Non-Exam Assessment

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

Learner version

September 2023 release

v1.0

Contents

Introduction

The non-exam assessment (NEA) is a formal synoptic 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 must not start the NEA until they have been taught the full course of study, to ensure that they are in the best position to complete the NEA 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 NEA will test the learners' ability to respond to a real-world situation.

Information for learners

Introduction

The non-exam assessment (NEA) is a formal synoptic 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 NEA 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. **20 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. **60 marks (50%)**
AO5 – Analyse and evaluate the demonstration of relevant skills, techniques and processes The emphasis here is for learners to analyse and evaluate the essential technical skills, processes, tools and techniques relevant to the vocational sector. **8 marks (6.7%)**

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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) will assess your knowledge and understanding from across the qualification.
- The maximum mark for this assessment is **120.**
- The maximum completion time for this NEA is **18 hours** (plus **2 hours** preparation and research time).
- 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 _____

Preparation and research task

Maximum time: **2 hours**

In addition to the allocated assessment time for this non-exam assessment (NEA), you are permitted to spend a maximum of **2 hours** to undertake research and develop a pack of resources that you can refer to during the formal NEA assessment time. During this 2-hour period, you may access all learning materials, the internet and other published materials.

You should use this time to create your own resource pack and it is this pack alone that you may use during the allocated time given to the NEA. This is the only support material that is permitted during the completion of NEA tasks (unless otherwise stated within each task instructions).

All research or data used in your final NEA **must** be referenced appropriately. As a minimum this should include the following:

- the use of quotation marks to clearly identify any passages not of your own words
- date accessed
- name of source / author

Evidence requirements: research pack of no more than four sides of A4, font size 12 **(**if word processed) to be returned to your assessor at the end of each task / session and submitted with the completed NEA.

Formal NEA

Maximum completion time

You have been provided with a total of **18 hours** to complete this non-examined assessment (plus **2 hours** for preparation and research).

You may use some or all of the time provided for each task.

You are allowed to use any remaining time allocated to one task to rework previous tasks up to the maximum time allowed.

You are not allowed to exceed the total number of hours.

You should not start your NEA until you have been taught the full course of study. This will ensure that you are in the best position to complete the NEA successfully.

Do not turn over until the assessor tells you to do so.

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Do not turn over until the assessor tells you to do so.

Project Brief

You work for a truck engineering company. This company manufactures dump bodies and safety lock systems for quarry companies.

You have been asked to design and then produce a working scale model of a dump body attached to a truck chassis, including a link chain to a tolerance of +/- 3 mm.

The main purpose of having a model is for you to demonstrate the best position to place the link chain to the chassis. You'll be required to show:

- which position will allow for the emptying of the truck
- that the rear tailgate of the dump body and chassis will clear before the load is moving / emptying.

The company has supplied you with a variety of engineering schematics and drawings. These identify the main moving parts of the dump body, tailgate and chassis, as shown in **Figure 1** and **Figure 2.** All dimensions are in millimetres (mm) unless otherwise stated.

Use the images / drawings in **Figure 1** and **Figure 2** for the main positions but use your own methods / Ideas of hinging where appropriate. You also need to incorporate a safety LED light. This will light via a push switch which will be attached to the chassis.

A drawing has been produced to help in the construction of the dump body and chassis, as shown in **Figure 3.**

Project instructions:

The company have asked you to present a full portfolio of evidence which is to include:

1. Materials research and materials selected
2. Hand-drafted engineering drawings
3. Engineering drawings using CAD software
4. Production plan
5. Functioning scale model manufacture
6. Evaluation of your final product

Figure 1: Suggested schematic representation of the dump body and chassis.

