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Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations

Specification

Competence-based qualification

For first registration August 2010

Issue 2

Pearson

Edexcel, BTEC and LCCI qualifications

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

This qualification was previously known as:

Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations (QCF)

The QN remains 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 going to publication.

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Summary of Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations specification Issue 2 changes

Summary of changes made between previous issue and this current issue	Page number
All references to QCF have been removed throughout the specification	
Definition of TQT added	1
Definition of sizes of qualifications aligned to TQT	2
TQT value added	7
Guided learning definition updated	13
QCF references removed from unit titles and unit levels in all units	15-201

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

Introducing Pearson Edexcel NVQ/Competence-based qualifications

What are NVQ/Competence-based qualifications?

National Vocational Qualifications (NVQs)/Competence-based qualifications are work-based qualifications that give learners the opportunity to develop and demonstrate their competence in the area of work or job role to which the qualification relates.

NVQs/Competence-based qualifications are based on recognised occupational standards for the appropriate sector. Occupational standards define what employees, or potential employees, must be able to do and know, and how well they should undertake work tasks and work roles. These standards are written in broad terms to enable employers and providers to apply them to a wide range of related occupational areas.

NVQs/Competence-based qualifications are outcomes-based with no fixed learning programme, therefore allowing flexible delivery to meet the individual learner's needs. At Level 2 and above, these qualifications are recognised as approved training and development courses for employees that have been in the workplace for some time or as a way of inducting, training and developing new entrants into the workplace. Qualifications at Level 1 can be used in Traineeships, which enables progression to entry level employment or to Apprenticeship programmes.

Learners will work towards their qualification in the workplace or in settings that replicate the working environment as specified in the assessment requirements. Colleges, training centres and/or employers can offer these qualifications as long as they have access to appropriate physical and human resources and have the necessary quality assurance systems in place.

Sizes of NVQ/Competence-based qualifications

For all regulated qualifications, Pearson specify a total number of hours that it is estimated learners will require 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, Pearson identifies the number of Guided Learning Hours (GLH) that we estimate a centre delivering the qualification might provide. Guided learning means activities, such as lessons, tutorials, online instruction, supervised study and giving feedback on performance, that directly involve tutors and assessors in teaching, supervising and invigilating learners. Guided learning includes the time required for learners to complete external assessment under examination or supervised conditions.

In addition to guided learning, other required learning directed by tutors or assessors will include 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.

NVQ/Competence-based 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).

Qualification title covered by this specification

This specification gives you the information you need to offer the Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations:

Qualification title	Qualification Number (QN)	Accreditation start date
Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations	501/0659/4	01/08/2010

Qualifications eligible and funded for post-16-year-olds can be found on the funding Hub. The Skills Funding Agency also publishes a funding catalogue that lists the qualifications available for 19+ funding.

You should use the Qualification Number (QN), when you wish to seek public funding for your learners. Each unit within a qualification will also have a unique reference number, which is listed in this specification.

The qualification title and unit reference numbers will appear on the learners' final certification document. Learners need to be made aware of this when they are recruited by the centre and registered with Pearson.

Key features of the Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations

This qualification:

- is nationally recognised
- is based on the Semta National Occupational Standards (NOS). The NOS, Assessment strategy and qualification structure are owned by Semta.

The Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations has been approved as a component for the Semta Apprenticeship framework.

What is the purpose of this qualification?

This qualification is appropriate for employees in the engineering sector working across a broad range of areas. It is designed to assess occupational competence in the workplace where learners are required to demonstrate skills and knowledge to a level required in the engineering industry.

Who is this qualification for?

This qualification is for all learners aged 16 and above who are capable of reaching the required standards.

Pearson's policy is that the qualification should:

- be free from any barriers that restrict access and progression
- ensure equality of opportunity for all wishing to access the qualification.

What are the benefits of this qualification to the learner and employer?

This qualification allows learners to demonstrate competence against National Occupational Standards which are based on the needs of the engineering industry as defined by Semta, the Sector Skills Council. As such it contributes to the development of skilled labour in the sector. The qualification may contribute towards the competence element of an Apprenticeship.

What are the potential job roles for those working towards this qualification?

- Engineering operative.

What progression opportunities are available to learners who achieve this qualification?

This qualification allows learners to demonstrate competence in performing manufacturing operations at a level required by the engineering industry. Learners can progress across the level and size of the engineering competence and knowledge qualifications and into other occupational areas such as team leading and management.

What is the qualification structure for the Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations?

The Total Qualification Time (TQT) for this qualification is 480.

The Guided Learning Hours for this qualification are 269.

To achieve the **Pearson Edexcel Level 2 NVQ Diploma in Performing Manufacturing Operations** learners must complete a minimum of 48 credits in total.

Learners must complete the unit in Group A1 and a minimum of one unit in Group A2.

Learners must complete a minimum of three units from Group B1.

*Learners may **not** choose both Unit 6 and Unit 7 from Group B1.*

Learners must complete a minimum of one unit in Group B2*.

*If a learner has already chosen Unit 4 and/or Unit 11 in Group B1, these units may **not** be selected again from Group B2.

A – Mandatory units

Learners must complete the unit in Group A1 and a minimum of one unit in Group A2.

Credit value required: minimum 10.

A1 – Group 1 Mandatory units

Credit value required: minimum 5.

A/601/5013 – Complying with statutory regulations and organisational safety requirements

A2 - Group 2 Mandatory units

Credit value required: minimum 5.

R/601/3008 – Promoting effective working relationships

T/601/3101 – Contributing to effective team working

B1 – Group 1 Optional units

Credit value required: minimum 25.

Y/601/3009 – Transferring materials

L/601/3010 – Preparing for manufacturing operations

Y/601/3012 – Concluding manufacturing operations

Barred unit: H/601/3014 – Ensuring effective handover of manufacturing operations.

H/601/3014 - Ensuring effective handover of manufacturing operations

Barred unit: Y/601/3012 – Concluding manufacturing operations.

T/601/3017 – Receiving and checking incoming materials

M/601/3095 – Controlling manufacturing operations

A/601/3097 – Contributing to improving effectiveness in the workplace

J/601/3099 – Analysing the results of inspection and confirming quality of production

K/601/3113 – Recording and reporting inspection and test results

B2 – Group 2 Optional units

Credit value required: minimum 13.

* Y/601/3009 – Transferring materials

R/601/3025 – Producing shaped products

A/601/3035 – Producing products by assembly operations

R/601/3039 – Producing joined products

F/601/3067 – Producing products by processing

T/601/3079 – Producing formed products

M/601/3081 – Finishing products

J/601/3085 – Producing moulded products

D/601/3089 – Producing packaged products

R/601/3090 – Making products using computer controlled equipment

H/601/3093 – Manufacturing products using combined manufacturing operations

* J/601/3099 – Analysing the results of inspection and confirming quality of production

H/601/3112 – Carrying out inspection and testing activities

How is the qualification graded and assessed?

The overall grade for the qualification is a 'pass'. The learner must achieve all the required units within the specified qualification structure.

To pass a unit the learner must:

- achieve **all** the specified learning outcomes
- satisfy **all** the assessment criteria by providing sufficient and valid evidence for each criterion
- show that the evidence is their own.

The qualification is designed to be assessed:

- in the workplace or
- in conditions resembling the workplace, as specified in the Assessment strategy for the sector, or
- as part of a training programme.

Assessment strategy

The Assessment strategy for this qualification has been included in *Annexe D*. It has been developed by Semta in partnership with employers, training providers, awarding organisations and the regulatory authorities. The Assessment strategy includes details on:

- criteria for defining realistic working environments
- roles and occupational competence of assessors, expert witnesses, internal verifiers and standards verifiers
- quality control of assessment
- evidence requirements.

Evidence of competence may come from:

- **current practice** where evidence is generated from a current job role
- a **programme of development** where evidence comes from assessment opportunities built into a learning/training programme whether at or away from the workplace
- the **Recognition of Prior Learning (RPL)** where a learner can demonstrate that they can meet the assessment criteria within a unit through knowledge, understanding or skills they already possess without undertaking a course of learning. They must submit sufficient, reliable and valid evidence for internal and standards verification purposes. RPL is acceptable for accrediting a unit, several units or a whole qualification
- a **combination** of these.

It is important that the evidence is:

Valid	relevant to the standards for which competence is claimed
Authentic	produced by the learner
Current	sufficiently recent to create confidence that the same skill, understanding or knowledge persist at the time of the claim
Reliable	indicates that the learner can consistently perform at this level
Sufficient	fully meets the requirements of the standards.

Types of evidence

To successfully achieve a unit the learner must gather evidence which shows that they have met the required standard in the assessment criteria. Evidence can take a variety of different forms including the following examples:

- direct observation of the learner's performance by their assessor
- outcomes from oral or written questioning
- products of the learner's work
- personal statements and/or reflective accounts
- outcomes from simulation, where permitted by the Assessment strategy
- professional discussion
- assignment, project/case studies
- authentic statements/witness testimony
- expert witness testimony
- reflective accounts
- evidence of Recognition of Prior Learning.

Learners can use one piece of evidence to prove their knowledge, skills and understanding across different assessment criteria and/or across different units. It is, therefore, not necessary for learners to have each assessment criterion assessed separately. Learners should be encouraged to reference the assessment criteria to which the evidence relates.

Evidence must be made available to the assessor, internal verifier and Pearson standards verifier. A range of recording documents is available on the Pearson website qualifications.pearson.com. Alternatively, centres may develop their own.

Additional requirements

The Joint Awarding Body and the SSC Working Practices Group have identified additional requirements that are needed to assess and quality assure qualifications that use NVQ within their title. These requirements are shown in *Annexe D: Additional Requirements for Qualifications that use the title NVQ within the QCF*.

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. New centres must complete both a centre recognition approval application and a qualification approval application.

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by the new qualification and the conditions for automatic approval are met. Centres already holding Pearson approval are able to gain qualification approval for a different level or different sector via Edexcel online.

Approvals agreement

All centres are required to enter into an approvals agreement which is a formal commitment by the head or principal of a centre to meet all the requirements of the specification and any linked codes 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.

Quality assurance

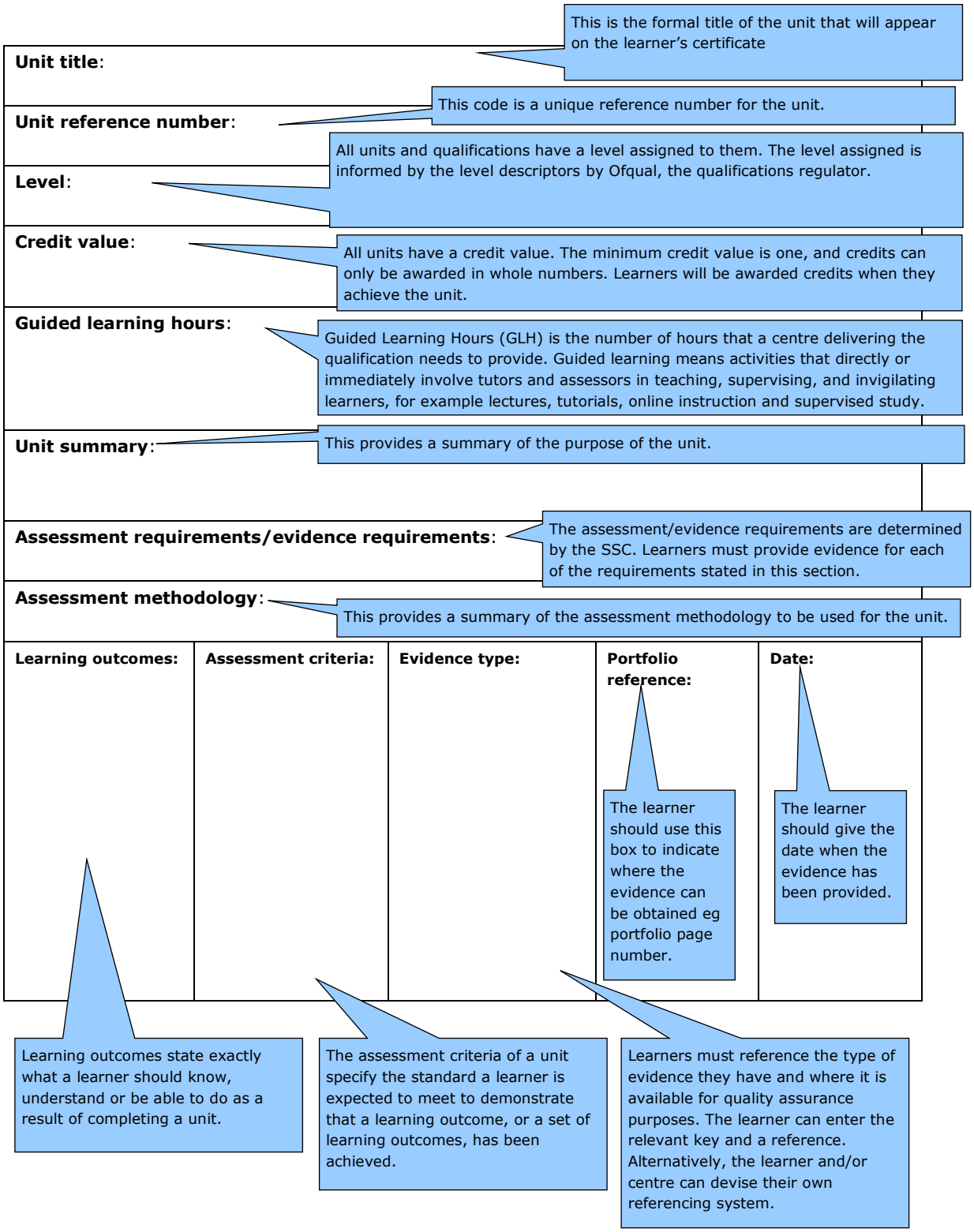
Detailed information on Pearson's quality assurance processes is given in *Annexe A*.

