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24/25 Group Project Management Plan

Engineering Management - ACHA5012

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September 2024

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1 Introduction

This report outlines an engineering management plan to improve the Honda NSF250's performance, with a framework to measure success through specific, quantifiable criteria. Key performance metrics, such as airflow rates, fuel efficiency, and power output, will assess enhancements in areas like the airbox, intake systems, and aerodynamics. Components like the offset yoke and rear mono-shock will be evaluated based on rider feedback, stability, finite element analysis, and tuning ease. Weekly reviews against Gantt chart milestones will help track progress and adjust as needed, ensuring both technical and management improvements.

I also assess my role using Belbin's model to identify strengths and areas for improvement, enhancing my approach to teamwork. Group and personal Gantt charts, task lists, records of tools, materials, and costs further support effective decision-making and accountability.

2 Team Roles and Responsibilities

Table 1: Team roles and responsibilities.

Name	Project Role	Project Responsibilities
Olly Gillson	Team Lead Engine Management/Intake & Fuelling Systems	• Bellmouth and secondary injector design. • Fuelling maps and engine strategies.
Oska Robertson	Rider Dynamics	• Rear set design and development.
Megan Gwilym	Research/Engine Management	• Alternative fuels research • Fuelling calculation research • Secondary injector timing research
Harry Rogers	Motorcycle Dynamics	• Adjustable offset yokes. • Adjustable rear suspension linkage.
Aaron Lilly	Fuel Storage	• Fuel tank development.
Edward Walden	Intake Systems	• Airbox design and improvement.
Jake Davies	Aerodynamics	• Front fairing aerodynamics development.
Harvey Merrett	Intake Systems	• Air intake duct design.

3 Self-Assessment

As a team lead, I draw on several Belbin roles, including Teamworker, Coordinator, Monitor Evaluator, Shaper, and Implementer. Table 2 outlines the strengths and weaknesses of each role, and a comparison with my personal test results (Figure 1) shows average to low scores in areas critical for team leadership. Keeping these strengths and weaknesses in mind helps me identify and adjust my approach as needed.

My tasks, such as fuel mapping and engine strategy development, align closely with the Completer Finisher role, which demands precision to avoid engine failures and ensure safety. My high score in this role reflects my commitment to accuracy and thoroughness, giving me confidence in delivering a reliable final product.

However, I also recognize a tendency to avoid delegating tasks, a common Completer Finisher weakness. My attention on detail often leads me to take on more tasks personally, so I'm working to trust others, which supports both my growth and effective teamwork.

Table 2: Belbin's roles for team lead outlining strengths and weakness (Belbin, 1981).

Role	Strengths	Weaknesses
Teamworker	- Co-operative. - Perceptive and diplomatic. - Listens and averts friction.	- Can be indecisive in crunch situations. - Tends to avoid confrontation.
Co-ordinator	- Mature. - Confident. - Identifies talent. - Clarifies goals.	- Can be seen as manipulative - Might offload their own share of the work.
Monitor Evaluator	- Sober - Strategic and discerning. - Sees all options and judges accurately.	- Sometimes lacks the drive and ability to inspire others. - Can be overly critical.
Shaper	- Challenging. - Dynamic. - Thrives on pressure. - Has the drive and courage to overcome obstacles.	- Can be prone to provocation. - May sometimes offend people's feelings.
Complete Finisher	- Painstaking. - Conscientious - Anxious. - Searches out errors. - Polishes and perfects.	- Can be inclined to worry unduly. - Reluctant to delegate.

	IMPLEMENTER	COORDINATOR	SHAPER	PLANT	RESOURCE INVESTIGATOR	MONITOR EVALUATOR	TEAM WORKER	COMPLETE FINISHER
LOW 0 – 33%	0 – 6	0 – 6	0 – 8	0 – 4	0 – 6	0 – 5	0 – 8	0 – 3
AVERAGE 33-66%	7 – 11	7 – 10	9 – 13	5 – 8	7 – 9	6 – 9	9 – 12	4 – 6
HIGH 66-85%	12 – 16	11 – 13	14 – 17	9 – 12	10 – 11	10 – 12	13 – 16	7 – 9
VERY HIGH 85-100%	17 – 23	14 – 18	18 – 36	13 – 29	12 – 21	13 – 19	17 – 25	10 – 17
AVERAGE SCORE	10.0	8.8	11.6	7.3	7.8	8.2	10.9	5.5
	10	7	10	7	6	7	6	17

Figure 1: Belbin's model personal results.

