



Higher
coursework
assessment task



Higher Engineering Science Assignment

Worksheets: Recording Studio

Valid for session 2025-2026 only.

This assessment is given to centres in strictest confidence. You must keep it in a secure place until it is used.

This edition: January 2026 (version 1.0)

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Introduction

This document contains worksheets for candidates to use for the current Higher Engineering Science assignment. They must be used in conjunction with the assignment document.

Instructions for candidates

This document contains all the worksheets that you need for the current assignment. The assignment document tells you when you need to use a worksheet.

Anything you handwrite or draw must be in blue or black permanent ink only.

Task 1 – worksheet 1a

Scottish Candidate Number:

Version 1.0

2

Task 1 – worksheet 1b

Planned test	Expected result	Actual result	Amendments made
Set V_1 to 5 mV. Set V_2 and V_3 to 0 mV.	V_{out} should be +300 mV.		
Set V_1 to 0 mV. Set V_2 to 5 mV. Set V_3 to 0 mV.	V_{out} should be +300 mV.		
Set V_1 to 5 mV. Set V_2 to 5 mV. Set V_3 to 15 mV.	V_{out} should be +900 mV.		

Scottish Candidate Number:

Task 1 – worksheet 1c

Scottish Candidate Number:

Version 1.0

4

Task 1 – worksheet 1d

Scottish Candidate Number:

Task 2 – worksheet 2a

You must not construct or use simulation software to complete this task

A ○ —

B ○ —

— ○ Z

C ○ —

D ○ —

Scottish Candidate Number:

Task 2 – worksheet 2b

Scottish Candidate Number:

Version 1.0

7

Task 2 – worksheet 2c and worksheet 2e

A	B	C	D	Z	NAND equivalent
0	0	0	0		
0	0	0	1		
0	0	1	0		
0	0	1	1		
0	1	0	0		
0	1	0	1		
0	1	1	0		
0	1	1	1		
1	0	0	0		
1	0	0	1		
1	0	1	0		
1	0	1	1		
1	1	0	0		
1	1	0	1		
1	1	1	0		
1	1	1	1		

Scottish Candidate Number:

Task 2 – worksheet 2d

Scottish Candidate Number:

Version 1.0

9

Task 2 – worksheet 2f

You must not construct or use simulation software to complete this task

A ☐

B ☐

☐ Z

C ☐

D ☐

Scottish Candidate Number:

Task 2 – worksheet 2g

Describe the difference between the two designs.

Describe the advantages and/ or disadvantages in relation to factors such as manufacture and/ or cost.

Scottish Candidate Number:

Task 3 – worksheet 3a

Desired
frequency →

→ Actual
frequency

Scottish Candidate Number:

Task 3 – worksheet 3b

Scottish Candidate Number:

Task 3 – worksheet 3c

Planned test	Expected result	Actual result	Amendments
Set analogue sensor input to 5 V. Press the start switch.	The red LED lights and the motor turns.		
Set analogue sensor input to 0 V then press the start switch.	The motor turns in the opposite direction and the red LED lights.		
Set analogue sensor input to 0V then press the start switch. Then slowly increase the input until the green LED lights.	When the input is in the desired range the motor slows to a halt and the green LED flashes 5 times over 1 second. The system returns to the start, ready for the next press of the start switch.		

Scottish Candidate Number:

Task 3 – worksheet 3d

Scottish Candidate Number:

Task 3 – worksheet 3e

Specification point	Met? Yes/ No	Justification
i.		
ii.		
iii.		
iv.		
v.		
vi.		

Scottish Candidate Number:

Task 4 – worksheet 4a

Scottish Candidate Number:

Task 4 – worksheet 4b

Scottish Candidate Number:

Administrative information

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History of changes

Version	Description of change	Date

Security and confidentiality

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