What resources are required?

Each qualification is designed to support learners working in the Engineering sector. Physical resources need to support the delivery of the qualification and the assessment of the learning outcomes and must be of industry standard. Centres must meet any specific resource requirements outlined in *Annexe D: Assessment strategy*. Staff assessing the learner must meet the requirements within the overarching Assessment strategy for the sector.

Unit format

Each unit in this specification contains the following sections.



Units

Unit 1: Complying with statutory regulations and organisational safety requirements

Unit reference number: A/601/5013

Level: 2

Credit value: 5

Guided learning hours: 35

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to deal with statutory regulations and organisational safety requirements. It does not deal with specific safety regulations or detailed requirements, it does, however, cover the more general health and safety requirements that apply to working in an industrial environment.

The learner will be expected 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 will need to be able to identify the relevant qualified first aiders and know the location of the first aid facilities. The learner will have a knowledge and 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 their organisation's procedures for fire alerts and the evacuation of premises.

The learner will also be required to identify the hazards and risks that are associated with their job. Typically, these will focus on their working environment, the tools and equipment that they use, the materials and substances that they use, any working practices that do not follow laid-down procedures, and manual lifting and carrying techniques.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Comply with statutory regulations and organisational safety requirements	1.1 comply with their duties and obligations as defined in the Health and Safety at Work Act 1.2 demonstrate their understanding of their duties and obligations to health and safety by: – applying in principle their duties and responsibilities as an individual under the Health and Safety at Work Act – identifying, within their organisation, appropriate sources of information and guidance on health and safety issues, such as: – eye protection and personal protective equipment (PPE) – COSHH regulations – risk assessments – identifying the warning signs and labels of the main groups of hazardous or dangerous substances – complying with the appropriate statutory regulations at all times 1.3 present themselves in the workplace suitably			

	prepared for the activities to be undertaken 1.4 follow organisational accident and emergency procedures 1.5 comply with emergency requirements, to include: – identifying the appropriate qualified first aiders and the location of first aid facilities – identifying the procedures to be followed in the event of injury to themselves or others – following organisational procedures in the event of fire and the evacuation of premises – identifying the procedures to be followed in the event of dangerous occurrences or hazardous malfunctions of equipment 1.6 recognise and control hazards in the workplace 1.7 identify the hazards and risks that are associated with the following: – their working environment – the equipment that they use – materials and substances (where appropriate) that they use – working practices that do not follow laid-down procedures			

	1.8 use correct manual lifting and carrying techniques 1.9 demonstrate one of the following methods of manual lifting and carrying: – lifting alone – with assistance of others – with mechanical assistance 1.10 apply safe working practices and procedures to include: – maintaining a tidy workplace, with exits and gangways free from obstruction – using equipment safely and only for the purpose intended – observing organisational safety rules, signs and hazard warnings – taking measures to protect others from any harm resulting from the work that they are carrying out			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to comply with statutory regulations and organisational safety requirements	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 2.3 describe the warning signs for the seven 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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 explain what constitutes a hazard in the workplace (such as moving parts of machinery, electricity, slippery and uneven surfaces, poorly placed equipment, dust and fumes, handling and transporting, contaminants and irritants, material ejection, fire, working at height, environment, pressure/stored energy systems, volatile, flammable or toxic materials, unshielded processes, working in confined spaces) 2.6 describe their responsibilities for identifying and dealing with hazards and reducing risks in the workplace 2.7 describe the risks associated with their working environment (such as the tools, materials and equipment that they use, spillages of oil, chemicals and other substances, not reporting accidental breakages of tools or equipment and not following laid-down working practices and procedures) 2.8 describe the processes and procedures that are used to identify and rate the level of risk (such as safety inspections, the use of hazard checklists, carrying out risk assessments, COSHH assessments) 2.9 describe the first aid facilities that exist within their work area and within the organisation in general; the procedures to be followed in the case of accidents involving injury			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.10 explain what constitute dangerous occurrences and hazardous malfunctions, and why these must be reported even if no one is injured 2.11 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 2.12 describe the organisational policy with regard to fire fighting procedures; the common causes of fire and what they can do to help prevent them 2.13 describe the protective clothing and equipment that is available for their areas of activity 2.14 explain how to safely lift and carry loads, and the manual and mechanical aids available 2.15 explain how to prepare and maintain safe working areas; the standards and procedures to ensure good housekeeping 2.16 describe the importance of safe storage of tools, equipment, materials and products 2.17 describe the extent of their own authority, and to whom they should report in the event of problems that they cannot resolve			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 2: Promoting effective working relationships

Unit reference number: R/601/3008

Level: 2

Credit value: 5

Guided learning hours: 30

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to develop and maintain internal and external working relationships.

The learner will be required to promote working relationships with a range of people such as colleagues in their own group, people in other work groups, supervisors and managers and external contacts. They will be expected to deal with any disagreements in an amicable and constructive way. They will also be expected to contribute to work activities by providing ideas and solutions and to find ways of resolving issues that cause concern and/or disagreement.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.6, 1.7, 1.8, 1.10, 1.11.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Promote effective working relationships	1.1 present themselves in the workplace on time and in a way that does not cause concern to others 1.2 promote and maintain working relationships with three of the following: – immediate supervision/line management – colleagues in same work group – colleagues in other work groups – personnel in other departments (such as those supplying inputs or receiving outputs) – managers and supervisors in other departments – external contacts (such as customers, clients) 1.3 ask for information, advice and/or help politely, without causing disruption to their own or others work 1.4 offer help and information to others promptly and willingly 1.5 respect the views, rights and property of others			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 identify problems in working relationships 1.7 discuss problems which may affect working relationships with the appropriate person to include two of the following: – work colleagues – supervisor – line manager – team leader – personnel or welfare officer			
1b Promote effective working relationships (continued)	1.8 deal with problems in working relationships in ways which minimise offence and maintain the mutual respect of others to include two of the following: – work-related issues – personal issues – communication problems 1.9 make sure that any actions that they take are within the limits of their own responsibility and authority 1.10 refer requests for information and/or assistance that are outside their authority/responsibility to the appropriate person			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.11 resolve disagreements and difficulties in working relationships with the appropriate person 1.12 communicate in a manner which promotes understanding, goodwill and trust 1.13 maintain effective communication using two of the following methods: – in writing – electronically – orally			
2a Know how to promote effective working relationships	2.1 describe the statutory regulations that can affect working relationships, ie Disability, Equal Opportunities, Discrimination, Harassment 2.2 explain why it is important to present themselves in the workplace on time and ready for work 2.3 explain the methods in their organisation that can be used to gain information, advice and help 2.4 explain the methods that can be used to establish and maintain good working relationships 2.5 explain what might affect good working relationships 2.6 explain how to identify problems in working relationships			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 explain the methods of handling and resolving problems in working relationships 2.8 explain why it is important to resolve difficulties or misunderstandings quickly and not let them develop into more serious problems			
2b Know how to promote effective working relationships (continued)	2.9 explain how to identify and use different methods and styles of communication 2.10 explain why it is important to avoid disruption in the workplace, and methods of avoiding it 2.11 explain why it is important to request help from others in a polite and timely manner and to offer assistance to others when help is needed 2.12 explain why it is important to show respect for the views, rights and property of others 2.13 explain who to refer to with requests that are not within the limits of their responsibility 2.14 explain who to refer to if they have problems with working relationships that they cannot resolve 2.15 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.16 explain what are the responsibilities of the people identified in assessment criteria 2.13 and 2.14 above			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 3: Contributing to effective team working

Unit reference number: T/601/3101

Level: 2

Credit value: 6

Guided learning hours: 30

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to work effectively as a team member within a manufacturing environment.

The learner will be required to establish and maintain productive working relationships and deal with disagreements in an amicable and constructive way. They will also be expected to contribute to team activities by providing ideas and solutions and to find ways of resolving issues that cause concern and/or disagreement. As part of their team activities they will need to keep others informed about work plans or activities that affect them.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.10, 1.11, 1.12, 1.13, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a. Contribute to effective team working	1.1 present themselves in the workplace on time and in a way that does not cause concern to other team members 1.2 develop and maintain team working relationships with two of the following: – immediate supervision/line management – colleagues in same work group – colleagues in other work groups – those for whom they have responsibility – personnel in other departments – external contacts 1.3 work in accordance with the roles and responsibilities identified for their individual and team activities 1.4 make sure that any actions that they take are within the limits of their own responsibility and authority 1.5 ask for information, advice and/or help politely, without causing disruption to their own or other team members work			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 offer help to others promptly and willingly in order to ensure team objectives are met 1.7 contribute to team discussion/briefing sessions in a positive manner that shows respect for the views and rights of others			
1b. Contribute to effective team working (continued)	1.8 deal with problems in team relationships in ways which minimise offence and maintain mutual respect 1.9 discuss problems which may affect team relationships with the appropriate person to include two of the following: – other team members – team leader – immediate line manager – personnel or welfare officer 1.10 refer requests for information and/or assistance that are outside their authority/responsibility to the appropriate people 1.11 work together to resolve disagreements and difficulties in team relationships			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.12 communicate orally with team members by two of the following methods: – team briefings – question and answer sessions – group discussions – problem-resolution processes 1.13 communicate in writing or electronically to include using one of the following methods: – adding ideas and actions to team boards – maintaining up-to-date key performance/production indicators – processing information – communicating via email/internal network services 1.14 communicate in a manner which promotes understanding, goodwill and trust			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to contribute to effective team working	2.1 describe the statutory regulations that can affect working relationship, ie Disability, Equal Opportunities, Discrimination, Harassment 2.2 explain why it is important to create and maintain good team working relationships 2.3 explain what are the sort of things that might affect good team working relationships 2.4 explain why it is important to present themselves in the workplace on time and ready for work 2.5 explain the methods that can be used to establish and maintain good team working relationships 2.6 explain the methods of handling and resolving difficulties in team working relationships 2.7 explain how to use data and team information to help resolve concerns and disagreements 2.8 explain why it is important to resolve difficulties or misunderstandings quickly and not let them develop into more serious problems			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain why it is important to share their knowledge and information and their performance measures with other people in their team and with other groups 2.10 explain how to use the data and information available to them to communicate their performances effectively to others 2.11 explain what types of information and data are available in their area such as key performance measures, production targets, quality, scrap ratios, problem resolution processes, action planning brainstorming and continuous improvement processes			
2b Know how to contribute to effective team working (continued)	2.12 explain what mixture of skills and experience is available in their team to support them or the manufacturing process when problems occur (such as a team skills matrix) 2.13 explain why they need to keep other team members involved in or informed of any plans or activities they may be doing 2.14 explain what type of support or assistance might they need from other team members 2.15 explain why it is important to request help from other team members in a polite and timely manner and to offer assistance to them when help is needed			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.16 explain why it is important to show respect for the views, rights and property of other team members 2.17 explain how asking for help or assistance at inappropriate times can lead to disruption and problems within the team 2.18 describe the methods used in their area for effective communication (such as team briefings covering team performance, quality, cost and delivery issues, general information, personnel issues and action plans) 2.19 explain who to refer to with requests that are not within the limits of their responsibility 2.20 explain who to refer to if they have problems with team relationships that they cannot resolve 2.21 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.22 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 4: Transferring materials