4 Group Tasks

Table 3: List of group tasks and associated timings.

Name	Task	Start Date	End Date	Duration
Olly	Install & Test New ECU	9/30/2024	10/31/2024	31
Olly	Optimise Fuelling Maps & Strategies	10/31/2024	11/30/2024	30
Olly	Bellmouth/Secondary Injector RD&T	9/30/2024	1/31/2025	123
Olly	Design & Prototypes	10/15/2024	1/15/2025	92
Olly	CFD Bellmouth Designs	1/15/2025	2/14/2025	30
Olly	Production	2/14/2025	3/14/2025	28
Olly	Dyno Runs	1/1/2025	2/28/2025	58
Oska	Initial Measurements	9/30/2024	10/15/2024	15
Oska	First Design & Prototype	10/15/2024	11/15/2024	31
Oska	Design Refinement	10/15/2024	1/15/2025	92
Oska	Final Testing	1/15/2025	2/14/2025	30
Oska	Production	2/14/2025	3/14/2025	28
Harry	Initial Measurements	9/30/2024	10/15/2024	15
Harry	First Design & Prototype	10/15/2024	11/15/2024	31
Harry	Design Refinement	10/15/2024	1/15/2025	92
Harry	Final Testing	1/15/2025	2/14/2025	30
Harry	Production	2/14/2025	3/14/2025	28
Jake	Initial Measurements	9/30/2024	10/15/2024	15
Jake	First Design & Prototype	10/15/2024	11/15/2024	31
Jake	Design Refinement	10/15/2024	1/15/2025	92
Jake	Final Testing	1/15/2025	2/14/2025	30
Jake	Production	2/14/2025	3/14/2025	28
Harvey	Initial Measurements	9/30/2024	10/15/2024	15
Harvey	3D Scans	9/30/2024	12/31/2024	92
Harvey	First Design & Prototype	10/15/2024	11/15/2024	31
Harvey	Design Refinement	10/15/2024	1/15/2025	92
Harvey	Final Testing	1/15/2025	2/14/2025	30
Harvey	Production	2/14/2025	3/14/2025	28
Megan	Research Alternative Fuels	9/30/2024	1/31/2025	123
Megan	Research Secondary Injector	9/30/2024	1/31/2025	123
Megan	Check Championship Regulations	9/30/2024	10/15/2024	15
Megan	Dyno Runs	1/1/2025	2/28/2025	58

Ed	Retrieve CAD Drawings	9/30/2024	10/15/2024	15
Ed	Update Designs	10/15/2024	11/15/2024	31
Ed	Prototyping	10/15/2024	1/15/2025	92
Ed	Design Refinement	10/15/2024	1/15/2025	92
Ed	Final Testing	1/15/2025	2/14/2025	30
Ed	Production	2/14/2025	3/14/2025	28
Aaron	Initial Measurements	9/30/2024	10/15/2024	15
Aaron	First Design & Prototype	10/15/2024	11/15/2024	31
Aaron	Design Refinement	10/15/2024	1/15/2025	92
Aaron	Final Testing	1/15/2025	2/14/2025	30
Aaron	Production	2/14/2025	3/14/2025	28

5 Personal Tasks

Table 4: Personal Tasks.

