Non-exam assessment:

Internal synoptic project

NCFE Level 1/2 Technical Award in Engineering (603/7006/3)

Learner copy

SAMPLE

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Contents

Introduction

The internal, non-exam assessment (NEA) takes the form of an internal synoptic project. It is a formal assessment that requires the learner to independently apply an appropriate selection of knowledge, understanding, skills and techniques, developed through the full course of study, in response to a real-world situation, to enable them to demonstrate an integrated connection and coherence between the different elements of the qualification.

The NEA will contribute 60% towards the overall qualification grade and therefore it is important that the learner produces work to the highest standard that they can. The learner, therefore, should not be entered for the internal synoptic project until they have been taught the full course of study, to ensure that they are in the best position to complete the internal synoptic project successfully.

What is synoptic assessment?

Synoptic assessment is an important part of a high-quality vocational qualification because it shows that learners have achieved a holistic understanding of the sector and that they can make effective connections between different aspects of the subject content and across the breadth of the assessment objectives in an integrated way. The Department for Education (DfE) has consulted with awarding organisations and agreed the following definition for synoptic assessment:

"**A form of assessment which requires a candidate to demonstrate that s/he can identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories, and knowledge from across the whole vocational area, which are relevant to a key task.**"

Synoptic assessment enables learners to show that they can transfer knowledge and skills learnt in one context to resolve problems raised in another. To support the development of a synoptic approach, the qualification encourages learners to make links between elements of the course and to demonstrate how they have integrated and applied their increasing knowledge and skills.

As learners progress through the course, they will use and build upon knowledge and skills learnt across units. The internal synoptic project will test the learners' ability to respond to a real-world situation.

Information for learners

Introduction

The internal, non-exam assessment is a formal assessment that will contribute 60% towards your overall qualification grade. It takes the form of a synoptic project that will require you to draw on your knowledge and understanding of the entire qualification, it is therefore important that you produce work to the highest standard that you can.

You will be assessed on your ability to independently select, apply and bring together the appropriate knowledge, understanding, skills and techniques you have learnt throughout your course of study, in response to a brief, set in a real-world-situation.

The non-exam assessment will be assessed holistically using a levels of response mark grid and against five integrated assessment objectives. These assessment objectives and their weightings are shown below.

Assessment objective (AO)
AO1 – Recall knowledge and show understanding The emphasis here is for learners to recall and communicate the fundamental elements of knowledge and understanding. **4 marks (16.7%)**
AO2 – Apply knowledge and understanding The emphasis here is for learners to apply their knowledge and understanding to real-world contexts and novel situations, including finding creative solutions. **16 marks (13.33%)**
AO3 – Analyse and evaluate knowledge and understanding The emphasis here is for learners to develop analytical thinking skills to make reasoned judgements and reach conclusions. **16 marks (13.33%)**
AO4 – Demonstrate and apply relevant technical skills, techniques, and processes The emphasis here is for learners to demonstrate the essential technical skills relevant to the vocational sector, by applying the appropriate processes, tools, and techniques. **72 marks (50%)**
AO5 – Analyse and evaluate the demonstration of relevant skills and techniques. The emphasis here is for learners to analyse and evaluate the essential technical skills, processes, tools and techniques relevant to the vocational sector. **12 marks (6.7%)**

Suggested completion time

You have been provided with a total of **18** hours to complete this non-examined assessment.
You may use some or all of the time provided for each task.
You are allowed to use time given to one task on another task where required.
You are not allowed to exceed the total number of hours.

You should not start your internal synoptic project until you have been taught the full course of study. This will ensure that you are in the best position to complete the internal synoptic project successfully.
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NCFE Level 1/2 Technical Award in Engineering (603/7006/3)

Internal synoptic project

Sample

To be given to learners on or after XX XXXXXXXX XXXX.

Learner instructions

- Read the project brief carefully before you start the work.
- You **must** clearly identify and label all of the work you produce during the supervised time.
- You **must** hand in all of your work to the supervisor at the end of each timed session.

Learner information

- This non-exam assessment (NEA) assessment will assess your knowledge and understanding from across the qualification.
- Total marks **120.**
- The suggested completion time for this internal synoptic project is 18 hours.
- All of the work you submit **must** be your own.

Please complete the details below clearly and in BLOCK CAPITALS.

Learner name _____

Centre name _____

Centre number | | Learner number | |

Learner signature _____

Project brief

You work for a mechanical engineering company who manufacture light fittings for household and office furnishing companies.

