WJEC LEVEL 1-2 AWARDS IN ENGINEERING :

INTERNAL SPECIMEN ASSESSMENT MATERIAL

MODEL ASSIGNMENT (ISAM)

UNIT 2: PRODUCING ENGINEERING PRODUCTS

LEARNER ASSIGNMENT BRIEF

BRIEF

Novus Fabrication and Engineers Ltd (NFE) manufacture engineering products and prototypes for product designer based companies. A high street retailer has a design for a tilt and turn lamp that uses a new style, high powered LED. The retailer has commissioned NFE to prototype the lamp as a non-working product, before they commission full scale production.

The retailer has provided NFE with the engineering drawings for the product. This is in Appendix A. You have been asked to manufacture the prototype.

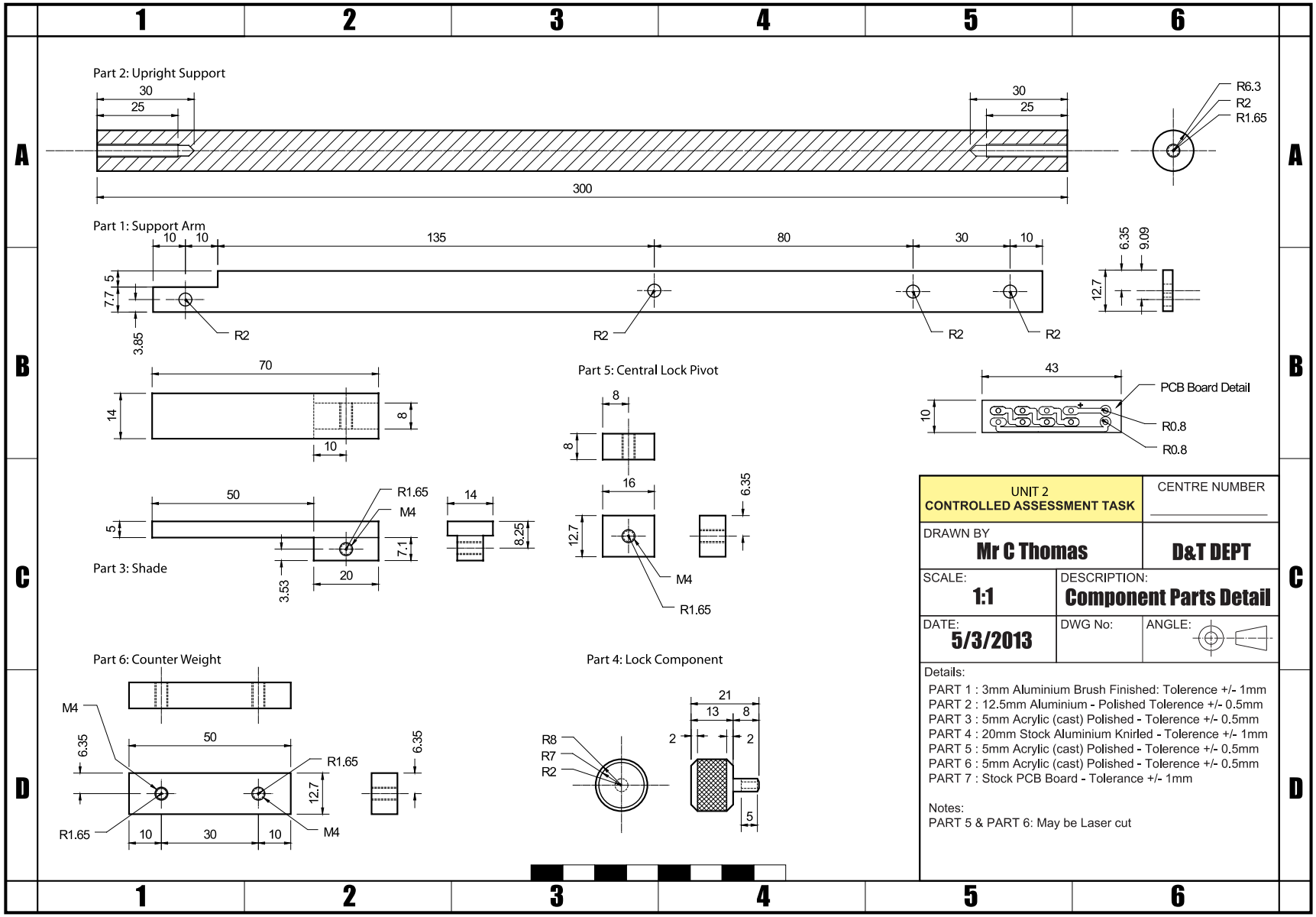
TASKS

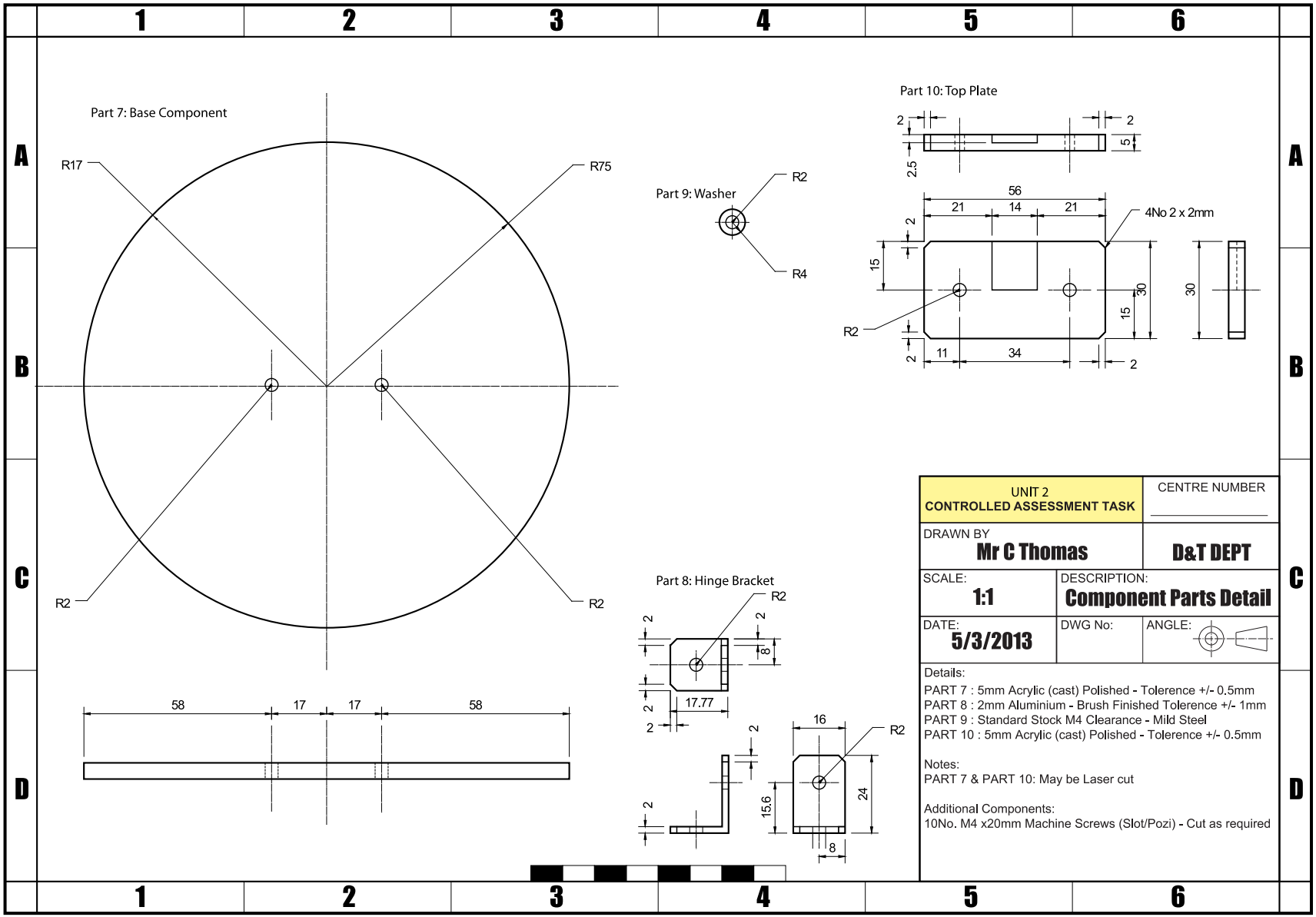
1. Plan how you will make the prototype.
2. Make the prototype to the requirements of the engineering drawing.
3. Evaluate the quality of the prototype you produced.