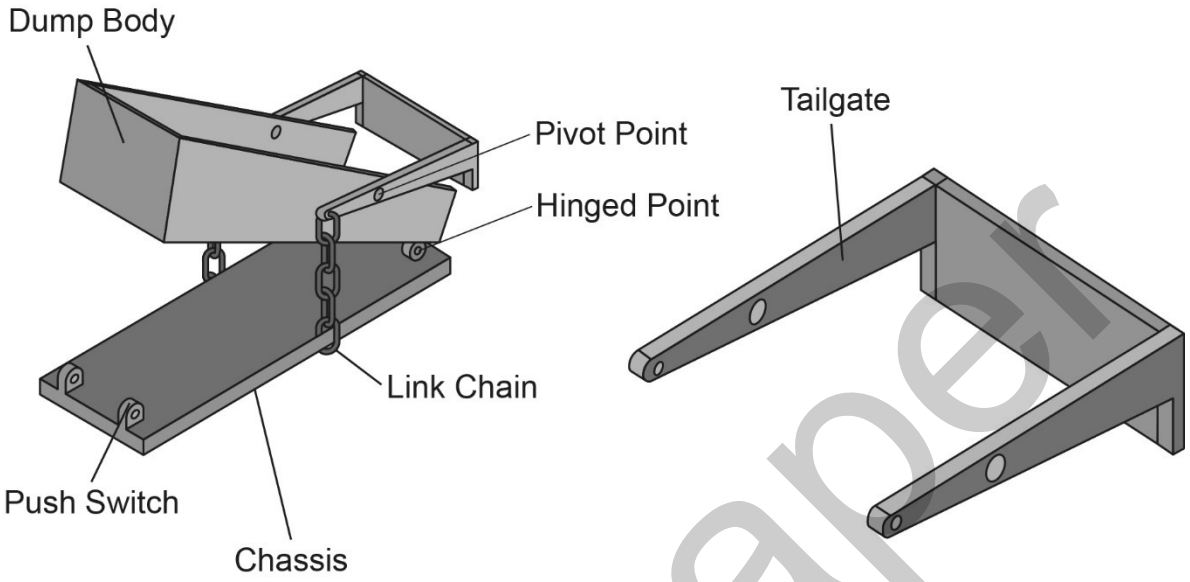


Figure 2: Drawing of the tailgate prior to folding (provided to support in the construction of the dump body and chassis).

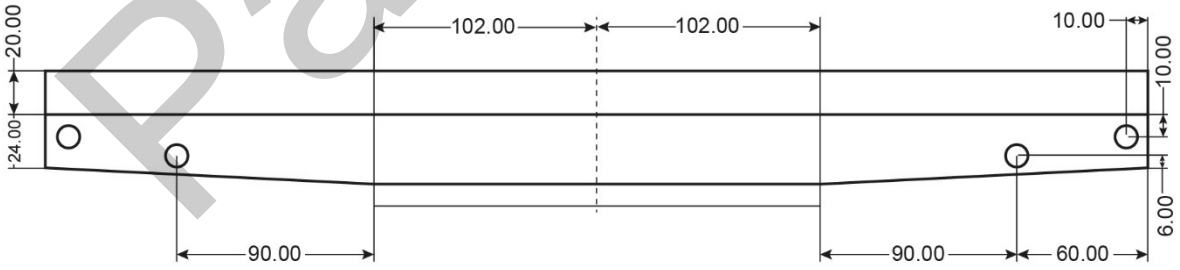
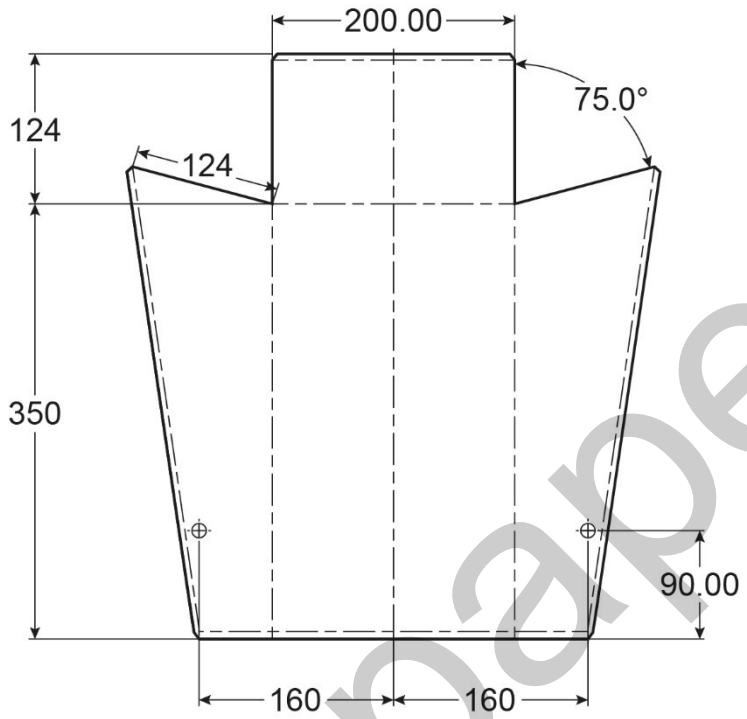


Figure 3: Drawing of dump body and chassis prior to folding (provided to support in the construction of the dump body and chassis).