Start	Finish	Job	Hours	Notes
30/09/2024	14/10/2024	Bellmouth design research	10	Technical papers include optimal bellmouth design based on CFD results. These can be used as a baseline and modified to suit the Honda.
30/09/2024	04/11/2024	Secondary injector research	15	Location, timings, 3D scan injector to use as reference in CAD when creating bracket.
30/09/2024	02/04/2025	Team meetings	26	Weekly 1hr team meeting.
30/09/2024	02/04/2025	Presentation preparation/reporting	15	Time spent creating presentations and meeting team members to collaborate/practise.
03/10/2024	03/10/2024	Remove existing wiring loom, ECU and dash.	2	The airbox and therefore the throttle body Assy must be full removed to remove the wiring loom.
04/10/2024	09/10/2024	Install software	4	DOPE, 2D, Starlane Digirace, Ansys
04/10/2024	31/12/2024	Familiarise with ECU software and read user guides.	5	Reading up as and when required. Documents have been briefly scanned through to familiarise.
04/10/2024	04/10/2024	Route new wiring loom, install ECU and dash	2	New harness is for a different motorcycle. Problems with routing caused by airbox and exhaust layout. Image found online showed a routing option which has worked well for us.
07/10/2024	14/10/2024	CAD flow bench attachments	4	Custom attachment for airbox assy to fit to flow bench.
07/10/2024	31/12/2024	CAD bellmouth(s)	25	OEM and replacements, varying lengths and profiles to test and determine which are optimal. Includes time to design mounting bracket for secondary injector.
18/10/2024	18/10/2024	Build flow bench attachments	3	Flow bench attachments need gaskets and proper securing to ensure airtightness and accurate flow bench results.
21/10/2024	01/02/2025	Flow bench testing	5	Flow bench to test for baseline airbox flow with standard components. Tests with new components. Use an endoscope to view the inside of the airbox and a vapour machine to visualise airflow.
28/10/2024	31/12/2024	Fuelling maps research & programming	15	Includes engine strategies.
15/11/2024	31/12/2024	CFD Analysis of bellmouth	25	Includes hours spent in CAD, setting up and running simulations. Lessons with Tim/self study.

06/01/2025	28/01/2025	Dyno testing	15	Live map changes and logging of results to determine the best setup.
06/01/2025	28/01/2025	Compile dyno results	5	Compile all data from dyno testing into easy to read and compare graphs detailing the pros and cons of each map iteration. Agreeing on the final map(s) that achieve desired results.
28/01/2025	28/02/2025	Final bike build	10	Build the bike up with new components ready for track day testing and first race of the season.
01/02/2025	28/02/2025	Track day testing	12	Full day at Pembrey, private test day. Setup/down, travel and testing times.
		Total	198	

6 Costings

Table 5: Bill of materials.

Job	Material	Cost	Iterations	Total Cost	Notes
3D print bellmouth attachment bracket	PLA	£ 0.44	1	£0.44	Printed just the bracket to test fitment (material only cost)
3D print flow bench attachment	PLA	£ 2.07	1	£2.07	Prototype print to test fitment (material only cost)
Water jet cut flow bench attachment	Steel	£ 5.00	1	£5.00	Estimated cost of material and production time
3D print bellmouth(s)	PLA	£ 1.00	10	£10.00	Average of £1 per print
SLS print flow bench attachment	Nylon	£ 25.00	1	£25.00	
			Total	£42.51	

Table 6: Equipment Costs.

Equipment	Cost	Notes
ECU	£ 840.00	Factored into last year's costs.
Dellorto Software	£ -	Free download. Key included with ECU purchase.
Solidworks (Education)	£ 38.00	Based off current yearly cost to rent education edition (may be less for university who buy in bulk).
Microsfot 365 (Education)	£ -	Free with student email address.
Ansys (Education)	£ -	Free student edition from Ansys website.
Super Flow SF110 Flow Bench	£ 3,500.00	Based on refurbished unit.
Ultimaker 2+	£ 499.00	Based on refurbished unit.
Formlabs Fuse 1+ 30W	£ 25,000.00	SLS printer.
Formlabs Fuse Sift	£ 13,017.60	Used for post processing SLS printed parts.
2D Data Software	£ -	Provided to university free.
Starlane Digirace	£ -	Free download.
Personal Laptop	£ 1,200.00	
Water jet cutter	£ 15,000.00	
Dyno	£ 1,000,000.00	
Secondary Injector	£ 30.00	
Total	£ 1,059,124.60	

7 Milestones

7.1 Group Milestones

Table 7: Group milestones

Milestone	Goal
Measurements and Initial Assessment	Gather precise measurements of existing components and mounting locations to inform design and modifications.
3D Scanning and Modelling of Fairings	Create a 3D model of the fairings to support the design and integration of new components.
Fitting of New Chassis Components	Install and test-fit all newly designed chassis components to ensure compatibility and functionality.
Engine Operational with All New Components Installed	Complete initial engine operation with all new components installed to ensure system compatibility.
Dyno Testing and Performance Calibration	Conduct dyno runs to evaluate and calibrate the engine and overall vehicle performance with the new setup.
Pre-Season Testing	Complete on-track testing to assess vehicle handling, reliability, and performance under real-world conditions.
First Race of the Season	Successfully complete the first race, demonstrating the team's preparedness and vehicle capability.
First Viva Presentation	Present project progress, technical details, and results in a formal setting, gaining feedback from reviewers.
Final Viva Presentation	Deliver a comprehensive project summary, including results, lessons learned, and overall outcomes.

