



National 5
Coursework
Assessment Task



National 5 Engineering Science Assignment

Worksheets: Leisure pool complex

Valid for session 2024-25 only.

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

Introduction

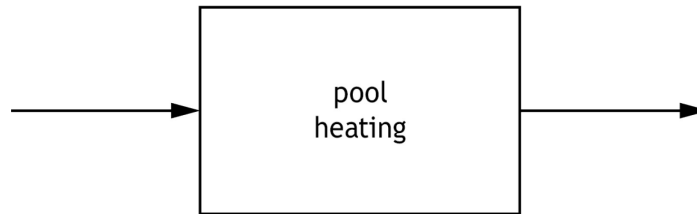
This document contains worksheets for candidates to use for the current National 5 Engineering Science assignment. They must be used in conjunction with the assignment document.

Instructions for candidates

This document contains the worksheets that you need for the current assignment. The assignment document tells you when you need to use a worksheet. The worksheets must be completed single-sided, with nothing written on the back.

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

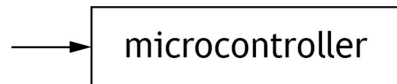
Task 1a(i) – worksheet 1a(i)



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Task 1a(ii) – worksheet 1a(ii)

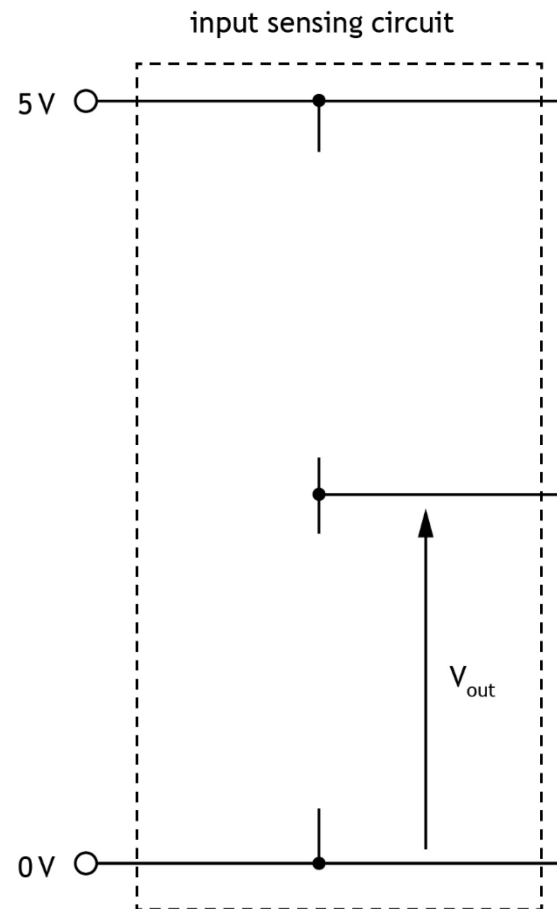


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Task 1b – worksheet 1b

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



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Task 1c – worksheet 1c

Planned test	Expected result
Test 1 Reduce the water temperature.	
Planned test	Expected result
Test 2	

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Task 2b — worksheet 2b

Planned test	Expected result	Initial test result	Planned amendment to circuit/flowchart	Re-test result
Test 1 Press and hold the start switch (input 1) for a few seconds and then release it.	The LED flashes and the buzzer sounds 5 times.	<i>When the start switch is pressed ...</i>		<i>When the start switch is pressed ...</i>
Planned test	Expected result	Initial test result	Planned amendment to circuit/flowchart	Re-test result
Test 2 After the LED and buzzer warning cycle has completed, press and hold the start switch (input 1) for a few seconds and then release it.	The relay switches on then the motor starts to turn.	<i>When the start switch is pressed again...</i>		<i>When the start switch is pressed again...</i>
Planned test	Expected result	Initial test result	Planned amendment to circuit/flowchart	Re-test result
Test 3 When the motor is turning, press and hold the stop switch (input 3) for a few seconds and then release it.	The relay switches off and the motor gradually slows down and stops.	<i>When the stop switch is pressed...</i>		<i>When the stop switch is pressed...</i>

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Task 2d – worksheet 2d

Improvement that will benefit the operator	
Justification	

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Task 3b – worksheet 3b

Planned test 1	Input direction	Output direction
Observe and record the direction of the input and output gears.		

Planned test 2	Input speed/turns	Output speed/turns	Actual Velocity Ratio
Measure the input speed (or number of turns) and output speed (or number of turns) of the gear system and calculate the actual velocity ratio.			

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Task 3c – worksheet 3c

Specification point	Met? Yes/No	Justification
i.		
ii.		

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Task 3d — worksheet 3d

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

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Task 4a – worksheet 4a

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

S ○ —

D ○ —

—○ P

M ○ —

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Task 4c – worksheet 4c

S	D	M	P
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

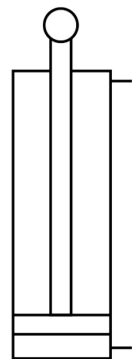
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Task 5b – worksheet 5b

pool
floor
up

pool
floor
down



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Task 5c – worksheet 5c

Modification	
Justification	

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Administrative information

Published: January 2025 (version 1.0)

History of changes

Version	Description of change	Date

Security and confidentiality

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