Unit reference number: Y/601/3009

Level: 2

Credit value: 13

Guided learning hours: 53

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to transfer, move and transport materials, to their correct location within a manufacturing operations environment. This will include the use of manual lifting and handling techniques and may include the use of mechanical equipment such as sack barrows and hand-operated mechanical or hydraulic lifting and moving equipment. Materials could be expected to include raw materials, components and/or products.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1 and 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.11, 1.12, 1.13, 1.14, 1.16.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Transfer materials	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant lifting and moving procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – lifting and moving equipment operating instructions – company standards and procedures 1.3 choose the right equipment/techniques to move the materials 1.4 move materials using one or more of the following types of equipment: – hand operated – power operated			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 carry out lifting and carrying techniques to include two of the following: – lifting alone – lifting with assistance from others – lifting with mechanical assistance 1.6 carry out safe and correct manual lifting techniques to include three of the following: – lifting from ground level – lifting from an angle – lifting from waist high – lifting from below ground level – lifting from overhead 1.7 check that the weight of the materials does not exceed the safe lifting capacity of the equipment chosen 1.8 check that the materials to be moved are correct, safely loaded and secure			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Transfer materials (continued)	1.9 carry out checks of the materials to be moved to include all of the following: – the materials are as specified on the documentation – the materials are stacked safely – materials are in a suitable condition for the moving operation – the load does not exceed the safe lifting capacity of the equipment – the load is secure – there are no restrictions or obstacles preventing movement of the materials 1.10 move the materials to their correct location in accordance with instructions to include one of the following: – production materials – consumable materials – finished products or components – waste or scrap 1.11 identify any problems with the material transfer			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.12 take appropriate action to solve problems which are within their permitted authority/responsibility 1.13 make permitted adjustments to solve problems related to two of the following: – equipment condition – material weight/suitability for moving – securing the load in place 1.14 report any problems that they cannot solve or are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.15 return any equipment they have used to its correct location on completion of the activities and leave it in a safe and reusable condition 1.16 maintain any material/s movement documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to transfer materials	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the material moving operations 2.2 explain the specific safe working practices, lifting and moving procedures and regulations that need to be observed 2.3 explain the hazards associated with carrying out the material moving operations 2.4 explain how the specific hazards can be minimised 2.5 explain what personal protective equipment needs to be used during the material movement activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, lifting and moving equipment operating procedures and how to interpret them 2.7 explain what procedures and documentation are required to allow the transfer of materials to take place 2.8 explain what tools and equipment are used for the material movement operations undertaken and how to check that they are in a safe and usable condition			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain how to choose the most suitable equipment for the moving operation being performed 2.10 explain the lifting and handling procedures, and load-bearing capacities of the equipment being used			
2b Know how to transfer materials (continued)	2.11 explain how to apply manual lifting techniques when lifting alone and with the assistance of others 2.12 explain what specific moving/transfer operations are being performed 2.13 explain how to identify problems with the moving/transfer operation 2.14 explain what action they should take to solve problems that are within the limits of their responsibility 2.15 explain why it is important to report problems to the appropriate people when they cannot solve them and/or they are not their responsibility 2.16 explain why is it important to return the equipment to its correct location on completion of the activities, store it correctly, and leave it in a safe and reusable condition			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.17 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.18 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.19 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date:_____

Learner signature: _____ Date:_____

Assessor signature: _____ Date:_____

Internal verifier signature: _____ Date:_____
(*if sampled*)

Unit 5: Preparing for manufacturing operations

Unit reference number: L/601/3010

Level: 2

Credit value: 9

Guided learning hours: 42

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to prepare for the manufacturing operations. This involves preparing for the manufacturing operations according to defined company procedures, and taking account of all health and safety requirements.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2, 1.14 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.11, 1.12, 1.13.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Prepare for manufacturing operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant preparation procedures and safety requirements to include all of the following: – health and safety and environmental regulations – safe working practices – job instructions – equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant preparation procedure specifications 1.4 carry out work area preparations according to procedure specification and take account of any specific safety requirements			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 prepare and maintain the work area to include all of the following: – accessibility for receipt and removal of materials – freedom from obstructions and hazards – correct equipment and material layout 1.6 prepare the equipment for the manufacturing operations and check that it is in a safe and usable condition to include one of the following: – machinery – process plant – tools hand-held and portable – material handling arrangements – equipment specific to the operation 1.7 when necessary, request replacement tools and equipment within the limits of their responsibility			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Prepare for manufacturing operations (continued)	1.8 ensure that the materials are available, and they meet the specification for type, quantity and quality 1.9 make available and check materials for manufacturing operations to include one of the following: – production materials – consumable materials 1.10 minimise any waste during preparation activities 1.11 deal with problems in preparation in two of the following areas: – raw materials – documentation – tooling – equipment – work area 1.12 resolve any problems with the preparation activity within the limits of their responsibility			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.13 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include two of the following: – supervisor – team leader – maintenance personnel – quality control 1.14 maintain a safe and organised work area at all times			
2a Know how to prepare for manufacturing operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the preparation activities 2.2 explain the specific safe working practices that need to be observed while carrying out the preparations 2.3 explain the hazards associated with carrying out the preparation activities and how they can be minimised 2.4 explain what personal protective equipment needs to be used during the preparation activities and where it can be obtained			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 explain how to obtain the necessary job instructions, equipment preparation procedures and how to interpret them 2.6 explain how the work area needs to be laid out, and where tools and materials need to be positioned 2.7 explain what material preparations may be required and how they will be carried out 2.8 explain what preparation checks need to be taken on the tools and/or equipment that they will use 2.9 explain what to do if their work area, equipment and/or materials are unsuitable for the planned operations 2.10 explain the arrangements for the receiving and removal of materials and products 2.11 explain what checks are needed to make sure materials meet the required specification			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2b Know how to prepare for manufacturing operations (continued)	2.12 explain how to check that preparation is complete and correct 2.13 explain what methods can be used to minimise waste during preparation activities 2.14 explain the potential problems with carrying out preparation activities and how they can be avoided 2.15 explain what problems can occur in preparation activities 2.16 explain how to identify problems within preparation activities 2.17 explain what actions they can take within the limits of their responsibility to solve the problems 2.18 explain who to report unsolvable problems to, or problems that are not within the limits of their responsibility 2.19 explain what documentation may need to be completed, and why it is important to complete it accurately 2.20 explain what their personal responsibilities are with regard to health, safety and environmental issues 2.21 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 6: Concluding manufacturing operations

Unit reference number: Y/601/3012

Level: 2

Credit value: 9

Guided learning hours: 42

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to conclude manufacturing operations.

This involves stopping the manufacturing operations according to defined company procedures, and taking account of all health and safety requirements. The learner will be expected to control the shutdown of all operating systems and equipment in accordance with specified shutdown procedures, making any adjustments within their permitted authority and minimising any waste. The equipment should be cleaned where necessary, and materials should be removed and stored correctly. The work area must also be left in a clean and tidy manner. Any incorrect documentation, equipment, tools and/or materials should be corrected within the limits of their responsibility, otherwise it should be promptly reported to the appropriate person.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2, 1.13 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.4, 1.6, 1.11, 1.12, 1.14, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Conclude manufacturing operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow relevant shutdown procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – company procedures – job instructions – equipment shutdown instructions 1.3 obtain and follow the correct job instructions and any relevant completion/shutdown procedure instructions 1.4 stop the operations in accordance with job instructions and specified completion/shutdown procedures, and take account of any specific safety procedures			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 close down equipment used in the manufacturing operations to include one of the following: – machinery – process plant – tools (hand-held and portable) – material handling arrangements – equipment specific to the operation 1.6 make sure any related equipment is shut down to a safe condition in accordance with completion/shutdown procedures 1.7 ensure equipment is clean for further use 1.8 remove and store materials in a correct and safe manner			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Conclude manufacturing operations (continued)	1.9 deal appropriately with materials at completion of the manufacturing operations to include the following: – finished products/components and one other type of material from the following: – production materials – surplus consumable materials – waste or scrap materials 1.10 minimise any waste during completion/shutdown activities 1.11 Resolve any problems with the completion/shutdown activity within the limits of their responsibility 1.12 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include two of the following: – supervisor – team leader – maintenance personnel – quality control 1.13 maintain a safe and organised work area at all times			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.14 report on status of completion/shutdown of manufacturing operations 1.15 use the correct reporting procedure on completion of manufacturing operations for one of the following: – output – downtime – quality – maintenance requirements – scrap – work in progress 1.16 confirm completion/shutdown is correct and complete according to defined procedures/instructions			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to conclude manufacturing operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the activities 2.2 explain the specific safe working practices that need to be observed while carrying out the completion/shutdown activities 2.3 explain the hazards associated with carrying out the completion/shutdown activities and how they can be minimised 2.4 explain what personal protective equipment needs to be used during the completion/shutdown and cleaning activities and where it can be obtained 2.5 explain what actions need to be taken in case of emergencies when shutting down machines or fully automated manufacturing operations 2.6 explain how to obtain the necessary job instructions, equipment shutdown procedures and how to interpret them 2.7 explain when in the manufacturing operation is it safe to shut down the equipment 2.8 explain what completion checks need to be made 2.9 explain the procedures for cleaning the equipment 2.10 explain the procedures for storing and removing materials and waste			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2b Know how to conclude manufacturing operations (continued)	2.11 explain what methods can be used to minimise waste during completion activities 2.12 explain the potential problems with carrying out the completion activities and how they can be avoided 2.13 explain what problems can occur in completion/shutdown activities 2.14 explain how to identify problems within completion/shutdown activities 2.15 explain what actions they can take within the limits of their responsibility to solve the problems 2.16 explain who to report unsolvable problems to, or problems that are not within the limits of their responsibility 2.17 explain what documentation needs to be completed and why it is important to complete it accurately and legibly 2.18 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.19 explain who the other appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

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Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 7: Ensuring effective handover of manufacturing operations

Unit reference number: H/601/3014

Level: 2

Credit value: 9

Guided learning hours: 42

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to ensure the effective handover of continuous manufacturing operations to other people.

This involves preparing for the handover according to defined company procedures, and taking account of all health and safety requirements. The learner will be expected to check all operating systems, and that equipment conforms to the relevant handover instructions. They will be expected to monitor and control the handover operation, minimising waste and making adjustments within the limits of their permitted authority. The equipment should be cleaned where necessary, and materials and equipment stored correctly. The work area must also be left in a clean and tidy manner.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1 and 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.10, 1.11, 1.12, 1.13, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Ensure effective handover of manufacturing operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations 1.2 follow relevant handover procedures and safety requirements to include all of the following: – health and safety and environmental regulations – safe working practices – company procedures – job instructions – equipment handover instructions 1.3 obtain and follow the correct job instructions and any relevant handover instructions 1.4 carry out pre-handover checks, and prepare the manufacturing operation for handover			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 prepare and handover equipment used in the manufacturing operations to include one of the following: – machinery – process plant – tools (hand-held and portable) – material handling arrangements – equipment specific to the operation 1.6 maintain the work area in readiness for handover of the manufacturing operations to include all of the following: – cleanliness of equipment and tooling – accessibility for receipt and removal of materials – freedom from obstructions and hazards – equipment and material correctly in place 1.7 make sure that they take account of any specific safety requirements involved in the handover 1.8 perform the handover operation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Ensure effective handover of manufacturing operations (continued)	1.9 monitor and control the handover operation, and identify any faults, variation, problems that occur 1.10 make any necessary adjustments within their permitted authority 1.11 make permitted adjustments to solve handover problems to include two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity 1.12 report any faults, variations or problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.13 minimise any waste during the handover operation 1.14 confirm handover as correct and complete 1.15 complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to ensure effective handover of manufacturing operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the handover activities 2.2 explain the specific safe working practices that need to be observed while carrying out the handover activities 2.3 explain the hazards associated with carrying out the handover activities and how they can be minimised 2.4 explain what personal protective equipment needs to be used during the preparation activities for handover and where it can be obtained 2.5 explain what actions need to be taken in case of emergencies when handing over machines or fully automated manufacturing processes/operations 2.6 explain how to obtain the necessary job instructions, handover procedures, and how to interpret them 2.7 explain when in the manufacturing operation is it safe to carry out the handover procedure 2.8 explain what pre-handover checks need to be made 2.9 explain what the layout of the work area should be for the handover operation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2b Know how to ensure effective handover of manufacturing operations (continued)	2.10 explain the procedures for cleaning the equipment, and storing and removing materials and waste 2.11 explain how to carry out the handover operation safely and correctly 2.12 explain what faults, problems or variations can occur in the handover operation 2.13 explain how to identify faults, problems or variations in the handover operation 2.14 explain what adjustments they are allowed to make during the handover operation 2.15 explain why it is important to report faults, variations or problems that are outside their permitted authority or they cannot solve 2.16 explain what documentation may need to be completed on handover, and why it is important to complete it accurately and legibly 2.17 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.18 explain who the other appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 8: Receiving and checking incoming materials

Unit reference number: T/601/3017

Level: 2

Credit value: 9

Guided learning hours: 42

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to receive and check incoming materials into the workplace.