7.2 Personal Milestones

Table 8: Personal milestones.

Milestone	Goal
Project Kick-off and Initial Assessment	Define project goals, resources, and initial project assessment to establish a baseline.
ECU Installation	Install the new ECU with accompanying wiring loom.
Engine Startup and Initial Operation	Start the engine and ensure it is running under basic conditions.
OEM Bell Mouth Performance Benchmarking	Document performance for the OEM bell mouth.
Bell Mouth Design, Development and Testing	Produce and test various bell mouth designs for performance optimisation.
Second Injector Installation	Modify finalised bell mouth to allow for a secondary injector (design bracket).
Final Mapping and Testing	Finalise mapping with refined adjustments; test engine performance under full load.
Pembrey Test Days	Prepare for track testing or scheduled events to validate real-world performance.
First Race of Season	First race of 2025 season

8 Gateway Objective

To determine if the optimised fuelling maps, engine strategies, bellmouth design, and secondary injector setup are effective and reliable enough to support an entire race season. This includes ensuring that the setup can meet performance, durability, and safety standards under race conditions without requiring frequent unscheduled adjustments.

8.1 Key Performance Indicators

8.1.1 Fuelling and Engine Strategy Optimisation

- Validate that the optimised fuelling maps and engine strategies for the new ECU deliver consistent power output, throttle response, engine braking, traction control and fuel efficiency across race conditions.
 - Aim for a 5-10% increase in power output consistency across various race conditions compared to previous configurations.
 - Target a 10% increase in throttle response.
- Monitor engine performance indicators to ensure that the strategies improve power without compromising reliability.
 - Achieve at least a 5-8% increase in fuel efficiency.

8.1.2 Airflow Efficiency and Power Output:

- Evaluate the bellmouth design impact on airflow and engine intake efficiency, ensuring that it maximises performance across varying engine rpm.
 - Ensure that the new bellmouth design improves airflow by at least 5-10%.
- Measure improvements in air intake efficiency and correlate with engine power and response to confirm effective bellmouth optimisation.
 - 3-5% increase in engine power at desired rpm.

8.1.3 Secondary Injector Setup

- Assess the performance and reliability of the secondary injector setup in delivering consistent fuel distribution.
- Confirm that the injectors configuration supports the engine fuelling needs under various loads without increasing risk of failure or fuel imbalance.

8.1.4 Maintenance and Adjustability

- Evaluate the need for maintenance and ease of adjusting the fuelling maps, injector setup, and airflow systems during the season.

- Confirm that the setup can operate within normal race-season maintenance schedules without requiring frequent, unscheduled repairs or recalibrations.

8.1.5 Adaptability to Track Variations

- Test that the optimised fuelling and airflow setup performs well across different track types and adjusts seamlessly to different weather conditions.

In conclusion the fuelling, engine, airflow, and injector setup will be considered suitable for a full race season if it meets all benchmarks for performance, durability, and safety with minimal need for adjustments or recalibrations between races. This ensures the setup supports competitive, reliable, and safe performance throughout the season.

9 Areas of Concern

Two primary areas of concern have been identified within this scope: achieving consistent precision in fuelling maps and ensuring efficient airflow in the bellmouth and secondary injector setup. Addressing these challenges is essential to maintaining high-performance standards, and mitigation strategies have been developed to manage potential risks.

9.1 Fuelling Map Precision and Consistency

Inaccurate or inconsistent fuelling maps can lead to inefficient combustion, power loss, or even engine damage, particularly under high-performance racing conditions. This could compromise both the bikes performance and its reliability over the season.

9.1.1 Dyno Testing and Calibration

Conduct extensive dyno testing under various simulated race conditions to fine-tune the fuelling maps. This will allow for precision calibration, helping to ensure fuel delivery is optimised for all operating scenarios.

9.1.2 Data Logging and Real-Time Adjustments

Implement data logging tools to capture real-time fuelling performance data during testing. Analysing this data can highlight any fuelling inconsistencies, allowing for targeted adjustments to refine the maps further.

9.1.3 Race-Specific Adjustments

Design fuelling maps tailored to the specific characteristics of each racetrack, considering factors like track length, turns, and elevation changes. This will help ensure that fuelling remains consistent and efficient across a variety of race conditions.

