

**Evaluation Approach**

- The lab book must contain a complete record of the design and simulations done.
- When looking at the design:
  - Does it follow a logical, engineering approach? Is it easy to follow?
  - Are the design equations and calculations shown?
  - Does the student show insight and understanding in the design?
- When looking at the simulation:
  - Does the designed and simulated parameter/component values match?
  - Is it a realistic/practical simulation of the system component?
  - How well does the simulated results match the designed outcomes?
  - Does the student show insight and understanding in the simulation?
- When looking at the speed and distance calculation algorithm:
  - Evaluation - is there some form of equations / pseudo code / flow diagram clearly showing how it will be calculated using the rotary encoder pulses from both wheels and wheel diameter?
  - Test results – has the student written some rudimentary code to test and validate the algorithm?
- When evaluating the lab book:
  - Is the lab book neat? Student name, index, page numbers, dates.
  - Would you be able to repeat what the student has done using the lab book?
- When evaluating the Concept Definition:
  - Does the student responsible for this subsystem have a clear picture and understanding of what his/her subsystem must do and i.t.o. its specifications?

**MOTOR DRIVE AND POWER SUPPLY [12]**

Student no:		Group No:	
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Q1	MOTOR DRIVE	Good / Excellent	Acceptable / Sufficient	Poor	None
a	Driver and H-bridge DESIGN evaluation	1	0.5	0	0
b	Driver and H-bridge SIMULATION evaluation	1	0.5	0	0
Q2	ROTARY ENCODER	Good / Excellent	Acceptable / Sufficient	Poor	None
a	Rotary encoder DESIGN evaluation	1	0.5	0	0
b	Rotary encoder SIMULATION evaluation	1	0.5	0	0
Q3	SPEED AND DISTANCE CALCULATION	Good / Excellent	Acceptable / Sufficient	Poor	None
a	Algorithm evaluation	1	0.5	0	0
b	Algorithm test results	1	0.5	0	0
Q4	LAB BOOK	Good / Excellent	Acceptable / Sufficient	Poor	None
		2	1	0	0
Q5	CONCEPT DEFINITION	Good / Excellent	Acceptable / Sufficient	Poor	None
		4	2	1	0

**Notes / Comments:**


### Evaluation Approach

- The lab book must contain a complete record of the design and simulations done.
- When looking at the Navigation Control:
  - Are there good flow diagram / pseudo code design that for the majority of the NAVCON specifications?
  - Has the student written any code to verify that the NAVCON will operate correctly with the information received from the MDPS and SS subsystems?
  - Does the student show insight and understanding in the design?
- When looking at the design:
  - Does it follow a logical, engineering approach? Is it easy to follow?
  - Are the design equations and calculations shown?
  - Does the student show insight and understanding in the design?
- When looking at the simulation:
  - Does the designed and simulated parameter/component values match?
  - Is it a realistic/practical simulation of the system component?
  - How well does the simulated results match the designed outcomes?
  - Does the student show insight and understanding in the simulation?
- When evaluating the lab book:
  - Is the lab book neat? Student name, index, page numbers, dates.
  - Would you be able to repeat what the student has done using the lab book?
- When evaluating the Concept Definition:
  - Does the student responsible for this subsystem have a clear picture and understanding of what his/her subsystem must do and i.t.o. its specifications?

### STATE AND NAVIGATION CONTROL [12]

Student no:		Group No:	
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Q1	NAVIGATION AND CONTROL	Good / Excellent	Acceptable / Sufficient	Poor	None
a	NAVCON DESIGN evaluation	1	0.5	0	0
b	NAVCON SIMULATION evaluation	1	0.5	0	0
Q2	PURE TONE DETECTION	Good / Excellent	Acceptable / Sufficient	Poor	None
a	Detector DESIGN evaluation	1	0.5	0	0
b	Detector SIMULATION evaluation	1	0.5	0	0
Q3	ACTIVATION CIRCUIT	Good / Excellent	Acceptable / Sufficient	Poor	None
a	Activation circuit DESIGN evaluation	1	0.5	0	0
b	Activation SIMULATION evaluation	1	0.5	0	0
Q4	LAB BOOK	Good / Excellent	Acceptable / Sufficient	Poor	None
		2	1	0	0
Q5	CONCEPT DEFINITION	Good / Excellent	Acceptable / Sufficient	Poor	None
		4	2	1	0

### Notes / Comments:


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- The lab book must contain a complete record of the design and simulations done.
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    - Are the design equations and calculations shown?
    - Does the student show insight and understanding in the design?
  - When looking at the simulation:
    - Does the designed and simulated parameter/component values match?
    - Is it a realistic/practical simulation of the system component?
    - How well does the simulated results match the designed outcomes?
    - Does the student show insight and understanding in the simulation?
  - When looking at the angle of incidence calculation algorithm:
    - Evaluation - is there some form of equations / pseudo code / flow diagram clearly showing how it will be calculated using the inter-sensor distances and the distance information received from the MDPS?
    - Test results – has the student written some rudimentary code to test and validate the algorithm?
  - When evaluating the lab book:
    - Is the lab book neat? Student name, index, page numbers, dates.
    - Would you be able to repeat what the student has done using the lab book?
  - When evaluating the Concept Definition:
    - Does the student responsible for this subsystem have a clear picture and understanding of what his/her subsystem must do and i.t.o. its specifications?

## SENSOR SUBSYSTEM [12]

<b>Student no:</b>		<b>Group No:</b>	
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<b>Q1</b>	<b>SENSOR ARRAY</b>	<b>Good / Excellent</b>	<b>Acceptable / Sufficient</b>	<b>Poor</b>	<b>None</b>
a	Sensory array DESIGN evaluation	1	0.5	0	0
b	Sensory array SIMULATION evaluation	1	0.5	0	0
<b>Q2</b>	<b>DISPLAY</b>	<b>Good / Excellent</b>	<b>Acceptable / Sufficient</b>	<b>Poor</b>	<b>None</b>
a	Display DESIGN evaluation	1	0.5	0	0
b	Display SIMULATION evaluation	1	0.5	0	0
<b>Q3</b>	<b>ANGLE OF INCIDENCE CALCULATION</b>	<b>Good / Excellent</b>	<b>Acceptable / Sufficient</b>	<b>Poor</b>	<b>None</b>
a	Algorithm evaluation	1	0.5	0	0
b	Algorithm test results	1	0.5	0	0
<b>Q4</b>	<b>LAB BOOK</b>	<b>Good / Excellent</b>	<b>Acceptable / Sufficient</b>	<b>Poor</b>	<b>None</b>
		2	1	0	0
<b>Q5</b>	<b>CONCEPT DEFINITION</b>	<b>Good / Excellent</b>	<b>Acceptable / Sufficient</b>	<b>Poor</b>	<b>None</b>
		4	2	1	0

### **Notes / Comments:**