This involves preparing for and receiving the materials according to defined company procedures, and taking account of all health and safety requirements. The learner will be expected to prepare their work area in readiness for the receipt of the materials and this will include ensuring accessibility for receipt and removal of the materials and ensuring the area is free from obstructions or potential hazards. They will need to check that the materials conform to the relevant specification/s, and that sufficient materials are available for the manufacturing operations being performed. Any incorrect documentation, equipment, tools and/or materials should be corrected within the limits of their responsibility, otherwise it should be promptly reported to the appropriate person.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2, 1.12 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.10, 1.11, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Receive and check incoming materials	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow relevant procedures and safety requirements for the receipt of the materials to include all of the following: – health and safety and environmental regulations – safe working practices – company procedures – job instructions 1.3 obtain and follow the correct job instructions and any relevant material specifications 1.4 carry out work area preparations for the receipt of the incoming materials according to specified procedures 1.5 prepare and maintain the work area to include all of the following: – accessibility for receipt and removal of materials – freedom from obstructions and hazards – correct material layout			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 make sure that they take account of any additional safety requirements specific to incoming materials 1.7 carry out receipt of the incoming materials according to specified operating procedures			
1b Receive and check incoming materials (continued)	1.8 receive materials for manufacturing operations to include one of the following: – production materials – consumable materials – hazardous materials 1.9 confirm that the materials meet the specification for type, quantity and quality 1.10 resolve any problems that are within the limits of their responsibility in two of the following areas: – material quantity – material quality – delivery time of material – work area – location of material			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.11 report any problems that they cannot solve or are outside their permitted authority to the appropriate person to include one of the following: – supervisor/manager – team leader – quality control 1.12 maintain a safe and organised work area at all times 1.13 confirm materials are correct and complete 1.14 complete documentation accurately and legibly			
2a Know how to receive and check incoming materials	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the receipt of the materials 2.2 explain the specific safe working practices that need to be observed while carrying out the receipt of materials 2.3 explain the hazards associated with carrying out the receipt of the materials and how they can be minimised 2.4 explain what personal protective equipment needs to be used and where it can be obtained			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 explain how to obtain the necessary job instructions, material specifications and preparation procedures and how to interpret them 2.6 explain how the work area needs to be laid out, in readiness for the receipt of the materials 2.7 explain what the arrangements are for receiving the materials 2.8 explain what checks are needed to make sure materials meet the required specification 2.9 explain what methods can be used to minimise waste during receipt of materials			
2b Know how to receive and check incoming materials (continued)	2.10 explain the potential problems with carrying out the receipt of materials and how they can be avoided 2.11 explain what problems can occur in receiving materials 2.12 explain how to identify problems with receiving materials 2.13 explain what to do if the materials are not to the required specification or are damaged or unsuitable for the planned production operations 2.14 explain what actions they can take within the limits of their responsibility to solve problems			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.15 explain who to report unsolvable problems to, or problems that are not within the limits of their responsibility 2.16 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.17 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 9: Controlling manufacturing operations

Unit reference number: M/601/3095

Level: 2

Credit value: 19

Guided learning hours: 42

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to control manufacturing operations according to defined operating procedures.

It involves gathering data that accurately reflects the condition of the manufacturing process, interpreting the data to identify any trends, variance or discrepancy, and restoring operating parameters to the process specifications promptly by making any adjustments allowable within the limits of the learner's responsibility. The learner will also be expected to seek authorisation from the appropriate person for any necessary adjustments that are outside the limits of their responsibility and ensure that production continues to comply with the specification.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.11, 1.12, 1.13, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Control manufacturing operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant procedures and safety requirements to include all of the following: – health and safety and environmental regulations – safe working practices – job instructions – equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant production and quality specifications 1.4 collect data in relation to one of the following production methods: – hand manufacturing operations – manually operated machine operations – fully automated machine operations – combined manufacturing			

	operations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 collect data which reflects the condition of the manufacturing process to include three of the following: – quality of finished product – dimensional accuracy – raw material use – consumable material use – machinery condition – equipment or tool condition – output/production targets 1.6 collect up-to-date, comprehensive and accurate operational data in line with production requirements 1.7 record the data in the required format accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Control manufacturing operations (continued)	1.8 use the data collected to make decisions about the condition of the manufacturing process 1.9 deal with two of the following problems identified by the data collected: – trends – variation from specification – discrepancies 1.10 deal with problems within the manufacturing process by both of the following methods: – by taking action themselves – by reporting the problem to someone else 1.11 make any allowable adjustments to the operating parameters to ensure the production output meets the specification requirements			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.12 make adjustments in relation to three of the following: – process effectiveness relating to operational sequence – process effectiveness relating to production time – process characteristics relating to quality – process characteristics relating to accuracy – materials utilisation relating to production – materials utilisation relating to consumables – manufacturing programme changes – operational safety 1.13 seek authorisation from the appropriate person for any adjustments to operating parameters which are outside the limits of their responsibility 1.14 check that production continues to comply with specification following any adjustments made			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to control manufacturing operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the manufacturing activities 2.2 explain the specific safe working practices, data collection and adjustment procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the data collection and equipment adjustment procedures and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, equipment operating and adjustment procedures and quality control specifications that are used, and how to interpret and understand them 2.7 describe the type of production data which will provide information about the various aspects of the manufacturing operation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 explain how to collect the required data and how it is to be used and recorded 2.9 explain how to check and interpret data relating to manufacturing operations 2.10 explain why it is important to maintain the security of the information collected			
2b Know how to control manufacturing operations (continued)	2.11 describe the potential problems with the data collected such as trends, variance or discrepancy, how these occur and how to correct them 2.12 explain how to deal with problems which affect aspects of data collection, data interpretation and adjustments to manufacturing operations 2.13 describe the adjustments that can be made to manufacturing operations, equipment and tools, materials and manufacturing programme and the procedures involved 2.14 describe the various process operating parameters on the equipment used and how adjustments to these will affect the manufacturing output 2.15 explain why it is important to follow the specified adjustment sequence and procedure at all times			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.16 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.17 explain how to report any problems they are not able to deal with themselves and why it is important to report faults, variations or problems immediately 2.18 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.19 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 10: Contributing to improving effectiveness in the workplace

Unit reference number: A/601/3097

Level: 2

Credit value: 8

Guided learning hours: 35

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to contribute to improving effectiveness within the manufacturing environment in accordance with approved procedures and practices.

It involves working effectively in relation to the learner's own and others' work, informing others of any delay which may affect them, reviewing their objectives and targets for their personal development to ensure that their skills and knowledge match those required and are employed effectively within the manufacturing environment. It also covers dealing with problems that affect the manufacturing process, contributing to and communicating any opportunities for improvements that could be made to working practices and procedures.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7, 1.8, 1.9, 1.10, 1.11, 1.12.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Contribute to improving effectiveness in the workplace	1.1 work safely at all times, complying with health and safety and other relevant regulations and guidelines 1.2 work in a way which is effective in relation to their own work and the work of colleagues within the organisation 1.3 work effectively with colleagues to include three of the following: – colleagues in same work group – colleagues in other work groups – immediate supervision/line management – personnel in other departments – external contacts – those for whom they have responsibility 1.4 make sure that any actions that they take are within the limits of their own responsibility and authority 1.5 contribute to reviewing their personal training and development as is appropriate to the job role			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 review personal development objectives and targets to include one of the following: – dual or multi-skilling – training on new equipment/technology – increased responsibility – understanding of company working practices, procedures, plans and policies – other specific requirements 1.7 deal promptly and effectively with problems within their responsibility			
1b Contribute to improving effectiveness in the workplace (continued)	1.8 deal with problems affecting the manufacturing process to include three of the following: – materials – tools and equipment – machinery or plant – drawings/specifications – job instructions – production quality – production output/timescales – people – safety			

	– activities or procedures			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.9 report problems that they cannot resolve and/or are not their responsibility 1.10 identify any opportunities for improvements to working practices and procedures 1.11 contribute to organisational procedures for identifying opportunities for improvement to one of the following: – working practices – working methods – quality – safety – tools and equipment – suppliers – internal communication – customer service – training and development – teamwork – other			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.12 share any suggestions for improving working practices and procedures with others using the appropriate method 1.13 present ideas for potential improvements using two of the following methods: – orally – written – electronic – visually aided			
2a Know how to contribute to improving effectiveness in the workplace	2.1 describe the relevant health and safety requirements and guidelines associated with their role within the workplace 2.2 explain how to obtain and correctly use any equipment used to protect the health and safety of themselves and their colleagues 2.3 explain what factors within the workplace affect effectiveness and why it is importance to work effectively 2.4 explain the potential difficulties and delays which may affect their work and who else may also be affected by them			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 explain how to communicate information, difficulties and ideas to colleagues in the appropriate way 2.6 explain why it is important to contribute to their own personal development 2.7 explain the benefits of continuous personal development 2.8 explain what training opportunities are available in the workplace 2.9 explain why it is important to review training and development objectives 2.10 explain who to discuss training and development issues with 2.11 explain the procedures for dealing with and reporting problems that affect the manufacturing process			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2b	Know how to contribute to improving effectiveness in the workplace (continued)	2.12	explain the types of problems that occur in the manufacturing process undertaken and how they can be avoided			
		2.13	explain what techniques can be used to help solve problems			
		2.14	explain who to refer to if they have problems that they cannot resolve			
		2.15	explain why it is important to suggest ways in which they think improvements to working practices may be made			
		2.16	explain how to identify and define improvement opportunities			
		2.17	explain the procedure for making suggestions for improvements			
		2.18	explain how do the suggestions need to be made (such as verbally, in writing, formally or informally)			
		2.19	explain the benefits to themselves and the organisation if improvements can be identified			
		2.20	explain how to use the data and information available to them to communicate their ideas effectively to others			
		2.21	explain what their responsibilities are with regard to the reporting lines and procedures in their working area			
		2.22	explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 11: Analysing the results of inspection and confirming quality of production

Unit reference number: J/601/3099

Level: 2

Credit value: 14

Guided learning hours: 35

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to evaluate the results of the inspection and testing procedure, taking the appropriate action to confirm the quality of the products and materials according to defined operating procedures.

It involves confirming which products and materials comply with the specified quality control requirements after inspection and testing. It also involves identifying which products and materials do not conform to the specified quality control requirements and evaluating what action is required. Materials and products that do not conform to the required quality standards must be dealt with in the appropriate way according to specified quality control requirements. This also involves the reporting of results of the sampling procedure to the appropriate person.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7 (in relation to products or materials which do not meet quality specifications), 1.9, 1.10.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Analyse the results of inspection and confirm quality of production	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant inspection, testing procedures and safety requirements to include all of the following: – health and safety and environmental regulations – safe working practices – quality control job instructions – machinery/equipment safety procedures – company standards and procedures 1.3 report on samples obtained from one of the following manufacturing methods: – hand manufacturing operations – manually operated machine operations – computer controlled operations – fully automated machine operations – combined manufacturing			

	operations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.4 make sure they have all the required data to hand before starting to analyse them 1.5 confirm quality requirements related to both of the following sampling procedures: – random – defined (eg first/final)			
1b Analyse the results of inspection and confirm quality of production (continued)	1.6 accurately interpret the data/results gained from two of the following inspection and testing procedures: – visual inspection – measurement – analysis testing – functional operation 1.7 accurately distinguish between products and materials which meet the quality requirements and those which do not 1.8 take appropriate action with products and materials according to the results of the inspection and testing procedure 1.9 take appropriate action following the outcome of the evaluation activities related to both of the following: – acceptable samples – within required quality – unacceptable samples – outside			

	required quality			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.10 report any problems that they cannot solve, or that are outside their permitted authority, to the appropriate person to include one of the following: – team leader – production supervisor – quality control supervisor			
2a Know how to analyse the results of inspection and confirm quality of production	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the inspection and analysis activities 2.2 explain the specific safe working practices and environmental regulations that need to be observed 2.3 explain the hazards associated with the analysis and testing procedures and how they can be minimised 2.4 explain what personal protective equipment needs to be used during the activities and where it can be obtained 2.5 explain how to obtain the necessary job instructions, analysis and evaluation documentation and quality control specifications that are used, and how to interpret them 2.6 explain the correct methods of handling and storing the samples 2.7 explain how to confirm samples, products and materials meet the quality requirements			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2b	Know how to analyse the results of inspection and confirm quality of production (continued)	2.8	explain how to identify which samples, products and materials do not meet the quality requirements			
		2.9	explain how to interpret the results of the inspection and testing procedure			
		2.10	explain what action needs to be taken with samples, products and materials that do not meet the quality requirements			
		2.11	explain the potential problems associated with stages of the inspection and testing process, how they occur and how they can be corrected			
		2.12	explain how to report any problems they are not able to deal with themselves and why it is important to report faults, variations or problems immediately			
		2.13	explain what their responsibilities are with regard to the reporting lines and procedures in their working area			
		2.14	explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 12: Recording and reporting inspection and test results

Unit reference number: K/601/3113

Level: 2

Credit value: 8

Guided learning hours: 39

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to record and report on the results of inspection and testing activities according to defined operating procedures.