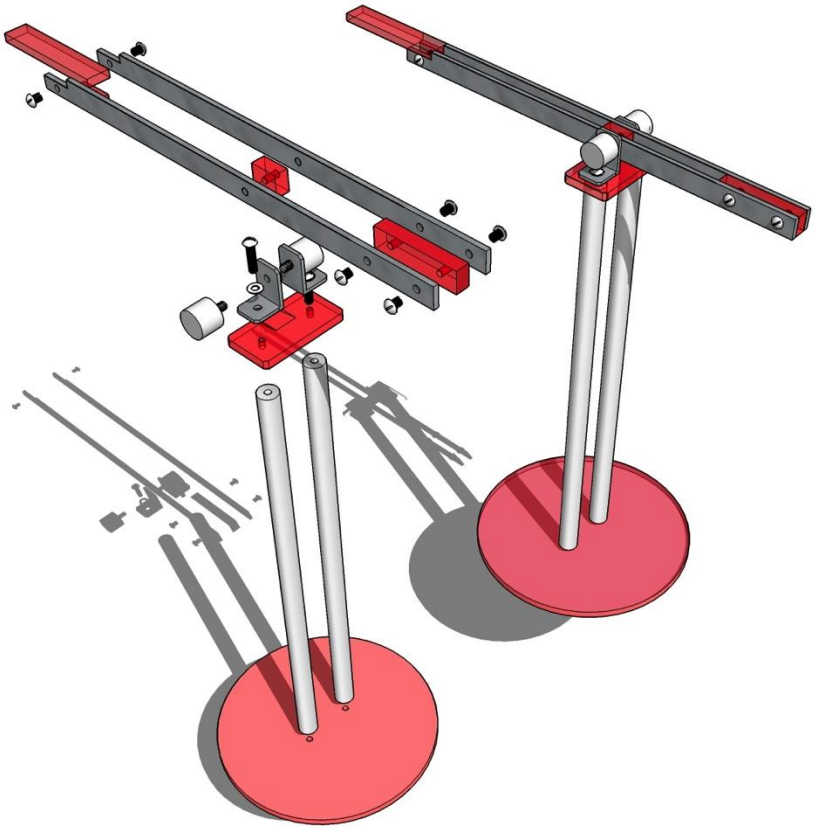
SUMMARY TABLE

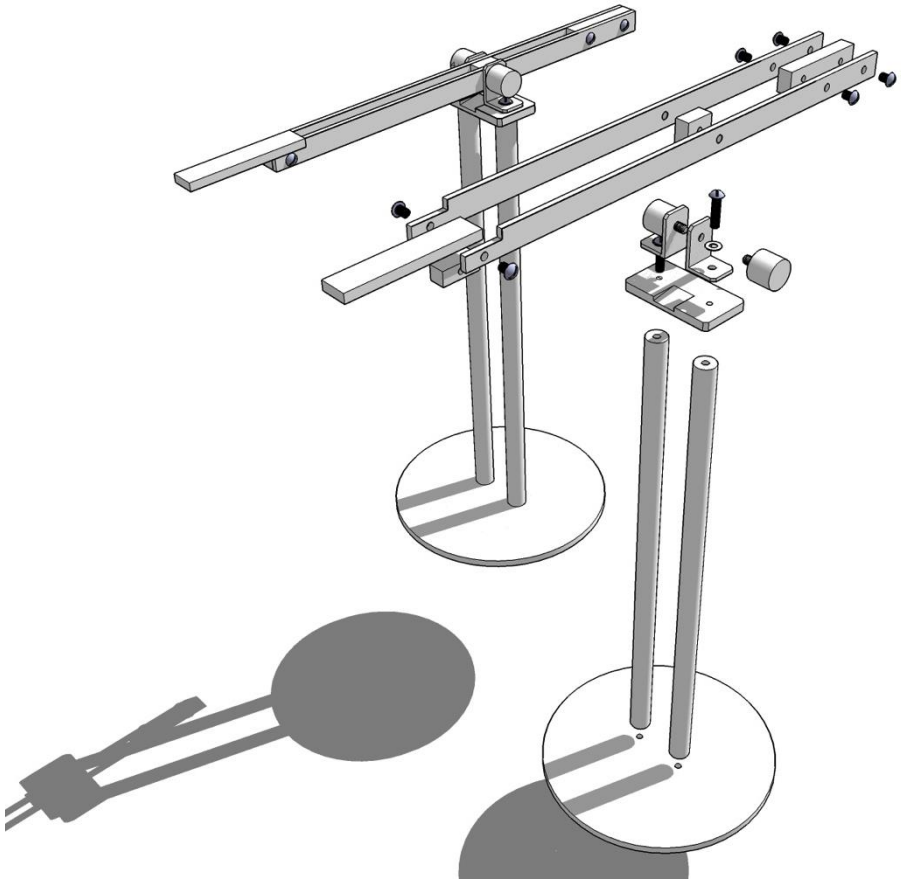
Task Number	Evidence	AC	Controls
1	Gantt chart and job sheet	**AC1.1** interpret engineering drawings **AC1.2** interpret engineering information **AC2.1** identify resources required **AC2.2** sequence required activities	**Time:** 2 hours **Resources**: Assignment brief; engineering drawings; Gantt chart template; job sheet template; access to class notes; no access to Internet or ICT **Supervision**: You will be supervised throughout **Collaboration**: This is an individual task **Feedback:** You cannot be given feedback on the work you produce until it has been marked
2	Observation record and three photographs	**AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products **AC4.1** use engineering processes in production of engineered products	**Time:** 9 hours **Resources:** Engineering drawings; completed Gantt chart and job sheet; tools, equipment and materials required to complete task; risk assessments or health and safety guidelines for use of equipment; access to class notes; no access to Internet **Supervision:** You will be supervised throughout **Collaboration**: This is an individual task **Feedback:** You cannot be given feedback on the work you produce until it has been marked
3	Hand-written report	**AC4.2** evaluate quality of engineered products	**Time:** 1 hour **Resources:** Evaluation report template; engineering drawings; access to class notes; no access to Internet **Supervision:** You will be supervised throughout **Collaboration:** This is an individual task **Feedback:** You cannot be given feedback on the work you produce until it has been marked