Assessment tasks

Task 1

<table>
<tr><td colspan="2">Materials research and materials selection</td></tr>
<tr><td>Maximum 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">Research and select the materials, tools and / or machinery you will use to manufacture your dump body and chassis scale model.

You need to show that you have researched and selected:

• materials required to manufacture
• tools and / or machinery required to manufacture the dump body and chassis scale model.

You need to show:

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

[12 marks]</td></tr>
<tr><td>Evidence</td><td>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	
Maximum time	**2 hours 30 minutes**
Content areas assessed	2. Applied science and mathematics in engineering 3. Reading engineering drawings 6. Hand-drafted 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-drafted engineering drawing(s) of the dump body and chassis provided in the brief. **[20 marks]**	
Evidence	Your evidence **must** include: • your description of BS 8888 • hand-drafted engineering drawing(s) of the dump body and chassis.

Task 3

CAD produced engineering drawings	
Maximum 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: **Use** CAD software to **create** engineering drawing(s) of the hand-drafted engineering drawing(s) of the dump body and chassis, that you created in Task 2. Your drawing(s) must apply a layout that is recognised within the engineering industry following British Standard 8888. **[20 marks]**	
Evidence	Your evidence **must** include: • CAD software engineering drawing(s) of the dump body and chassis.

Task 4

<table>
<tr><td colspan="2">Production plan</td></tr>
<tr><td>Maximum time</td><td>4 hours</td></tr>
<tr><td>Content areas assessed</td><td>5. Engineering tools, equipment, and machines
8. Production planning techniques</td></tr>
<tr><td>Assessment objectives</td><td>AO2 – 12 marks
AO3 – 12 marks</td></tr>
<tr><td colspan="2">You are required to:

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

Your plan must evidence each of the following areas:

• tools and equipment requirements
• health and safety measures
• quality control measures
• time plan (including timescales and deadlines for completion of tasks).

You must also justify each of the planning decisions made.

[24 marks]</td></tr>
<tr><td>Evidence</td><td>Your evidence must include:
• a plan of your engineering scale model

You could use a range of the following to provide evidence for your plan:

• written report
• annotated diagrams
• digital presentation
• screen shots.
You must include your internet browsing history used for research and planning purposes.</td></tr>
</table>

Task 5

Functioning scale model manufacture	
Maximum time	**6 hours**
Content areas assessed	9. Applied Processing Skills and Techniques
Assessment objectives	AO4 – 36 marks

Using the drawings **and** production plan that you developed in tasks 2-4

You are required to:

- **create** a functioning scale model of the dump body and chassis to an appropriate scale. You **must** use suitable processing skills and techniques
- **test** the functionality of the scale model.

Your scale model **must:**

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

You **must** provide:

- your functioning scale model
- evidence of production processes, skills, and techniques
- evidence of scale model testing.

[36 marks]

Evidence	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	
Maximum 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 scale model met the brief
- how you could improve your scale model, in relation to the brief.

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

- functionality of the scale model
- how well it met the brief
- how suitable it is for the specified use.

[8 marks]

Evidence	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 NEA 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.

GDPR Consent

Section A: This section must be completed by the learner

- NCFE may select your work for use at teacher training or standardisation events. Your work will be anonymised by removing your name. All materials will be reviewed regularly and will be removed if no longer required
- NCFE may select your work at some point in the future for use in teaching and learning resources published on the NCFE website. Your work would be anonymised by removing your name. All materials will be reviewed regularly and will be removed if no longer required
- you understand that this agreement may be terminated at any time through written request
- for further details about how we process your data please read more www.ncfe.org.uk/legal-information.

Please tick the option that applies, sign and date in the box below:

		Tick one only
I consent to my work being used in the manner detailed in Section A		
I **do not** consent to my work being used in the manner detailed in Section A		
Learner Signature:		
Date:		

Section B: This section must be completed by any participants who feature in the work

Over 13

- I am over 13 and I give my permission for my video and/or photographic image to be used as detailed in Section A (above).

Under 13

- I give my permission for my child's video and/or photographic image to be used as detailed in Section A (above).

Name of participant (Printed)	**Participant/Parent signature**	**Date**

If any of the participants have declined permission, please tick here: ☐