It involves completing required quality control documentation accurately and in full, and in making reports to the appropriate people in line with organisational procedures. This will involve completing checklist and written documentation, and in making verbal and written reports on the results of inspection and test activities.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.11.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Record and report inspection and test results	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 obtain and use the correct quality control documentation for the manufacturing method and product 1.3 use the correct documentation for one of the following: – hand manufacturing operations – manually operated machine operations – computer controlled operations – fully automated machine operations – combined manufacturing operations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.4 record details in relation to two of the following as appropriate to the process: – visual inspection – measurement – analysis testing – functional operation 1.5 record the results of the inspection activities in the appropriate format to include two of the following: – check box/tick list – written – electronic 1.5 complete records related to both of the following sampling procedures: – random – defined (eg first/final)			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Record and report inspection and test results (continued)	1.7 record inspection and test results accurately and legibly 1.8 record all required details of the inspection and test activities and results 1.9 pass completed records on to the correct person/location 1.10 provide required reports on time and through the correct channels of communication to include two of the following: – oral – written – electronic 1.11 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – team leader – production supervisor – quality control supervisor			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to record and report inspection and test results	2.1 describe the relevant health and safety requirements of the work area in which they are recording the results of inspection/testing activities 2.2 explain what specific safe working practices, sampling collection, testing procedures and environmental regulations need to be observed 2.3 explain how to obtain the necessary quality control documentation that is used 2.4 explain how to complete quality control documentation 2.5 explain why it is important to complete documentation accurately and legibly 2.6 describe when quality control documentation should be completed 2.7 explain what information needs to be recorded in relation to the manufacturing method and sample type			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2b	Know how to record and report inspection and test results (continued)	2.8	explain what use is made of quality control documentation by the organisation			
		2.9	explain where/to whom they should pass on completed records			
		2.10	describe the potential problems associated with completing records and passing on reports, how they can be avoided and what can be done if they arise			
		2.11	explain how to report any problems they are not able to deal with themselves and why it is important to report problems immediately			
		2.12	explain what their responsibilities are with regard to the reporting lines and procedures in their working area			
		2.13	explain who the appropriate people are to whom records should be passed and problems reported to			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 13: Producing shaped products

Unit reference number: R/601/3025

Level: 2

Credit value: 18

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to produce shaped products by material removal to modify the shape of a component, or generate a component from stock material.

This will involve producing shaped products according to defined operating procedures. The learner will be expected to monitor and control the shaping operation, minimising any waste, making adjustments within the limits of their permitted authority and ensuring that the completed components are to the required specification. Meeting production targets will be an important issue and their production records must show consistent and satisfactory performance.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7, 1.8, 1.9, 1.10, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce shaped products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant shaping procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – shaping equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant shaping procedure and quality specifications 1.4 use the correct shaping tools, equipment, materials and work holding methods for the shaping operations being performed 1.5 perform shaping operations using one of the following methods: – hand shaping operations – manually operated machine shaping operations			

	– fully automated machine shaping operations – combined shaping operations			
	1.6 perform the shaping operation according to instructions and safe operating procedures 1.7 monitor and control the shaping operation and identify any faults, variations or problems that occur 1.8 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce shaped products (continued)	1.9 make any necessary adjustments within their permitted authority 1.10 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.11 minimise any waste during the shaping operation 1.12 produce shaped products which comply with the shaping specification and quality requirements 1.13 carry out checks of the shaped products to include the following: – completeness of shaping operations and two other checks from the following: – dimensional accuracy of shaped product – quality of finish – freedom from damage or false tool cuts			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.14 work to achieve their production targets for both of the following: – output – quality 1.15 deal appropriately with finished components and complete any necessary documentation accurately and legibly			
2a Know how to produce shaped products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the shaping operations 2.2 explain the specific safe working practices, shaping procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the shaping operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the shaping activities and where it can be obtained			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6 explain how to obtain the necessary job instructions, operating procedures and shaping specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the shaping operations undertaken and how to check that they are in a safe and usable condition 2.8 explain how to hold the materials securely without causing damage or distortion 2.9 explain how to operate, monitor and control the shaping equipment to achieve the required specification 2.10 explain the specific shaping operations to be performed			
2b Know how to produce shaped products (continued)	2.11 explain why it is important to follow the specified shaping sequence and procedure at all times 2.12 explain what methods can be used to minimise waste during shaping operations 2.13 explain what faults, problems or variations can occur in the shaping operation 2.14 explain how to identify faults, problems or variations in the shaping operation 2.15 explain what allowable adjustments they can make to achieve specification in the shaping operation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.16 explain why it is important to report faults, variations or problems that are outside their permitted authority and/or they cannot solve immediately 2.17 explain how to check the quality of the shaped components, against the required quality standards and what tools and equipment are used 2.18 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.19 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.20 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 14: Producing products by assembly operations

Unit reference number: A/601/3035

Level: 2

Credit value: 18

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out product assembly operations that bring together a number of components in a logical sequence to construct an assembly or sub-assembly.

This will involve carrying out the assembly operation according to defined operating procedures. The learner will be expected to monitor and control the assembly operation, making adjustments within their permitted authority, minimising any waste and ensuring that the completed assemblies are to the required specification. Meeting production targets will be an important issue and their production records must show consistent and satisfactory performance.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.9, 1.10, 1.11, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce products by assembly operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant assembly procedures and safety requirements according to all of the following: – health and safety regulations – safe working practices – assembly instructions – assembly equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant assembly procedure and quality specifications 1.4 check that they have all the necessary components and that they are undamaged and in a usable condition			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 position and align the components correctly 1.6 secure the components in position using the specified fastening device/method 1.7 use appropriate tools, equipment and materials during the assembly operations 1.8 carry out assembly operations using one of the following methods: – hand assembly operations – manually operated machine assembly operations – fully automated assembly operations – combined assembly operations 1.9 monitor and control the assembly operation and identify any faults/variations/problems that occur			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce products by assembly operations (continued)	1.10 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – productivity – manufacturing changes 1.11 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – quality control – team leader 1.12 produce assembled product/s which comply with the specification and quality requirements			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.13 carry out checks of the assembly to include the following: – completeness of the assembly and three other checks from the following: – positional accuracy of components – correct orientation of components – component alignment – component security – freedom from damage or foreign objects – volume/quantity 1.14 work to achieve their production targets for both of the following: – output – quality 1.15 deal appropriately with finished assemblies and complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to produce products by assembly operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the assembly operations 2.2 explain the specific safe working practices, assembly procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the assembly operations and how can they be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the assembly activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and assembly specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the assembly operation and how to check that they are in a safe and usable condition 2.8 explain what are the specific assembly operations to be performed			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain why it is important to follow the specified assembly sequence and procedure at all times 2.10 explain what methods are used to align and position the components prior to fixing them into position			
2b Know how to produce products by assembly operations (continued)	2.11 explain what methods are used to fix the components securely in position 2.12 explain what methods can be used to minimise waste during the assembly operation 2.13 explain how to monitor the quality of the assembly and identify any variations from the specification 2.14 explain how to check the quality of the assembly, against the required quality standards and what tools and equipment are used 2.15 explain what fault, problems or variations can occur in the assembly operation 2.16 explain how to identify the faults, problems or variations in the assembly operation 2.17 explain what allowable adjustments they can make to achieve the required outcome			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.18 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.19 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.20 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date:_____

Learner signature: _____ Date:_____

Assessor signature: _____ Date:_____

Internal verifier signature: _____ Date:_____
(*if sampled*)

Unit 15: Producing joined products

Unit reference number: R/601/3039

Level: 2

Credit value: 17

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out joining operations by bringing together two or more materials which lead to a permanent physical change in the properties of the materials. This may be by the use of one of the following 'joining mediums':- soldering, bonding, gluing, welding or brazing.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7, 1.8, 1.9, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce joined products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant joining procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – joining equipment/tool operating instructions – company standards and procedures 1.3 prepare the surface to be joined, making sure that it is free of any defects which may affect the joining operation 1.4 use the correct joining tools, equipment and techniques to correctly position and align the components to be joined			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 perform joining operations using one of the following methods: – hand joining operations – manually operated machine joining operations – fully automated machine joining operations – combined joining operations 1.6 perform the joining operation according to instructions and safe operating procedures 1.7 monitor and control the joining operation and identify any faults, variations or problems that occur 1.8 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce joined products (continued)	1.9 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.10 minimise any waste during the joining operation 1.11 produce joined products which comply with the joining specification and quality requirements 1.12 carry out checks of the joined products to include all of the following: – completeness of joining operations – positional accuracy of product – joint quality and appearance – security of joint – freedom from excessive joining medium 1.13 work to achieve their production targets for both of the following: – output – quality 1.14 deal appropriately with finished components and complete any necessary documentation accurately			

	and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to produce joined products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the joining operations 2.2 explain the specific safe working practices, joining procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the joining operations and they how can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the joining activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and joining specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the joining operations undertaken and how to check that they are in a safe and usable condition 2.8 explain the methods of surface preparation that are used in the joining operation and why they are necessary			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain how to correctly position and align the components to be joined 2.10 explain the specific joining operations to be performed 2.11 explain how to perform the joining process to achieve the required specification			
2b Know how to produce joined products (continued)	2.12 explain why it is important to follow the specified joining sequence and procedure at all times 2.13 explain what methods can be used to minimise waste during joining operations 2.14 explain what faults, problems or variations can occur in the joining operation 2.15 explain how to identify faults, problems or variations in the joining operation 2.16 explain what allowable adjustments they can make to achieve specification in the joining operation 2.17 explain why it is important to report faults, variations or problems that are outside their permitted authority and/or they cannot solve immediately 2.18 explain how to monitor and check the quality of the joined components, against the required quality standards and what tools and equipment are used			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.19 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.20 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.21 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 16: Producing products by processing

Unit reference number: F/601/3067

Level: 2

Credit value: 17

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out processing operations on materials or products which involve using a pre-defined sequence of events that changes the physical appearance or properties of the material or product. Examples of this could be heat treatment, photo process operations, distillation, mixing of materials etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2, 1.4 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.8, 1.9, 1.10, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce products by processing	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant processing procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – processing equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant processing procedure and quality specifications 1.4 follow the pre-defined sequence of events at all times 1.5 use the correct tools, equipment and materials to further the process			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 perform processing operations using one of the following methods: – hand processing operations – manually operated machine processing operations – fully automated machine processing operations – combined processing operations 1.7 perform the processing operation according to instructions and safe operating procedures 1.8 monitor and control the processing operation and identify any faults, variations or problems that occur 1.9 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce products by processing (continued)	1.10 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.11 minimise any waste during the processing operation 1.12 produce processed products which comply with the processing specification and quality requirements 1.13 carry out checks of the processed products to include the following: – completeness of processing operations and two other checks from the following: – appearance of product – freedom from contamination – quantity – volume 1.14 work to achieve their production targets for both of the following: – output – quality 1.15 complete any necessary documentation accurately			

	and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to produce products by processing	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the processing operations 2.2 explain the specific safe working practices, processing procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the processing operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the processing activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and processing specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the processing operations undertaken and how to check that they are in a safe and usable condition			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 explain why it is important to follow the pre-determined sequence of events in the processing operation 2.9 explain the consequences of not following the pre-determined sequence of events in the processing operation 2.10 explain the specific processing operations to be performed			
2b Know how to produce products by processing (continued)	2.11 explain how to perform the processing operation to achieve the required specification 2.12 explain what methods can be used to minimise waste during processing operations 2.13 explain what faults, problems or variations can occur in the processing operation 2.14 explain how to identify faults, problems or variations in the processing operation 2.15 explain what allowable adjustments they can make to achieve specification in the processing operation 2.16 explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve immediately			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.17 explain how to monitor and check the quality of the processed products, against the required quality standards 2.18 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.19 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.20 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 17: Producing formed products

Unit reference number: T/601/3079

Level: 2

Credit value: 18

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out forming operations by applying physical pressure to change the shape of the material or component. This could be by pressing, bending, vacuum forming, stretching, extrusion, shrinking etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7, 1.8, 1.9, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce formed products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant forming procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – forming equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant forming procedure and quality specifications 1.4 use the correct forming tools, equipment, materials and work holding methods for the forming operations being performed 1.5 perform forming operations using one of the following methods: – hand forming operations – manually operated machine forming operations			