Appendix A









Candidate Name	Candidate Number	Centre Number

Item Number	Qty	Decscription	Material	Length	Width	Depth	Finish	Tolerance
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

Assessors Comments

JOB SHEET

WJEC Level 1-2 Awards in ENGINEERING

Candidate Name	Candidate Number	Centre Number

Make a full plan of the stages and processes necessary to manufacture the product.

STEP	PROCESS	Resources	Equipment	Time in Hours 1	2	3	4	5	6	7	8
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

Critical Control Points

STEP	DATE	CHECK	ACHIEVED
1			
2			
3			

Student Notes

Assessors Comments

GANTT CHART

WJEC Level 1-2 Awards in ENGINEERING

Level 1/2 Award in Engineering

Observation Record

Unit 2: Producing engineered products

Learner Name
Context The learner has produced a non-working prototype of a tilt and turn lamp. They used a range of equipment, tools and processes to produce the prototype. Three photographs were taken of the completed product. These include: • The lamp • The adjustment assembly • All components laid out These photographs are included in this observation record. This observation record relates to the following assessment criteria: **AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products **AC4.1** use engineering processes in production of engineered products
Description of Activity Use of tools Use of equipment Use of engineering processes

Photographic evidence
Insert photographs here, or attach to this document

All components laid out

Adjustment assembly

Finished lamp

Assessment Commentary

Grade Awarded

Assessor	**Signature**	**Date**

Self-Evaluation Template - Ceri

Candidate Name	Candidate Number	Centre Number

Use this sheet to evaluate your final product. Students should evaluate their product against the three main criteria; Accuracy, Quality of Finish and Assembly

Accuracy: How accurate is your overall product. Give reasons and evidence for your answers.

Quality of Finish: Describe the quality of you finish product and how it relates to the information given to you regarding finishing.

Assembly : How well does your product go together after manufacturing each part. Give reasons for your answers.

Assessors Comments

Candidate Name	Candidate Number	Centre Number

Use this sheet to evaluate your final product. Students should evaluate their product against the three main criteria; Accuracy, Quality of Finish and Assembley

Accuracy: How accurate is your overall product. Give reasons and evidence for your answers.

Quality of Finish: Describe the quality of your finish product and how it relates to the information given to you regarding finishing.