9.2 Optimisation in Bellmouth and Secondary Injector Setup

The bell mouth design and secondary injector configuration may not deliver consistent airflow or fuel distribution across varying speeds, especially during high-load scenarios. Any imbalances in airflow or fuel injection could impact engine performance and stability, posing a risk to reliability.

9.2.1 CFD Analysis

Utilise CFD simulations to assess and optimise airflow through the bellmouth design. This method can highlight any turbulence or inefficiencies in air intake, allowing for iterative design improvements to enhance airflow consistency and engine response.

9.2.2 Track Testing with Adaptive Tuning

Test the bellmouth and secondary injector configuration on track under different conditions, collecting data to assess fuel and air distribution. Adaptive tuning can then be applied to adjust the injector setup as needed, ensuring balanced airflow and fuel delivery at different speeds and throttle levels.

9.2.3 Monitoring and Backup Strategies

Establish monitoring protocols for the secondary injector performance, with backup injector maps prepared to address any unforeseen issues. This will allow for quick adjustments and minimise downtime during the season.

Each mitigation strategy aims to ensure reliable, optimised performance across diverse race conditions, minimising potential risks and supporting consistent bike performance throughout the season.

10 Gantt Chart

10.1 Personal Gantt Chart

	TASK	PRIORITY	STATUS	START	END	DUR
1	Milestone 1 - Install & Test New ECU					
1.1	Remove OEM ECU & Loom	Med	Complete	30/09/2024	07/10/2024	8
1.2	Install New ECU & Loom	Med	Complete	07/10/2024	14/10/2024	8
1.3	Install Dellorto DOPE Software	Med	Complete	14/10/2024	18/10/2024	5
1.4	Backup Current ECU map	High	Complete	21/10/2024	25/10/2024	5
1.5	Install Honda ECU map	High	On Hold	25/10/2024	31/10/2024	7
2	Milestone 2 - Engine Testing					
2.1	Test Engine with Honda Map	High	On Hold	31/10/2024	30/11/2024	31
2.2	Tweak Map Parameters	Med	On Hold	30/11/2024	31/01/2025	63
2.3	Test Engine with New Parameters	High	On Hold	30/11/2024	28/02/2025	91
2.4	Real-World Testing	Med	On Hold	15/03/2025	02/04/2025	19
3	Milestone 3 - Bellmouth					
3.1	Research	Med	Complete	30/09/2024	14/10/2024	15
3.2	Design & Prototyping	Med	Complete	14/10/2024	30/11/2024	48
3.3	Testing	High	Not Started	15/11/2024	31/12/2024	47
3.4	Production	Med	Not Started	01/01/2025	08/01/2025	8
3.5	Real-World testing	Med	On Hold	15/03/2025	02/04/2025	19
4	Milestone 4 - Secondary Injector					
4.1	Research	Med	In Progress	31/08/2024	31/12/2024	123
4.2	First Map with Secondary Injector	Med	Not Started	01/01/2025	31/01/2025	31
4.3	Test How Engine Runs	High	Not Started	31/01/2025	28/02/2025	29
4.4	Real-World testing	High	Not Started	28/02/2025	02/04/2025	34

Figure 2: Personal Gantt Chart.