	– fully automated machine forming operations – combined forming operations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 perform the forming operation according to instructions and safe operating procedures 1.7 monitor and control the forming operation and identify any faults, variations or problems that occur 1.8 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce formed products (continued)	1.9 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.10 minimise any waste during the forming operation 1.11 produce formed products which comply with the forming specification and quality requirements 1.12 carry out checks of the formed products to include all of the following: – completeness of forming operations – shape/profile of formed product – quality of finish and appearance – freedom from deformity or ripples – freedom from damage or tool marks 1.13 work to achieve their production targets for both of the following: – output – quality 1.14 deal appropriately with finished components and			

	complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to produce formed products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the forming operations 2.2 explain the specific safe working practices, forming procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the forming operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the forming activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and forming specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the forming operations undertaken and how to check that they are in a safe and usable condition 2.8 explain how to hold the materials securely without causing damage or distortion			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain how to operate, monitor and control the forming equipment to achieve the required specification 2.10 explain the specific forming operations to be performed			
2b Know how to produce formed products (continued)	2.11 explain why it is important to follow the specified forming sequence and procedure at all times 2.12 explain what methods can be used to minimise waste during forming operations 2.13 explain what faults, problems or variations can occur in the forming operation 2.14 explain how to identify faults, problems or variations in the forming operation 2.15 explain what allowable adjustments they can make to achieve specification in the forming operation 2.16 explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve immediately 2.17 explain how to check the quality of the formed components, against the required quality standards and what tools and equipment are used			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.18 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.19 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.20 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 18: Finishing products

Unit reference number: M/601/3081

Level: 2

Credit value: 17

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out finishing operations on materials or products that is used to either; enhance its appearance, increase its protection or improve its safety properties. Examples of this could be applying decorative coatings, applying protective coatings, removing sharp edges etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.8, 1.9, 1.10, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Finish products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant finishing procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – finishing equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant finishing procedure and quality specifications 1.4 use the correct finishing tools, equipment, materials for the finishing operations being performed 1.5 perform finishing operations using one of the following methods: – hand finishing operations – manually operated machine finishing operations			

	– fully automated machine finishing operations – combined finishing operations			
Learning outcomes	**Assessment criteria**	**Evidence type**	**Portfolio reference**	**Date**
	1.6 perform the finishing operation according to instructions and safe operating procedures 1.7 follow the correct sequence of events in the finishing operation 1.8 monitor and control the finishing operation and identify any faults, variations or problems that occur 1.9 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Finish products (continued)	1.10 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.11 minimise any waste during the finishing operation 1.12 produce finished products which comply with the finishing specification and quality requirements 1.13 carry out checks of the finished products to include all of the following: – completeness of finishing operations – quality of finish and appearance – freedom from damage – freedom from deformity – freedom from contamination 1.14 work to achieve their production targets for both of the following: – output – quality 1.15 deal appropriately with finished components and complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to finish products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the finishing operations 2.2 explain the specific safe working practices, finishing procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the finishing operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the finishing activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and finishing specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the finishing operations undertaken and how to check that they are in a safe and usable condition			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 explain how to operate, monitor and control the finishing equipment to achieve the required specification 2.9 explain the specific finishing operations to be performed 2.10 explain why it is important to follow the specified finishing sequence and procedure at all times			
2b Know how to finish products (continued)	2.11 explain what methods can be used to minimise waste during finishing operations 2.12 explain what faults, problems or variations can occur in the finishing operation 2.13 explain how to identify faults, problems or variations in the finishing operation 2.14 explain what allowable adjustments they can make to achieve specification in the finishing operation 2.15 explain why it is important to report faults, variations or problems that are outside their permitted authority and/or they cannot solve 2.16 explain how to check the quality of the finished components, against the required quality standards and what tools and equipment are used			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.17 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.18 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.19 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 19: Producing moulded products

Unit reference number: J/601/3085

Level: 2

Credit value: 18

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out moulding operations that involves using a pattern or mould to change the shape of the material. This will include injection moulding, casting, laying up using resin and fibre materials etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.8, 1.9, 1.10, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce moulded products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant moulding procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – moulding equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant moulding procedure and quality specifications 1.4 use the correct moulding tools, equipment, materials and work holding methods for the moulding operations being performed 1.5 apply release agents to patterns/moulds when required			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.6 perform moulding operations using one of the following methods: – hand moulding operations – manually operated machine moulding operations – fully automated machine moulding operations – combined moulding operations 1.7 perform the moulding operation according to instructions and safe operating procedures 1.8 monitor and control the moulding operation and identify any faults, variations or problems that occur 1.9 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce moulded products (continued)	1.10 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.11 minimise any waste during the moulding operation 1.12 produce moulded products which comply with the specification and quality requirements 1.13 carry out checks of the moulded products to include all of the following: – completeness of moulding operations – shape/profile of moulded product – quality of finish and appearance – freedom from damage or deformity – freedom from contamination 1.14 work to achieve their production targets for both of the following: – output – quality			

	1.15 deal appropriately with moulded components and complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to produce moulded products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the moulding operations 2.2 explain the specific safe working practices, moulding procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the moulding operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the moulding activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and moulding specifications that are used, and how to interpret them 2.7 explain what tools and equipment are used for the moulding operations undertaken and how to check that they are in a safe and usable condition 2.8 explain how to apply release agents when required			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 explain how to operate, monitor and control the moulding equipment to achieve the required specification 2.10 explain the specific moulding operations to be performed			
2b Know how to produce moulded products (continued)	2.11 explain why it is important to follow the specified moulding sequence and procedure at all times 2.12 explain what methods can be used to minimise waste during moulding operations 2.13 explain what faults, problems or variations can occur in the moulding operation 2.14 explain how to identify faults, problems or variations in the moulding operation 2.15 explain what allowable adjustments they can make to achieve specification in the moulding operation 2.16 explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve immediately 2.17 explain how to check the quality of the moulded components, against the required quality standards and what tools and equipment are used			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.18 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.19 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.20 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date:_____

Learner signature: _____ Date:_____

Assessor signature: _____ Date:_____

Internal verifier signature: _____ Date:_____
(*if sampled*)

Unit 20: Producing packaged products

Unit reference number: D/601/3089

Level: 2

Credit value: 15

Guided learning hours: 60

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out packaging operations on finished products which may be for protective, decorative, marketing or transportation purposes. This will include wrapping, boxing, bagging, bottling etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.8, 1.9, 1.10, 1.15.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Produce packaged products	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant packaging procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – packaging equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant packaging procedure and quality specifications 1.4 use the correct packaging tools, equipment, materials for the packaging operations being performed			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.5 perform packaging operations using one of the following methods: – hand packaging operations – manually operated machine packaging operations – fully automated machine packaging operations – combined packaging operations 1.6 perform the packaging operation according to instructions and safe operating procedures 1.7 follow the correct sequence of events in the finishing operation 1.8 monitor and control the packaging operation and identify any faults, variations or problems that occur 1.9 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Produce packaged products (continued)	1.10 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.11 minimise any waste during the packaging operation 1.12 produce finished products which comply with the packaging specification and quality requirements 1.13 carry out checks of the packaged products to include the following: – completeness of packaging operations and three other checks from the following: – quality of finish and appearance – freedom from damage – freedom from contamination – security of packaging – quantity – volume			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.14 work to achieve their production targets for both of the following: – output – quality 1.15 deal appropriately with packaged components and complete any necessary documentation accurately and legibly			
2a Know how to produce packaged products	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the packaging operations 2.2 explain the specific safe working practices, packaging procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the packaging operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies 2.5 explain what personal protective equipment needs to be used during the packaging activities and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and packaging specifications that are used, and how to interpret them			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 explain what tools and equipment are used for the packaging operations undertaken and how to check that they are in a safe and usable condition 2.8 explain how to operate, monitor and control the packaging equipment to achieve the required specification 2.9 explain the specific packaging operations to be performed 2.10 explain why it is important to follow the specified packaging sequence and procedure at all times			
2b Know how to produce packaged products (continued)	2.11 explain what methods can be use to minimise waste during packaging operations 2.12 explain what faults, problems or variations can occur in the packaging operation 2.13 explain how to identify faults, problems or variations in the packaging operation 2.14 explain what allowable adjustments they can make to achieve the specification in the packaging operation 2.15 explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve 2.16 explain how to check the quality of the packaged products, against the required quality standards and what tools and equipment are used			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.17 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.18 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.19 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 21: Making products using computer controlled equipment

Unit reference number: R/601/3090

Level: 2

Credit value: 18

Guided learning hours: 67

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to produce products using computer controlled equipment. This could include using programmable logic controllers, monitoring the manufacturing operation, responding to error messages etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.7, 1.8, 1.9, 1.14.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Make products using computer controlled equipment	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant manufacturing procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – computer controlled equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant manufacturing procedure and quality specifications 1.4 ensure the manufacturing program is at the correct start point before running the equipment 1.5 follow the correct procedures for starting, running and stopping the computer program 1.6 respond in an appropriate manner to any error/display screen messages received 1.7 monitor and control the computer controlled			

	manufacturing operation and identify any faults, variations or problems that occur			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.8 make permitted adjustments related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			
1b Make products using computer controlled equipment (continued)	1.9 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.10 minimise any waste during the computer controlled manufacturing operation 1.11 produce manufactured products which comply with the specification and quality requirements			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.12 carry out checks of the manufactured products to include the following: – completeness of manufacturing operation and three other checks from the following: – dimensional accuracy – quality of finish – freedom from damage – quantity – volume – freedom from contamination 1.13 work to achieve their production targets for both of the following: – output – quality 1.14 deal appropriately with finished components and complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to make products using computer controlled equipment	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the computer controlled manufacturing operations 2.2 explain the specific safe working practices, equipment procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the computer controlled operations and how they can be minimised 2.4 explain what actions need to be taken in case of emergencies when using computer controlled equipment 2.5 explain what personal protective equipment may be used during the operation and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and manufacturing specifications that are used, and how to interpret them 2.7 explain how to start up and check the computer equipment is at the correct start point in the operating program 2.8 explain what to do if error messages are displayed 2.9 explain how to restart the equipment after it has been closed down in an emergency situation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2b Know how to make products using computer controlled equipment (continued)	2.10 explain what methods can be use to minimise waste during computer controlled manufacturing operations 2.11 explain what faults, problems or variations can occur in the computer controlled manufacturing operation 2.12 explain how to identify faults, problems or variations in the computer controlled manufacturing operation 2.13 explain what allowable adjustments they can make to achieve specification in the computer controlled manufacturing operation 2.14 explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve immediately 2.15 explain how to check the quality of the manufactured products, against the required quality standards 2.16 explain what documentation may need to be completed, and why it is important to complete it accurately and legibly 2.17 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.18 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 22: Manufacturing products using combined manufacturing operations

Unit reference number: H/601/3093

Level: 2

Credit value: 18

Guided learning hours: 67

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to produce products by several manufacturing processes using combined operations such as cutting/shaping, bending/forming, processing/packaging etc.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.6 (for identification of faults, variations or problems if none occur during observed work practice), 1.7, 1.8, 1.13.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Manufacture products using combined manufacturing operations	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant manufacturing procedures and safety requirements to include all of the following: – health and safety regulations – safe working practices – job instructions – equipment/tool operating instructions – company standards and procedures 1.3 obtain and follow the correct job instructions and any relevant manufacturing procedure and quality specifications tools 1.4 use the correct equipment for the manufacturing operations being performed 1.5 perform the combined operations according to instructions and safe operating procedures 1.6 monitor and control the combined operations and identify any faults, variations or problems that occur			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.7 make permitted adjustments to solve production faults, variations or problems related to two of the following: – quality – accuracy – material utilisation – operational safety – manufacturing changes – productivity			
1b Manufacture products using combined manufacturing operations (continued)	1.8 report any problems that they cannot solve or are outside their permitted authority to the appropriate person to include one of the following: – supervisor – team leader – quality control 1.9 minimise any waste during the combined operation 1.10 produce manufactured products which comply with the specification and quality requirements			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.11 carry out checks of the manufactured products to include the following: – completeness of manufacturing operation and three other checks from the following: – dimensional accuracy – quality of finish – freedom from damage – quantity – volume – freedom from contamination 1.12 work to achieve their production targets for both of the following: – output – quality 1.13 deal appropriately with finished components and complete any necessary documentation accurately and legibly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2a Know how to manufacture products using combined manufacturing operations	2.1 describe the relevant health and safety requirements of the work area in which they are carrying out the combined operation 2.2 explain the specific safe working practices, equipment procedures and environmental regulations that need to be observed 2.3 explain the hazards associated with carrying out the combined operations and how can they be minimised 2.4 explain what actions need to be taken in case of emergencies when using combined operations 2.5 explain what personal protective equipment may be used during the combined operations and where it can be obtained 2.6 explain how to obtain the necessary job instructions, operating procedures and manufacturing specifications that are used, and how to interpret them 2.7 explain what equipment is used for the combined operations and how they check that it is in a safe and usable condition 2.8 explain how to operate, monitor and control the combined operation to achieve the required specification 2.9 explain what are the specific manufacturing operations to be performed			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2b	Know how to manufacture products using combined manufacturing operations (continued)	2.10	explain what methods can be used to minimise waste during combined operations			
		2.11	explain what faults, problems or variations can occur in the combined operations			
		2.12	explain how to identify faults, problems or variations in the combined operation			
		2.13	explain what allowable adjustments they can make to achieve specification in the combined operation			
		2.14	explain why it is important to report faults, variations or problems that are outside their permitted authority or that they cannot solve immediately			
		2.15	explain how to check the quality of the manufactured products, against the required quality standards			
		2.16	explain what documentation may need to be completed, and why it is important to complete it accurately and legibly			
		2.17	explain what their responsibilities are with regard to the reporting lines and procedures in their working area			
		2.18	explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 23: Carrying out inspection and testing activities

Unit reference number: H/601/3112

Level: 2

Credit value: 16

Guided learning hours: 53

Unit summary

This unit covers the skills and knowledge needed to prove the competences required to carry out inspection and testing activities according to defined operating procedures.

