style="list-style-type: none"> m. surface finish required n. weld type and size o. operations required p. shape or profiles q. test points to be used r. circuit characteristics (such as pressure, flow, current, voltage, speed)
1.6	report any inaccuracies or discrepancies in the drawings and specifications
1.7	use the information obtained to establish work requirements
1.8	record and communicate the technical information by appropriate means to include three of the following methods: <ul style="list-style-type: none"> a. producing fully detailed sketches of work/circuits completed or required b. preparing work planning documentation c. recording data from testing activities d. producing technical reports on activities they have completed e. completing material and tool requisition documentation f. producing a list of replacement parts required for a maintenance activity g. completing training records or portfolio references
1.9	deal promptly and effectively with problems within their control, and seek help and guidance from the relevant people if they have problems that they cannot resolve

Learning outcome	
The learner will:	
2.	know how to use and communicate technical information
Assessment criteria	
The learner can:	
2.1	describe the information sources used for the data and documentation that they use in their work activities (such as verbal, written, electronic)
2.2	explain why technical information is presented in different forms (such as drawings, data sheets, and national and international standards)
2.3	explain how and where to obtain the various documents that they will be using (such as safety handouts, drawings, planning documentation, work instructions, maintenance records, technical manuals and reference tables/charts), and how to check that they are current and valid
2.4	describe the types of engineering drawings used, and how they interrelate (such as isometric and orthographic drawings; assembly, sub-assembly and general arrangement drawings; circuit and wiring diagrams, block and schematic diagrams; fluid power and instrumentation and control diagrams)
2.5	describe the meaning of the different symbols and abbreviations found on the documents that they use (such as surface finish to be achieved, linear and geometric tolerances, electronic components, weld symbols and profiles, pressure and flow characteristics, torque values, imperial and metric systems of measurement,

tolerancing and fixed reference points)

- 2.6 explain how to use other sources of information to support the data (such as electronic component pin configuration specifications, standard reference charts for limits and fits, tapping drill reference charts, bend allowances required for material thickness, electrical conditions required for specific welding electrodes, mixing ratios for bonding and finishing materials, metal finishing specifications and inspection requirements)
- 2.7 describe the procedures for reporting discrepancies in the data or documents, and for reporting lost or damaged drawings and documents
- 2.8 describe the care and control procedures for the documents, how damage or graffiti on drawings can lead to scrapped work and the importance of returning them to the designated location on completion of the work activities
- 2.9 describe the typical ways of communicating technical information (such as sketches, test and inspection reports, work planning documents), and the amount of detail that should be included
- 2.10 describe the need to ensure that sketches are of a suitable size, use appropriate drawing conventions, are in proportion and are legible to others
- 2.11 explain why it is important to use a fixed common reference point for dimensioning of drawings and sketches
- 2.12 explain when to act on their own initiative to find, clarify and evaluate information, and when to seek help and advice from others
- 2.13 explain why they should always seek clarification if they are in any doubt as to the validity or suitability of the information they have gathered
- 2.14 explain to whom they should report in the event of problems that they cannot resolve



Appendix 1 Relationships to other qualifications

Links to other qualifications

Mapping is provided as guidance and suggests areas of commonality between the qualifications. It does not imply that candidates completing units in one qualification have automatically covered all of the content of another.

Centres are responsible for checking the different requirements of all qualifications they are delivering and ensuring that candidates meet requirements of all units/qualifications.

This qualification has connections to the:

- City & Guilds Level 1 NVQ Certificate in Performing Engineering Operations 7582-10/7682-10
- City & Guilds Level 2 NVQ Diploma in Performing Engineering Operations 7582-20/21
- City & Guilds Level 3 NVQ Extended Diploma in Mechanical Manufacturing Engineering (1712-70)
- City & Guilds Level 3 NVQ Extended Diploma in Engineering Technical Support (1786-70)
- City & Guilds Level 3 NVQ Extended Diploma in Engineering Maintenance (1788-80)
- City & Guilds Level 3 NVQ Extended Diploma in Aeronautical Engineering (1789-34)
- City & Guilds Level 3 NVQ Extended Diploma in Fabrication and Welding Engineering (1789-70)

Example:

- Unit 7582-101/ 7682-201 from the City & Guilds Level 1 NVQ Certificate in Performing Engineering Operations 7582-10/7682-10 is a mandatory unit within this qualification. Achievement of this unit can be used towards achievement of this qualification.
- Mandatory units from the previous incarnation of this qualification (7582-20/21) are unchanged and achievement of these units can be used for achievement of this qualification.
- Achievement of the majority of units within the City & Guilds Level 2 NVQ Diploma in Performing Engineering Operations is a requirement of the listed Extended Diploma's in Engineering. These units can be used towards obtaining an Extended Diploma following achievement of this qualification.

Literacy, language, numeracy and ICT skills development

This qualification can develop skills that can be used in the following qualifications:

- Functional Skills (England) – see **www.cityandguilds.com/functionalskills**
- Essential Skills (Northern Ireland) – see **www.cityandguilds.com/essentialskillsni**
- Essential Skills Wales – see **www.cityandguilds.com/esw**



Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

Useful contacts

UK learners General qualification information	T: +44 (0)844 543 0033 E: learnersupport@cityandguilds.com
International learners General qualification information	T: +44 (0)844 543 0033 F: +44 (0)20 7294 2413 E: intcg@cityandguilds.com
Centres Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: centresupport@cityandguilds.com
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) E: singlesubjects@cityandguilds.com
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: intops@cityandguilds.com
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: walledgarden@cityandguilds.com
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	T: +44 (0)121 503 8993 E: business@cityandguilds.com
Publications Logbooks, Centre documents, Forms, Free literature	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413

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City & Guilds Group

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