Assembley: How well does your product go together after manufacturing each part. Give reasons for your answers

Assessors Comments

Evaluation

WJEC Level 1-2 Awards in ENGINEERING

ASSESSOR INFORMATION

WJEC Approach to Assessment

Units 1 and 2 of the WJEC Level 1/2 Awards in Engineering are internally assessed and externally moderated. The following principles apply to the assessment of these units:

- All units are assessed through summative controlled assessment. Details of controls for this unit are provided in this model assignment.
- All assessment criteria must be met under controlled conditions, as specified in this model assignment, for the unit learning outcomes to be achieved.
- Performance bands for Level 2 Merit and Level 2 Distinction can only apply once a candidate has achieved all assessment criteria at the level of qualification to be awarded. Evidence must clearly show how the candidate has met the standard for the higher grades.

The WJEC Level 1/2 Award in Engineering has adopted the principles of controlled assessment as set out in the Joint Council for Qualifications document 'GCSE, GCE, ELC, Functional skills, Principal learning in the Diploma and Project Qualifications – instructions for conducting coursework'. This document can be accessed through the JCQ website (www.jcq.org.uk). Each centre must ensure that internal assessment is conducted in accordance with these controls.

There are three stages of assessment that will be controlled:

- Task setting
- Task taking
- Task marking.

Task setting

WJEC have produced this model assignment for the assessment of this unit. Centres are, however, allowed to modify the assignment, as outlined in the 'Accepted changes to assignments' section of this model assignment. This will allow centres to tailor the assessment to local needs. This model assignment has been written to ensure the following controls are in place:

- Each unit is assessed through one assignment.
- Each assignment must have a brief that sets out an applied purpose. An applied purpose is a reason for completing the tasks that would benefit a business or society. Further details are in Section 1.2 of the specification.
- The assignment can specify a number of tasks but tasks must be coherent i.e. show how the assessment requirements all contribute to the achievement of the applied purpose of the assignment.
- The assignment must provide each candidate with the opportunity to address all assessment criteria and all performance band requirements.
- The assignment must indicate the acceptable forms of evidence.
- Where a centre has adapted the model assignment, there must be evidence of quality assuring its fitness for purpose. Sample documentation for this activity is provided with each model assignment.

How the learner assignment brief meets these controls

This is a single assignment that addresses all assessment criteria for this unit. There is a clear applied purpose – to make an engineered lighting product from a given set of engineering drawings with technical information, to meet quality requirements of a client. Although the context and organisation in the scenario is fictitious, it has been developed through discussions with representatives of a real organisation to ensure the requirements are realistic. The tasks are all coherently related to the applied purpose. The Summary table makes clear the evidence requirements.

Task taking

There are five areas of task taking that are controlled: (time, resources, supervision, collaboration and resubmission.)

Time

'Time' has limited control. There are **12** hours available for assessment of this unit. The learner assignment brief suggests how this time can be allocated.

Resources

'Resources' has limited control. The assignment makes clear the type of resources that learners must have access to. Learners will need all information provided in this assignment, including all templates. They should also be provided with all tools, equipment and materials to make the lamp. They cannot use ICT software or access the Internet but can access class notes for all tasks. Class notes can include any outcomes of formative assessment, unless the context for the formative assessment is similar to the context for this summative assessment. Learners will also need to be provided with relevant health and safety information. Is this not covered at start of paragraph stating 'all templates' if not, then we need to add Job Sheet here as well

Supervision

'Supervision' has medium control. Learners must be supervised by an assessor whilst completing all tasks. Centres must have in place systems to ensure learners cannot access evidence they have been developing outside of supervised activities.

Authentication

Supervision is in place to ensure the authenticity of evidence produced for summative assessment. Assessors are not expected to provide input or guidance to learners during the controlled assessment time. This includes providing formative feedback on the evidence being produced. Assessors can provide guidance on the requirements of the task and remind learners of the performance bands and how they can be interpreted. Assessors must intervene where there is a health and safety hazard observed.

Candidates can review and redraft evidence independently within the time controls for the assessment. Candidates cannot redraft based on feedback from an assessor.

Learners must sign the declaration in this model assignment to confirm that all evidence submitted for moderation is their own work and that any sources used have been acknowledged.

Assessors must sign the declaration in this model assignment to confirm that evidence submitted for moderation was completed under the controlled conditions set out in the model assignments.

Collaboration

'Collaboration' refers to group work and has limited control. For this model assignment group work is not allowed when learners are producing evidence for assessment.

Task marking

All marking of evidence must be made against the performance band statements given in each unit specification. Evidence marked must comply with the controlled requirements set out in this model assignment.