It involves gathering and preparing samples of materials and products for inspection and testing to ensure that the learner complies with the quality control requirements. This will involve checks and tests such as visual checks for defects and appearance, checks for dimensional accuracy and tests of product specification that may be carried out by the learner or sent to other departments for specific analysis.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment and must be assessed in accordance with the 'Semta Assessment strategy'. Detailed information is given in *Annexe D.*

Unit specific additional assessment requirements:

Assessment criteria 1.1, 1.2 should be observed and recorded over a period of time.

The use of simulation within a realistic working environment is acceptable for assessment criteria 1.10, 1.13.

Assessment methodology

Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1a Carry out inspection and testing activities	1.1 work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 1.2 follow the relevant sampling procedures and safety requirements to include all of the following: – health and safety and environmental regulations – safe working practices – quality control job instructions – machinery/equipment safety procedures – company standards and procedures 1.3 collect production samples in relation to one of the following manufacturing methods: – hand manufacturing operations – manually operated machine operations – computer controlled operations – fully automated machine operations – combined manufacturing operations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.4 obtain and follow the correct job instructions and any relevant quality control specifications 1.5 carry out the inspection and testing activities using the specified methods and equipment 1.6 carry out sampling activities to include both of the following sampling procedures: – random – defined (eg first/final) 1.7 work in line with all of the following aspects of the inspection specification: – use the correct method of sampling – obtain the required number of samples – obtain the correct size of samples – use the correct source of sample – take samples at the correct time/frequency			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1b Carry out inspection and testing activities (continued)	1.8 take samples of the production output at the required frequency and in line with the inspection specification and operating procedures 1.9 handle and store the samples safely and correctly in keeping with the quality control procedures 1.10 transfer any samples which need to be inspected and tested in other departments promptly and in the correct way 1.11 prepare samples for inspection and testing in line with the defined procedures 1.12 carry out checks of the samples to include two of the following as is appropriate to the process: – visual inspection – measurement – analysis testing – functional operation 1.13 report any problems that they cannot solve or that are outside their permitted authority to the appropriate person to include one of the following: – team leader – production supervisor – quality control supervisor			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2a	Know how to carry out inspection and testing activities	2.1	describe the relevant health and safety requirements of the work area in which they are carrying out the sampling and inspection/testing activities			
		2.2	explain what specific safe working practices, sampling collection, testing procedures and environmental regulations need to be observed			
		2.3	explain the hazards associated with carrying out the sample collection and inspection and testing procedures and how they can be minimised			
		2.4	explain what personal protective equipment needs to be used during the sampling and inspection/testing activities and where it can be obtained			
		2.5	explain how to obtain the necessary job instructions, sampling equipment, inspection and testing procedures and quality control specifications that are used, and how to interpret them			
		2.6	explain how to carry out the sampling activities in line with the production and quality control procedures (including first off, random, defined and final sampling procedures)			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 explain why it is important to follow the specified sampling sequence and inspection and testing procedure at all times 2.8 describe what specific sampling and inspection and testing equipment is to be used, and the precautions to be taken when handling and using it			
2b Know how to carry out inspection and testing activities (continued)	2.9 explain what factors may make the equipment, or the samples obtained unsuitable for the testing or inspection activities 2.10 describe the correct methods of preparing, handling and storing the samples 2.11 explain how to carry out an inspection or testing of sample materials and products in line with operating and quality control procedures 2.12 describe the potential problems associated with stages of the inspection and testing process, how they occur and how they can be corrected 2.13 explain how to deal with problems which affect aspects of sample collection, inspection and testing activities and the interpretation of the results 2.14 explain how to report any problems they are not able to deal with themselves and why it is important to report faults, variations or problems immediately			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.15 explain what their responsibilities are with regard to the reporting lines and procedures in their working area 2.16 explain who the appropriate people are and what their responsibilities are within their working area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Further information and useful publications

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

- Edexcel, BTEC and Pearson Work Based Learning contact details: qualifications.pearson.com/en/support/contact-us.html
- books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk

Key publications

- *Adjustments for candidates with disabilities and learning difficulties, Access and Arrangements and Reasonable Adjustments, General and Vocational qualifications* (Joint Council for Qualifications (JCQ))
- *Supplementary guidance for reasonable adjustments and special consideration in vocational internally assessed units* (Pearson)
- *General and Vocational qualifications, Suspected Malpractice in Examination and Assessments: Policies and Procedures* (JCQ)
- *Equality Policy* (Pearson)
- *Recognition of Prior Learning Policy and Process* (Pearson)
- *UK Information Manual* (Pearson)
- *Pearson Edexcel NVQs, SVQs and competence-based qualifications – Delivery Requirements and Quality Assurance Guidance* (Pearson)

All of these publications are available on our website: qualifications.pearson.com

Further information and publications on the delivery and quality assurance of NVQ/Competence-based qualifications are available at our website on the Delivering BTEC pages. Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please go to the resources page of our website.

How to obtain National Occupational Standards

Semta (Head Office)
14 Upton Road
Watford
WD18 0JT

Telephone: 01923 238441
Fax: 01923 256086
Email: customerservices@semta.org.uk

Professional development and training

Pearson supports UK and international customers with training related to NVQ and BTEC qualifications. This support is available through a choice of training options offered in our published training directory or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing student-centred learning and teaching approaches
- building functional skills into your programme
- building effective and efficient quality assurance systems.

The national programme of training we offer can be viewed on our website (www.edexcel.com/training). You can request customised training through the website or by contacting one of our advisers in the Training from the Pearson team via Customer Services to discuss your training needs.

The training we provide:

- is active
- is designed to be supportive and thought-provoking
- builds on best practice
- may be suitable for those seeking evidence for their continuing professional development.

Annexe A: Quality assurance

Key principles of quality assurance

- A centre delivering Pearson qualifications must be a Pearson-recognised centre and must have approval for qualifications that it is offering.
- The centre agrees as part of gaining recognition to abide by specific terms and conditions around the effective delivery and quality assurance of assessment; the centre must abide by these conditions throughout the period of delivery.
- Pearson makes available to approved centres a range of materials and opportunities to exemplify the processes required for effective assessment and provide examples of effective standards. Approved centres must use the guidance on assessment to ensure that staff who are delivering Pearson qualifications are applying consistent standards.
- An approved centre must follow agreed protocols for: standardisation of assessors; planning, monitoring and recording of assessment processes; internal verification and recording of internal verification processes; and for dealing with special circumstances, appeals and malpractice.

Quality assurance processes

The approach to quality assured assessment is made through a partnership between a recognised centre and Pearson. Pearson is committed to ensuring that it follows best practice and employs appropriate technology to support quality assurance process where practicable. Therefore, the specific arrangements for working with centres will vary. Pearson seeks to ensure that the quality assurance processes that it uses do not place undue bureaucratic processes on centres and works to support centres in providing robust quality assurance processes.

The learning outcomes and assessment criteria in each unit within this specification set out the standard to be achieved by each learner in order to gain the qualification. Pearson operates a quality assurance process, which is designed to ensure that these standards are maintained by all assessors and verifiers.

For the purposes of quality assurance all individual qualifications and units are considered as a whole. Centres offering these qualifications must be committed to ensuring the quality of the units and qualifications they offer, through effective standardisation of assessors and internal verification of assessor decisions. Centre quality assurance and assessment processes are monitored by Pearson.

The Pearson quality assurance processes will involve:

- gaining centre recognition and qualification approval if a centre is not currently approved to offer Pearson qualifications
- annual visits to centres by Pearson for quality review and development of overarching processes and quality standards. Quality review and development visits will be conducted by a Pearson quality development reviewer
- annual visits by occupationally competent and qualified Pearson Standards Verifiers for sampling of internal verification and assessor decisions for the occupational sector
- the provision of support, advice and guidance towards the achievement of National Occupational Standards.

Centres are required to declare their commitment to ensuring quality and appropriate opportunities for learners that lead to valid and accurate assessment outcomes. In addition, centres will commit to undertaking defined training and online standardisation activities.

Annexe B: Centre certification and registration

Pearson Standards Verifiers will provide support, advice and guidance to centres to achieve Direct Claims Status (DCS). Pearson will maintain the integrity of Pearson NVQs through ensuring that the awarding of these qualifications is secure. Where there are quality issues identified in the delivery of programmes, Pearson will exercise the right to:

- direct centres to take actions
- limit or suspend certification
- suspend registration.

The approach of Pearson in such circumstances is to work with the centre to overcome the problems identified. If additional training is required, Pearson will aim to secure the appropriate expertise to provide this.

What are the access arrangements and special considerations for the qualification in this specification?

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

Appropriate steps should be taken to assess each applicant's potential and a professional judgement made about their ability to successfully complete the programme of study and achieve the qualification. This assessment will need to take account of the support available to the learner within the centre during their programme of study and any specific support that might be necessary to allow the learner to access the assessment for the qualification. Centres should consult Pearson's policy on learners with particular requirements.

Pearson's policy on access arrangements and special considerations for Pearson qualifications aims to enhance access to the qualifications for learners with disabilities and other difficulties (as defined by the 2010 Equality Act) without compromising the assessment of skills, knowledge, understanding or competence. Please refer to *Access Arrangements and Special Considerations for BTEC and Pearson NVQ Qualifications* for further details. qualifications.pearson.com.

Annexe C: Additional Requirements for Qualifications that use the title NVQ within the QCF

Contents

Purpose of document

1 The purpose of this document is to make clear what additional requirements are needed to assess and quality assure qualifications that use the title NVQ within the QCF.

2 When an SSC/SSB and awarding organisation wants to use the title NVQ in the naming of a qualification within the QCF, the awarding organisation is required to make sure this qualification is assessed and quality assured in accordance with these additional requirements and other requirements described in the SSC/SSB assessment strategy.

3 The aims of these additional requirements are to:

- ensure that all competence based qualifications that use the title NVQ within the QCF are
  - assessed consistently
  - quality assured consistently
- maintain the integrity of qualifications that use the title NVQ within the QCF
- establish the NVQ brand within the QCF
- keep bureaucracy associated with assessment and quality assurance of qualifications that use the title NVQ within the QCF to a minimum.

Background

4 [1]"At the heart of an NVQ is the concept of occupational competence; the ability to perform to the standards required in employment across a range of circumstances and to meet changing demands. NVQs are first and foremost about what people can do. They go beyond technical skills to include planning, problem solving, dealing with unexpected occurrences, working with other people and applying the knowledge and understanding that underpins overall competence".

5 NVQs are based entirely on National Occupational Standards (NOS) developed by an SSC/SSB, which describe the competence needed in an occupational role.

6 Qualifications that use the title NVQ within the QCF must comply with the rules of combination determined by the SSC/SSB. Awarding organisations are not allowed to develop another qualification that does not use the title NVQ within the QCF, if it uses the same rules of combination as a qualification that does use the title NVQ within the QCF.

7 The QCF offers increased flexibility in the way occupational competence can be assessed and demonstrated. Qualifications that use the title NVQ in the title within the QCF are just one way of assessing and demonstrating occupational competence. SSCs/SSBs are free to work with their awarding organisations to agree what qualifications will be used to assess occupational competence. Qualifications that use the title NVQ within the QCF, are not a preferred method for assessing occupational competence and all qualifications accredited through the QCF have equal status.

8 When developing a qualification for the QCF, including qualifications that use the title NVQ within the QCF, an awarding organisation must be a recognised awarding organisation and must meet the Qualification Requirements in the Regulatory Arrangements for the Qualifications and Credit Framework, published by The Office of the Qualifications and Examinations Regulator (Ofqual) in August 2008.