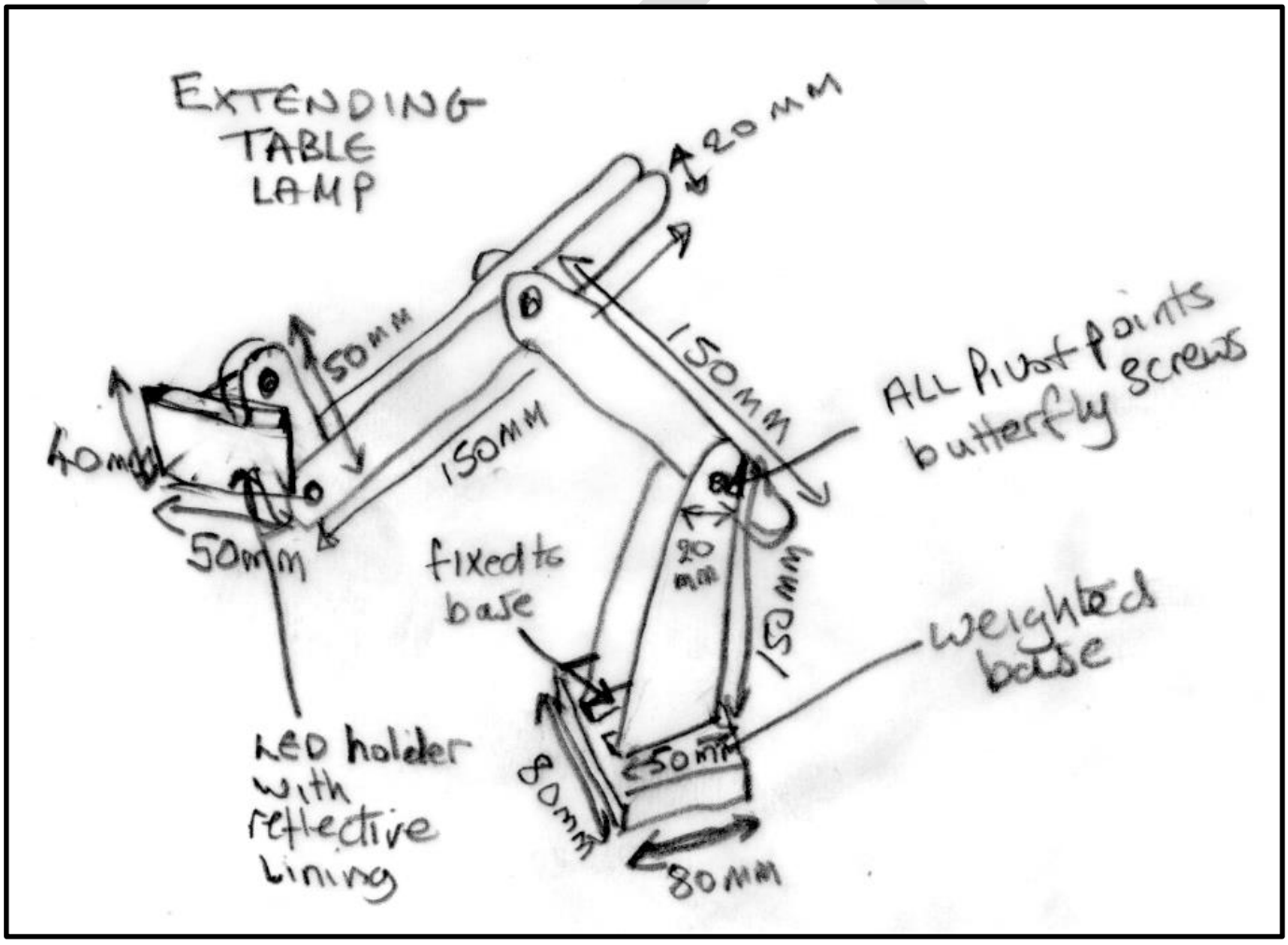
You have been asked to work on a new model of an LED table lamp and are required to produce a working, scaled model of the object to present to the board of directors.

You are required to produce a portfolio to accompany the model.

The portfolio should include isometric engineering drawings of the LED table lamp, a plan of production, evidence of testing and an evaluation.

You have been provided the free-hand sketch of the new LED table lamp.

Use this sketch throughout the project, as required.



Project instructions:

The mechanical engineering company have asked you to present a full portfolio which is to include:

1. Materials research and materials selection (1 hour 30 minutes)
2. Hand-drafted engineering drawings (2 hours 30 minutes)
3. Engineering drawings using CAD software (2 hours 30 minutes)
4. Production plan (4 hours)
5. Functioning prototype manufacture (6 hours)
6. Evaluation of your final product (1 hour 30 minutes)

Assessment tasks

<table>
<tr><td colspan="2">Task 1 – Materials research and materials selection</td></tr>
<tr><td>Recommended time:</td><td>1 hour 30 minutes</td></tr>
<tr><td>Content areas assessed:</td><td>1. Engineering disciplines
4. Properties, characteristics and selection of engineering materials.</td></tr>
<tr><td>Assessment objectives:</td><td>AO1 – 4 marks
AO2 – 4 marks
AO3 – 4 marks</td></tr>
<tr><td colspan="2">You are required to:

Select the materials, tools and/or machinery that you will use to manufacture your LED table lamp.