Written evidence must be annotated to show how it relates to the assessment criteria and performance band requirements.

Performance evidence for task 2 must be made on the observation records provided in this model assignment. Observation records will include a description of candidate performance as well as a summative statement on the quality of that performance. Where performance is observed by someone other than an assessor, the 'witness' must complete a witness statement. Assessors will need to authenticate the statement either through scrutiny of supporting evidence and/or questioning of the learner and/or witness. If the statement is authenticated, it can be allowed to contribute to the evidence for assessment. Evidence of authentication will also need to be included.

Marking should only be undertaken by a designated assessor. An assessor should have appropriate expertise in the subject and level for a specified unit. The assessor is responsible for ensuring that:

- Assessment is conducted under specified controlled conditions
- They are clear of the requirements of the learning outcomes, assessment criteria and performance band statements prior to commencing controlled assessment
- Evidence presented for assessment is authentic
- Assessment decisions are accurately recorded
- Evidence is appropriately annotated
- Observation records contain sufficient detail for objective corroboration of decisions
- Judgements are only made against the performance band statements

ACCEPTED CHANGES TO THIS MODEL ASSIGNMENT
Assignment Brief (Task setting)

Type of evidence

For task 1, learners can submit evidence in a Gantt chart, flow chart or block diagram as well as a job sheet. The Gantt chart template does not have to be the one used in this model assignment; it should be a format that is familiar to the learner. The documents can be produced using ICT software. No changes to the type of evidence are allowed for task 2. Photographs can either be incorporated into the observation record digitally, or added as attachments. For task 3, the report can be presented electronically with learners accessing ICT software. In addition, they can present their evaluation orally. Observation records will be required as evidence, together with any notes produced and support materials used. Observation records will include a description of candidate performance as well as a summative statement on the quality of that performance. Where performance is observed by someone other than an assessor, the 'witness' must complete a witness statement. Assessors will need to authenticate the statement either through scrutiny of supporting evidence and/or questioning of the learner and/or witness. If the statement is authenticated, it can be allowed to contribute to the evidence for assessment. Evidence of authentication will also need to be included. A standard pro-forma should be developed and used for all learners. Learners should receive a copy of the pro-forma in advance.

Tasks

No changes allowed, except for references to the specific context of the assignment brief

Purpose

No changes allowed

Context

The context must be realistic and credible. The product must be one that can be made by an average learner within 8 hours. It must have an adjustable element in the design and require learners to work with two different types of materials – metals and non-metals. Learners must demonstrate a minimum of nine of the processes in the unit content, one of which must be jointing. This can be either permanent or non-permanent. Learners must have to produce a number of components that must be assembled in some way to create the finished product. Learners do not have to make all components for the product, for example small component parts such as screws and bolts. Engineering drawings of the product must be available to the learner. The drawing must include more detail than is needed for making the product. For example, this could be additional components. The drawings must include standard conventions, finishing details, dimensions and materials.

How Assessment is Managed (Task taking)

Time

The time suggested for each task, as set out in the learner assignment brief, takes account of the contribution of the task to the overall assessment requirements. There can be no changes to the total time available for controlled assessment, as set out in this model assignment. Centres can, however, amend the suggested time available for each task.

Resources

Learners must have access to an assessment grid. Details of essential resources are provided in the Summary table of the Learner Assignment Brief and the Task taking: resource section of this Assessor Guidance. The only change allowed is where learners are producing evidence for tasks 1 and/or 3 using ICT. Learners may then have access to ICT software.

Collaboration

Group work is not allowed for this unit when learners are producing evidence for assessment

Supervision

No changes are allowed

Feedback

No changes are allowed

WJEC LEVEL 1/2 AWARDS IN ENGINEERING MARK RECORD SHEET

UNIT 2: PRODUCING ENGINEERED PRODUCTS

Learner Name:

I confirm that the evidence submitted for assessment has been produced by me without any assistance beyond that allowed.

Signature: **Date:**

Assessor Name:

The assignment brief used for summative assessment is attached, together with evidence of quality assurance.

I confirm that the evidence submitted by the learner has been produced under the controlled conditions set out in the qualification specification and model assignment.

The overall grade awarded for this unit is _____

Signature: **Date:**

Lead Assessor Name:

I confirm that the evidence submitted by this learner for summative assessment has been quality assured and the grade awarded is confirmed as accurate.