9 The qualification regulators confirmed that a group of SSCs and SSBs would be free to develop specific, additional requirements about the way in which qualifications that use the title NVQ within the QCF will be assessed and quality assured. For those recognised awarding organisations that want to assess occupational competence through the use of qualifications that use the title NVQ within the QCF, it has been agreed by SSCs and SSBs that the following additional requirements must be met.

[1] NCVQ's NVQ Criteria and Guidance 1995.

Additional requirements for qualifications that use the title NVQ within the QCF

Introduction

10 Qualifications that use the title NVQ within the QCF must be assessed and quality assured in accordance with the following additional requirements.

Assessment requirements

11 When a qualification uses the title NVQ within the QCF, awarding organisations are required to make sure their recognised assessment centres understand how learners are to be assessed.

12 Assessment methodologies must meet the assessment strategy developed in partnership between the relevant SSC or SSB and awarding organisations for the qualification. The assessment strategy must be published and made available separately and will include the requirements for assessment of qualifications that use the title NVQ within the QCF. The assessment criteria for each unit will be part of the units that make up the qualification.

13 Learners must complete real work activities in order to produce evidence to demonstrate they have met the NOS and are occupationally competent.

14 When a learner cannot complete a real work activity, simulation is allowed.

15 Simulation is allowed when:

- a learner is required to complete a work activity that does not occur on a regular basis and therefore opportunities to complete a particular work activity do not easily arise
- a learner is required to respond to a situation that rarely occurs, such as responding to an emergency situation
- the safety of a learner, other individuals and/or resources will be put at risk.

16 When simulation is used, assessors must be confident that the simulation replicates the workplace to such an extent that learners will be able to fully transfer their occupational competence to the workplace and real situations.

17 Units that must not be assessed by simulation must be identified by the SSC/SSB in the assessment strategy for the qualification or family of qualifications.

18 Learners must be assessed by assessors:

- who are occupationally competent in the occupational areas they are assessing where they have sufficient and relevant technical/occupational competence in the unit, at or above the level of the unit being assessed and as defined by the assessment strategy for that qualification
- [2]who must hold or be working towards a suitable assessor qualification to confirm they understand assessment and how to assess learners
- must be fully conversant with the unit(s) against which the assessments and verification are to be undertaken.

19 All assessors must carry out assessment to the standards specified in the A units.

20 All assessment decisions made by a trainee assessor must be checked by a qualified assessor or an assessor recognised by an awarding organisation.

21 Trainee assessors must have a plan, which is overseen by the recognised assessment centre, to achieve the relevant assessor qualification(s) within an agreed timescale.

[2] Currently an assessor could hold unit A1 and/or unit A2. Or from the past unit D32 and/or unit D33. SSCs also identify other suitable equivalent qualifications.

Quality assurance requirements

22 When a qualification uses the title NVQ within the QCF, awarding organisations are required to make sure their recognised assessment centres understand how the qualification will be quality assured.

23 Qualifications that use the title NVQ within the QCF, must be verified:

- internally by an internal verifier, who is accountable to the assessment centre
- externally by an external verifier, who is accountable to the awarding organisation or an agent of the awarding organisation.

24 With reference to internal verification, internal verifiers must:

- [3]hold or be working towards a suitable internal verifier qualification to confirm they understand how to internally verify assessments
- have sufficient and relevant technical/occupational familiarity in the unit(s) being verified
- be fully conversant with the standards and assessment criteria in the units to be assessed
- understand the awarding organisation's quality assurance systems and requirements for this qualification.

25 Trainee internal verifiers must have a plan, which is overseen by the recognised assessment centre, to achieve the internal verifier qualification within an agreed timescale.

26 With reference to external verification, external verifiers must:

- [4]hold or be working towards a suitable external verification qualification to confirm they understand and are able to carry out external verification
- have no connections with the assessment centre, in order to maintain objectivity
- have sufficient and relevant technical/occupational understanding in the unit(s) being verified
- be fully conversant with the standards and performance criteria in the units to be assessed
- understand the awarding organisation's quality assurance systems for this qualification.

27 Trainee external verifiers must have a plan, which is overseen by the awarding organisation, to achieve the external verifier qualification within an agreed timescale.

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[3] Currently an internal verifier needs to hold unit V1. Or from the past unit D34. SSCs also identify other suitable equivalent qualifications.

[4] Currently an external verifier needs to hold unit V2. Or from the past unit D35.

28 Awarding organisations must decide the frequency of external monitoring activities. Any decision must be based on:

- the risks associated with a qualification that is designed to help a learner demonstrate occupational competence
- an evaluation of the centre's performance and past record.

29 Awarding organisations will have in place suitably constituted audit processes, which are supported by naturally occurring quality assurance and monitoring systems that already exist in workplace assessment environments.

Semta

Performing Manufacturing Operations NVQ Level 1 and 2

QCF Unit Assessment strategy

Version 1. 18th May 2010

Table of Contents

Introduction

[Semta], the Sector Skills Council for the Science Engineering Manufacturing Technologies Sector, has produced this QCF Unit Assessment strategy to:

- assist Assessors, Internal Verifiers and External Verifiers
- encourage and promote consistent assessment of NVQ units
- promote cost effective assessment plans.

This document also provides definitions for:

- the qualifications and experience required for Assessors and Verifiers
- the assessment environment and notes on simulation/replication.
- access to units.

and requirements relating to:

- carrying out assessments
- performance evidence
- assessing knowledge and understanding.

The importance and value in which employers and learners place on undertaking NVQ units will provide a key measure of [Semta's] success with this unit Assessment strategy. Another key success factor will be [Semta's] partnership with the relevant Awarding Organisations.

Assessor Requirements to Demonstrate Effective Assessment Practice

Assessment must be carried out by competent Assessors who hold, or are working towards, the nationally recognised Assessor units A1 and/or A2 as appropriate to the assessment being carried out. Assessors that hold units D32 and/or D33 must demonstrate that they are applying the assessment principles and practices set down in A1 and/or A2 as appropriate to the assessment being carried out.

Assessor Technical Requirements

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 QCF unit learning outcomes and associated assessment criteria.

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.

Assessors must also be:

Fully conversant with the Awarding Organisation's assessment recording documentation used for the QCF NVQ units against which the assessments and verification are to be carried out, other relevant documentation and system and procedures to support the QA process.

Verifier Requirements

Internal Verifiers must hold, or be working towards, the nationally recognised Internal Verifier unit V1 and would be expected to be familiar with, and preferably hold, the nationally recognised Assessor units. Internal Verifiers that hold unit D34 must demonstrate that they are applying the verification principles and practices set down in V1.

External Verifiers must hold, or be working towards, the nationally recognised External Verifier unit V2 and would be expected to be familiar with, and preferably hold, the nationally recognised Assessor units, and Internal Verifier unit. External Verifiers that hold unit D35 must demonstrate that they are applying the verification principles and practices set down in V2.

Verifiers, both Internal and External, will also be expected to be fully conversant with the terminology used in the QCF NVQ units against which the assessments and verification are to be carried out, the appropriate Regulatory Body's systems and procedures and the relevant Awarding Organisation's documentation, systems and procedures within which the assessment and verification is taking place.

Specific technical requirements for internal and external verifiers

Internal and external verifiers of this qualification must be able to demonstrate that have verifiable, sufficient and relevant industrial experience, and must have a working knowledge of the processes, techniques and procedures that are used in the relevant sector/occupation.

The tables on the following page show the recommended levels of technical competence for assessors, internal verifiers, and external verifiers.

Technical Requirements for Assessors and Verifiers

Position	**Prime activity requirements**	**Support activity requirements**	**Technical requirements (see notes)**
Assessor	Assessment Skills	IV Systems	Technical *competence* in the areas covered by the QCF units being assessed
Internal Verifier	Verification Skills	Assessment Knowledge	Technical *understanding* of the areas covered by the qualifications
External Verifier	Verification skills	Assessment Understanding	Technical *awareness* of the areas covered by the qualifications

Notes

1 Technical *competence* is defined here 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.

2 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.

3 Technical *awareness* is defined here as a general overview of the subject area, sufficient to ensure that assessment and portfolio evidence are reliable, and that relevant Health and Safety requirements have been complied with.

4 The competence required by the assessor, internal verifier and external verifier, in the occupational area being assessed, is likely to exist at three levels as indicated by the shaded zones in the following table.

Technical Competence / required by:	An ability to *discuss* the general principles of the competences being assessed	An ability to *describe* the practical aspects of the competence being assessed	An ability to *demonstrate* the practical competences being assessed
Assessor			
Internal Verifier			
External Verifier			

Assessment Environment

The evidence put forward for this unit can only be regarded valid, reliable, sufficient and authentic if achieved and obtained in the working environment and be clearly attributable to the learner. However, in certain circumstances, simulation/replication of work activities may be acceptable.

- The use of high quality, realistic simulations/replication, which impose pressures which are consistent with workplace expectations, should only be used in relation to the assessment of the following:
  - rare or dangerous occurrences, such as those associated with health, safety and the environment issues, emergency scenarios and rare operations at work;
  - the response to faults and problems for which no opportunity has presented for the use of naturally occurring workplace evidence of learners competence;
  - aspects of working relationships and communications for which no opportunity has presented for the use of naturally occurring workplace evidence of learners competence.
- Simulations/replications will require prior approval from the specific Awarding Organisation and should be designed in relation to the following parameters:
  - the environment in which simulations take place must be designed to match the characteristics of the working environment;
  - competencies achieved via simulation/replication must be transferable to the working environment;
  - simulations which are designed to assess competence in dealing with emergencies, accidents and incidents must be verified as complying with relevant health, safety and environmental legislation by a competent health and safety/environmental control officer before being used;

- simulated activities should place learners under the same pressures of time, access to resources and access to information as would be expected if the activity was real;
- simulated activities should require learners to demonstrate their competence using plant and/or equipment used in the working environment;
- simulated activities which require interaction with colleagues and contacts should require the learner to use the communication media that would be expected at the workplace;
- for health and safety reason simulations need not involve the use of genuine substances/materials. Any simulations which require the learner to handle or otherwise deal with materials substances/should ensure that the substitute take the same form as in the workplace.

Note 1: See assessment guidance section in QCF units of assessment for additional information where simulation/replication is acceptable.

Access to Assessment

There are no entry qualifications or age limits required by learners to undertake the NVQ units unless this is a legal requirement of the process or the environment. Assessment is open to any learner who has the potential to achieve the assessment criteria set out in the units.

Aids or appliances, which are designed to alleviate disability, may be used during assessment, providing they do not compromise the standard required.

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.

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 maybe 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.

Note 2: See assessment guidance section in QCF units of assessment for additional information where assessment by observation is recommended

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. Awarding Organisations may choose other methods, which must be supported by a suitable rationale.

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.

Awarding Organisations may choose other methods, which must be supported by a suitable rationale.

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.

Quality Control of Assessment

General

There are two major points where an Awarding Organisation interacts with the Centre in relation to the External Quality Control of Assessment for a qualification and these are:

- Approval - when a Centre take on new qualifications, the Awarding Organisation, normally through an External Verifier (EV) ensures that the Centre is suitably equipped and prepared to deliver the new qualification
- Monitoring - throughout the ongoing delivery of the qualification the Awarding Organisation, through EV monitoring and other mechanisms must maintain and the quality and consistency of assessment of the qualification.

Approval

In granting Approval, the Awarding Organisation, normally through its External Verifiers (EV) Must ensure that the prospective Centre:

- Meets any procedural requirements specified by the Awarding Organisation
- Has sufficient and appropriate physical and staff resources
- Meets relevant health and safety and/or equality and access requirements
- Has a robust plan for the delivery, assessment and QA for the qualifications

Awarding Organisation's may decide to visit the Centre to view the evidence provided.

The Awarding Organisation must have a clear rationale for the method(s) deployed.

Monitoring

The Awarding Organisation, through EV monitoring and other mechanisms must ensure:

- that a strategy is developed and deployed for the ongoing Awarding Organisation monitoring of the Centre. This strategy must be based on an active risk assessment of the Centre. In particular the strategy must identify the learner, assessor and IV sampling strategy to be deployed and the rationale behind this
- that the Centre's internal quality assurance processes are effective in learner assessment
- that sanctions are applied to a Centre where necessary and that corrective actions are taken by the Centre and monitored by the Awarding Organisation/EV
- that reviews of Awarding Organisation's external auditing arrangements are undertaken.

Awarding Organisations are required to provide to SEMTA, on request, details of the strategies, rationales and reviews detailed above.

Additional Information:

a is recognised that some Awarding Organisations provide supplementary guidance and documentation to centres to support the quality of assessment and verification practice of NVQs.

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