You should also provide evidence to support and justify your selections.
[12 marks]</td></tr>
<tr><td>Evidence</td><td>Information on materials, tools and/or machinery.

You need to show that you have researched and selected:

• material required to manufacture
• tools and/or machinery required to manufacture.

You need to show:

• supporting information to justify the selection of materials, tools and/or machinery.

You must include your internet browsing history used for research and planning purposes.

You could use the following formats to provide evidence for your research:

• written report
• annotated diagrams
• digital presentation.</td></tr>
</table>

Task 2 – Hand-drafted engineering drawings	
Recommended time:	**2 hours 30 minutes**
Content areas assessed:	2. Applied science and mathematics in engineering 3. Reading engineering drawings 6. Hand-drawn engineering drawings
Assessment objectives:	AO1 – 8 marks AO4 – 12 marks

You are required to:

Provide a brief description on the requirements of British Standard 8888 which you can refer to throughout this project.

Create hand-drawn engineering drawing(s) of the free-hand sketch of the new LED table lamp provided in the brief.

[20 marks]

Evidence	Your evidence **must** include: • your description of BS 8888 • hand-drawn engineering drawing(s) of the LED table lamp.

Task 3 – CAD produced engineering drawings	
Recommended time:	**2 hours 30 minutes**
Content areas assessed:	2. Applied science and mathematics in engineering 3. Reading engineering drawings 7. Computer-aided design (CAD) engineering drawings
Assessment objectives:	AO1 – 8 marks AO4 – 12 marks
You are required to: Using CAD software, create engineering drawing(s) of the free-hand sketch of the new LED table lamp included in the brief. Your drawing(s) must apply a layout recognised within the engineering industry following British Standards. **[20 marks]**	
Evidence	Your evidence **must** include: • CAD software engineering drawing(s) of the LED table lamp.

Task 4 – Production plan	
Recommended time:	**4 hours**
Content areas assessed:	5: Engineering tools, equipment, and machines 8: Production planning techniques
Assessment objectives:	AO2 – 12 marks AO3 – 12 marks

You are required to:

- create a production plan for your engineering prototype, based on the drawings you developed in tasks 2 and 3.

[24 marks]

Evidence	Your evidence **must** include: • a **plan** of your engineering prototype Your plan **must** evidence **each** of the following areas: • tools and equipment requirements • health and safety measures • quality control measures • production plan • time plan (including timescales and deadlines for completion of tasks). You should also justify each of the planning decisions made. You must include your internet browsing history used for research and planning purposes. You could use a range of the following to provide evidence for your plan: • written report • annotated diagrams • digital presentation • screen shots.

Task 5 – Functioning prototype manufacture	
Recommended time:	**6 hours**
Content areas assessed:	9: Applied processing skills and techniques
Assessment objectives:	AO4 – 36 marks

Using the drawings and plan assets that you developed in tasks 2 to 4 **you are required to:**

- create a functioning prototype of the LED table lamp to an appropriate scale. **You must use suitable processing skills and techniques**
- test the **functionality** of the prototype.

Your prototype must**:**

- meet the needs of the brief
- follow your hand-drawn and CAD drawings
- be fully functional.

[36 marks]

Evidence	You **must** provide: • your functioning prototype • evidence of production processes, skills, and techniques • evidence of prototype testing. You **could** use a range of the following formats to provide evidence of your production process: • digital presentation • written report • annotated screenshots • annotated images.

Task 6 – Summative evaluation	
Recommended time:	**1 hours 30 minutes**
Content areas assessed:	8: Production planning techniques
Assessment objectives:	AO5 – 8 marks

You are required to:

Evaluate your final product.

Your evaluation **must** include:

- how your prototype met the brief
- how you could improve your prototype, in relation to the brief.

As a minimum you **must** consider the following three areas within your response:

- functionality of the prototype
- how well it met the brief
- how suitable it is for the specified use (home and/or office).

[8 marks]

Evidence	You **must** provide: • your evaluation. You could use the following formats to provide evidence of your evaluation: • annotated screenshots • written report.

This is the end of the non-exam assessment

Documentation

Declaration of authenticity

The learner and assessor must complete the form at the end of the assessment and before any marking takes place. The assessor must check the number of tasks submitted by the learner is accurate.

The completed form must be retained within the centre and is not to be sent to the moderator or NCFE unless specifically requested.

Learner name:	
Task(s) submitted:	
Learner declaration:	
I certify that the work submitted for this internal synoptic project is my own. I have clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.	
Learner signature:	
Date:	

Assessor name:	
Assessor declaration:	
I certify that the work submitted is the learner's own. The learner has clearly referenced any sources used in the work. I confirm that all work was conducted under conditions designed to assure the authenticity of the learner's work.	
Assessor signature:	
Date:	

NB: Once completed, the declaration of authenticity must be stored securely within the centre, in line with the following NCFE Regulations for Conduct of NEA. A copy of this declaration form must be made available to NCFE upon request.