Signature: **Date:**

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 2 Pass**	**Level 2 Merit**	**Level 2 Distinction**	
AC1.1 interpret engineering drawings	Interprets limited information from engineering drawings with limited accuracy. Some information may not be appropriate.	Interprets information from engineering drawings with some accuracy. Some information may not be appropriate.	Accurately interprets most appropriate information from engineering drawings.	Accurately interprets a wide range of appropriate information from engineering drawings.	
	Assessors comments				
AC1.2 interpret engineering information	Interprets engineering information with limited accuracy. Some information may not be appropriate.	Interprets appropriate engineering information with some accuracy.	Accurately interprets appropriate engineering information.		
	Assessors comments				

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 2 Pass**	**Level 2 Merit**	**Level 2 Distinction**	
AC2.1 identify resources required	A limited range of appropriate resources is identified. There are some significant inaccuracies and omissions.	A range of appropriate resources is identified. There are some inaccuracies and minor omissions.	A range of appropriate resources is accurately identified.		
	Assessors comments				
AC2.2 sequence required activities	A limited range of appropriate activities is identified. There is some attempt to sequence activities although not always taking account of external factors.	A range of appropriate activities is identified. There is some logical sequencing of activities, with some account of external factors.	A range of appropriate activities is identified. Most are logically sequenced, with clear account taken of some external factors.	Appropriate activities are identified and sequenced logically, taking clear account of a range of external factors.	
	Assessors comments				

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 2 Pass**	**Level 2 Merit**	**Level 2 Distinction**	
AC3.1 use tools in production of engineering products	A limited range of tools is used in engineering production. There is some evidence of safe working, although some intervention is required. The learner is able to access information or use tools with guidance. Use of tools may lead to a limited range of outcomes.	A range of tools is used in engineering production. There is evidence of independent safe working although some intervention may be required. The learner is able to use information or tools with limited guidance. Use of tools may lead to outcomes with some quality issues.	A range of tools is used effectively in engineering production. There is evidence of independent, safe working. Use of tools may lead to outcomes meeting most quality requirements.	A range of tools is used effectively in engineering production. There is evidence of independent, safe working. Use of tools will lead to outcomes meeting all quality requirements.	
	Assessors comments				

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 1 Pass**	**Level 1 Pass**	**Level 1 Pass**	
AC3.2 use equipment in production of engineering products	A limited range of equipment is used in engineering production. There is some evidence of safe working, although some intervention may be required. The learner is able to access information or use equipment with guidance. Use of equipment may lead to a limited range of outcomes.	A range of equipment is used in engineering production. There is evidence of independent safe working, although some intervention may be required. The learner is able to use information or equipment with limited guidance. Use of equipment may lead to outcomes with some quality issues.	A range of equipment is used effectively in engineering production. There is evidence of independent, safe working. Use of equipment may lead to outcomes meeting most quality requirements.	A range of equipment is used effectively in engineering production. There is evidence of independent, safe working. Use of equipment will lead to outcomes meeting all quality requirements.	
	Assessors comments				

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 2 Pass**	**Level 2 Merit**	**Level 2 Distinction**	
AC4.1 use engineering processes in production of engineered products	A limited range of processes is used in engineering production. There is some evidence of safe working, although some intervention may be required. The learner is able to access information or use processes with guidance. Use of processes may lead to a limited range of outcomes.	A range of processes is used in engineering production. There is evidence of independent safe working, although some intervention may be required. The learner is able to use information or processes with limited guidance. Use of processes may lead to outcomes with some quality issues.	A range of processes is used effectively in engineering production. There is evidence of independent, safe working. Use of processes may lead to outcomes meeting most quality requirements.	A range of processes is used effectively in engineering production. There is evidence of independent, safe working. Use of processes will lead to outcomes meeting all quality requirements.	
	Assessors comments				

Assessment criteria	Performance bands				Grade Awarded
	Level 1 Pass	**Level 2 Pass**	**Level 2 Merit**	**Level 2 Distinction**	
AC4.2 evaluate quality of engineered products	Quality of engineered products is evaluated. Conclusions are mainly straightforward.	Quality of engineered products is evaluated using some appropriate techniques. Conclusions show some reasoning based on evidence.	Quality of engineered products is evaluated using mainly appropriate techniques. Conclusions show clear evidence based reasoning.		
	Assessors comments				