10.2 Group Gantt Chart

1 Project Conception and Initiation - Group					
1.1	Agree & Assign Roles	Complete	30/09/2024	07/10/2024	8
2 Bellmouth, Injector & Maps - Olly					
2.1	Install & Test New ECU	Complete	30/09/2024	31/10/2024	32
2.2	Optimise Fuelling Maps & Strategies	On Hold	31/10/2024	30/11/2024	31
2.3	Bellmouth/Secondary Injector RD&T	In Progress	30/09/2024	31/01/2025	124
2.4	Prototyping & Testing	Not Started	31/01/2025	28/02/2025	29
2.5	Production & Fitting	Not Started	28/02/2025	14/03/2025	29
2.6	Monitoring & Adjustments	Not Started	28/02/2025	02/04/2025	15
3 Rearset Design & Development - Oska					
3.1	Design Research	Complete	30/09/2024	14/10/2024	15
3.2	CAD Development	In Progress	14/10/2024	31/01/2025	110
3.3	Prototyping & Testing	Not Started	31/12/2024	31/01/2025	32
3.4	Production & Fitting	Not Started	31/01/2025	28/02/2025	29
3.5	Monitoring & Adjustments	Not Started	28/02/2025	02/04/2025	34
4 Adjustable Offset Yokes - Harry					
4.1	Analyse OEM yokes	Complete	30/09/2024	25/10/2024	26
4.2	Research	Complete	25/10/2024	01/11/2024	8
4.3	Custom Yokes Design & Testing	In Progress	30/10/2024	30/11/2024	32
4.4	FEA Testing & Prototyping	Not Started	30/11/2024	31/12/2024	32
4.5	Production & Realworld Testing	Not Started	01/01/2025	31/01/2025	31
4.6	Monitoring & Adjustments	Not Started	31/01/2025	02/04/2025	62
5 Intake Development - Jake					
5.1	Research	In Progress	30/09/2024	11/10/2024	12
5.2	Design	Not Started	11/10/2024	31/10/2024	21
5.3	Prototyping & Testing	Not Started	31/10/2024	30/11/2024	31
5.4	Production & Fitment	Not Started	30/11/2024	10/01/2025	42
5.5	Realworld Testing	Not Started	31/12/2024	28/02/2025	60
5.6	Monitoring & Adjustments	Not Started	28/02/2025	02/04/2025	34
6 Fairing Aerodynamics - Harvey					
6.1	Research	In Progress	30/09/2024	11/10/2024	12
6.2	CAD/3D Scan Fairing	On Hold	11/10/2024	31/10/2024	21
6.3	Prototyping & Testing	Not Started	31/10/2024	30/11/2024	31
6.4	Production & Fitment	Not Started	30/11/2024	10/01/2025	42
6.5	Realworld Testing	Not Started	31/12/2024	28/02/2025	60
6.6	Monitoring & Adjustments	Not Started	28/02/2025	02/04/2025	34
7 Alternative Fuels & Injection Research - Megan					
7.1	Alternative Fuels & Injection Research	In Progress	30/09/2024	01/01/2025	94
7.2	Apply research (Testing)	In Progress	01/01/2025	31/01/2025	31
7.3	Monitoring & Adjustments	Not Started	31/01/2025	02/04/2025	62
8 Fuel Tank Development - Aaran					
8.1	Research & Design	In Progress	30/09/2024	31/10/2024	32
8.2	Prototyping & Testing	Not Started	31/10/2024	31/12/2024	62
8.3	Production & Fitment	Not Started	31/12/2024	31/01/2025	32
8.4	Realworld Testing	Not Started	31/12/2024	31/01/2025	32
8.5	Monitoring & Adjustments	Not Started	31/01/2025	02/04/2025	62
9 Airbox Development - Ed					
9.1	Familiarise With Previous CAD drawings	Complete	30/09/2024	11/10/2024	12
9.2	Research Further Development Options	In Progress	11/10/2024	31/10/2024	21
9.3	Continue Development	In Progress	11/10/2024	30/11/2024	51
9.4	Prototyping & Testing	Not Started	30/11/2024	31/12/2024	32
9.5	Production & Fitment	Not Started	31/12/2024	17/01/2025	18
9.6	Realworld Testing	Not Started	17/01/2025	31/01/2025	15
9.7	Monitoring & Adjustments	Not Started	31/01/2025	02/04/2025	62

Figure 3: Group Gantt chart.

11 Conclusion

In conclusion, this report has provided a comprehensive analysis of my roles and responsibilities within the group project, using Belbin's model to examine and compare my contributions and identify areas for personal improvement. By reflecting on my role alignment, I have gained insights into how I can better support team dynamics and improve my approach to project tasks. Key project management elements, such as milestone tracking, gateway objectives with key performance indicators, and areas of concern have been established to ensure that the project remains on schedule and aligned with its goals.

Additionally, the creation of both a team-wide Gantt chart and a more detailed personal Gantt chart has helped streamline the project timeline and prioritise tasks within my specific responsibilities. The inclusion of tables tracking hours worked and tool-related costs provides a transparent view of resource allocation, supporting informed decision-making and budget management. Overall, this structured approach has reinforced the importance of effective project planning and self-reflection in achieving successful outcomes and continuous improvement in a collaborative engineering environment.

12 References

Belbin, M. (1981). *Belbin*. Belbin. <https://www.belbin.com/about/belbin-team-roles>

OpenAI. (2024). ChatGPT. Used to assist with formatting, readability and report structure.