

External Assessment

NCFE Level 2 Certificate in Engineering Studies (601/4532/8)

Unit 02 Introduction to engineering drawing
(L/506/3766)

Paper number: Sample

Assessment window: Practice Paper

Task 3

Centre number		Learner number	
Surname			
Other names			

Learner declaration:

I confirm that the work contained in this external assessment is all my own work.
I have not copied work from anyone else.
I have not copied work directly from handouts/internet/textbooks or any other publication.
If I have used a quote, then I have referenced this appropriately.

Learner's signature:

Date:

Grade achieved To be completed by the Examiner	
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Time allowed:

2 hours to complete Task 3.

Instructions for learners

- Complete your personal details on the first page
- You have 2 hours to complete Task 3 part A and part B
- Write your responses to the tasks in the spaces provided. If you need more space you may use extra paper. Make sure that any extra paper is labelled clearly with your name, centre number and learner number and is securely attached to the appropriate answer booklet
- If you write your answers using a word processor, you must make sure that any printouts are labelled clearly with your name, centre number and learner number and are securely attached to the appropriate answer booklet
- If you write your answers using a word processor, you must make sure that you clearly record the relevant task along with your answer to ensure that the Examiner is able to grade it
- You **MUST** attempt all of the questions to address all assessment criteria fully. You cannot achieve a pass grade unless you meet the required standard in all the questions
- Your 3D drawing completed for Task 3 may be hand drawn or produced using a computer. If you produce your drawings on a computer you should print out a hard copy. You should submit the hard copy only
- Your drawing must be clearly identified with your name, your centre number and your learner number. These should be written on the **back** of your drawing
- All of the work you submit must be your own
- You must sign the learner declaration on the front page of this assessment paper to declare that the work produced is your own
- At the end of the assessment hand all documents over to your Invigilator.

Guidance for learners

- Make sure you're familiar with the assessment criteria and grading descriptors for this unit. These are included at the end of this external assessment. If you're aiming for a Merit or Distinction it's particularly important that you're familiar with what these grades require, as you work through Task 3
- Read Task 3 carefully and make sure that you understand:
 - ◆ what you need to do to complete Task 3 in full
 - ◆ what you need to submit.

Resources

- You may use all of the material given within the external assessment paper but no other resources should be taken into the examination room
- You're not allowed to use the internet during the external assessment
- All the evidence you submit must be your own work
- Make sure that all your work is clearly identified with your name, centre number and learner number.

This is a list of the equipment you will need for this external assessment

Essential:

- 2H and 4H pencils
- A3/A4 blank paper
- ruler
- set square/T-square
- compass
- protractor
- eraser

Optional (this list is not exhaustive):

- drawing board
- clutch pencil
- templates
- French curves
- CAD software

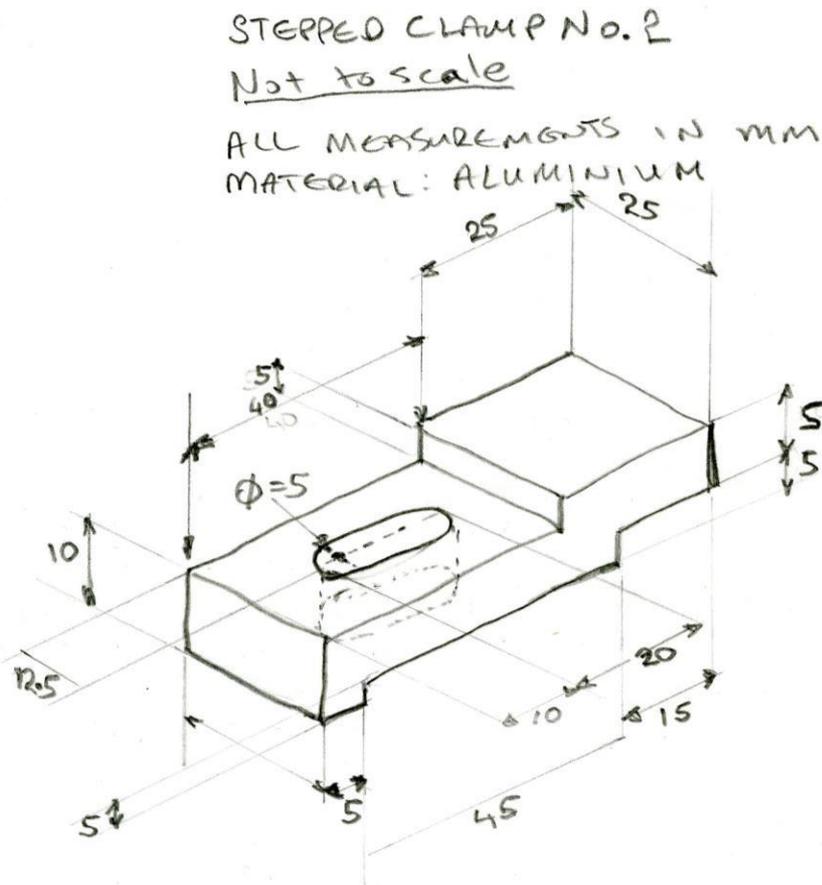
Sample

Scenario

You are studying Engineering at a local College. The workshop technician requires a part to be made called a Stepped Clamp that will help to hold specific metal castings on the workshop machinery. The part will be made in the college workshops. Your lecturer has asked you to draw the part from a sketch provided by the technician.

The part is to be made out of aluminium. All dimensions are in millimetres.

This is the sketch you have been given:



Task 3

You must ensure your work in Task 3 addresses assessment criteria 1.3, 2.1, 2.2, 2.3 and 2.4. You can refer to the assessment criteria within the grading descriptors at the end of this document.

Look at the sketch on page 4.

Your task is to produce a **3D** drawing for the Stepped Clamp. The drawing must be:

- 3D
- correctly laid out on A4 or A3 paper
- drawn to scale. You should choose the scale you think is most appropriate
- drawn using appropriate drawing tools and equipment. You can decide whether to draw by hand or use a computer.

Part A

As you plan your drawing, answer the following questions.

1. What is the name of the 3D drawing method you will use? Why are you going to use this method of drawing in 3D?

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2. What other method of 3D drawings could you use? State any reasons why you might use any of the alternatives.

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3. Before you start your engineering drawing in Part B do a free hand sketch of the Stepped Clamp to show how this could look in **one** of these **other** methods of 3D drawing from question 2. Do your free hand sketch in the box below.

Name of 3D drawing method:

Sketch:

Sample

4. Explain the difference between scale and proportion in relation to your sketch above.

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Part B

Now produce your 3D drawing for Task 3.

You should use the drawing method that you mentioned above in **Part A, Question 1.**

If you produce your drawing on a computer it should be printed out and submitted as a **hard copy only.**

Sample

Assessment criteria

The assessment criteria 1.3, 2.1, 2.2, 2.3 and 2.4 are detailed below. If you're aiming for a Merit or Distinction it's particularly important that you're familiar with what these grades require, as you work through the tasks.

Assessment criteria	Pass	Merit	Distinction
1.3 Describe the purpose of scale and proportion in engineering drawing	Learners will describe the purpose of scale and proportion in engineering drawing	Learners will coherently describe the purpose of scale and proportion in engineering drawing	Learners will describe the purpose of scale and proportion in engineering drawing showing critical judgement
2.1 Demonstrate the correct layout of a design sheet for 2D and 3D engineering drawings	Learners will demonstrate the correct layout of a basic design sheet for 2D and 3D engineering drawings	Learners will demonstrate the correct layout of a detailed design sheet for 2D and 3D engineering drawings	Learners will skilfully demonstrate the correct layout of a sophisticated design sheet for 2D and 3D engineering drawings
2.2 Apply appropriate scales to all drawings	Learners will apply appropriate scales to all drawings	Learners will apply appropriate and realistic scales to all drawings	Learners will skilfully apply appropriate and realistic scales to all drawings
2.3 Demonstrate the accurate use of drawing tools and equipment	Learners will demonstrate the accurate use of drawing tools and equipment	Learners will demonstrate the accurate use of drawing tools and equipment showing experimentation	Learners will skilfully demonstrate the accurate use of drawing tools and equipment showing experimentation
2.4 Present their final 2D and 3D engineering drawings showing evidence of the process involved in its production	Learners will present their final 2D and 3D engineering drawings showing evidence of the process involved in its production	Learners will present their final 2D and 3D engineering drawings showing evidence of the process involved in its production, justifying their choices	Learners will present their final 2D and 3D engineering drawings showing evidence of the process involved in its production showing critical judgement

What you need to hand in after your external assessment

At the end of the timed external assessment you'll hand in the following work to your Invigilator:

- this external assessment paper
- any extra paper you have used, securely attached
- your 3D drawing.

Make sure that all your work, including any extra paper, is clearly identified with your name, your centre number and your learner number. Make sure you've signed the learner declaration on the front page of this external assessment paper.

Any remaining time can be spent checking your responses to Task 3.

This is the end of the assessment.

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