

UNSW Engineering Education Specification

1. Program Overview

Program Title: Bachelor of Engineering (Honours)

Award Title: Bachelor of Engineering (Honours) (Robotics and Mechatronics Engineering)

Engineering Discipline: Robotics and Mechatronics Engineering

UNSW Bachelor of Engineering (Honours) (Robotics and Mechatronics Engineering) is a four-year, full-time degree delivered by the School of Mechanical and Manufacturing Engineering. The degree is AQF level 8 and provides graduates with advanced knowledge and skills for professional or highly skilled work and/or further learning.

This report shows how the MTRNBH Robotics and Mechatronics Engineering specialisation of the 3707 Bachelor of Engineering (Honours) program at UNSW fosters the Engineers Australia Level 1 Graduate Competencies in its students.

The Robotics and Mechatronics Engineering program meets the Engineers Australia Stage 1 Competency Standard by developing graduates with comprehensive technical knowledge, engineering application capabilities, and professional attributes. The curriculum integrates engineering fundamentals with specialist applications in mechanics, electronics, and computing, ensuring students develop the depth of expertise required by the Stage 1 Standard.

In addition, through design projects, laboratory work, team-based projects, and industry engagement, students build competencies in advanced problem-solving, sustainable practice, and project management, preparing them to contribute meaningfully to the engineering profession and society.

The report starts by addressing the overall aims of the specialisation and its uniqueness. It then covers the specialisation plan, followed by the Specialisation Learning Outcomes (SLOs). The process for developing and obtaining feedback to improve these SLOs is detailed, followed by the curriculum mapping relating courses to SLOs and Graduate Capabilities.

2. Career Alignment

UNSW's Robotics and Mechatronics Engineering specialisation equips students with the interdisciplinary expertise required to excel in advanced manufacturing, autonomous systems, biomedical engineering, and intelligent robotics. Through hands-on labs, industry-aligned projects, and exposure to platforms such as industrial robots and simulation software, students develop practical skills in sensing, control, embedded systems, and AI-driven decision-making.

This robust foundation prepares graduates for careers in sectors including medical robotics, aerospace, defence, underwater robotics, precision agriculture, and industrial automation. The curriculum also reflects emerging trends in embodied intelligence, advanced control, smart sensing, and intelligent actuation - aligning with professional expectations for innovation, safety, and ethical deployment of intelligent machines.

Industry-supported experiences, such as the MTRN Signature Experience: OMRON Industrial 4.0 Excursion, along with regular industrial guest lectures, further strengthen students' engagement with industry and enhance their career readiness.

3. Specialisation Framework

The Specialisation Learning Outcomes (SLOs) were drafted by the School Education Committee, specifically the Specialisation Coordinators for each of our accredited BE and ME Specialisations. The drafts were developed considering: benchmarking conducted for the 2021 accreditation report; feedback from industry partners; and expectations of graduate outcomes aligned with EA Stage 1 competencies.

The draft SLOs were reviewed and aligned by the Deputy/Associated Head of School (Education) before being presented to the School Education Committee for endorsement. School Industry Advisory Board (IA) consultation was sought in writing, with a follow-up workshop. They are periodically reviewed by the IAB and this will be completed next in 2026.

The SLOs align with Engineers Australia's expectations for a graduate engineer but are articulated in the context of Robotics and Mechatronics Engineering. Reference is made to both Robotics and Mechatronics specific knowledge and skills.

On successful completion of the MTRNBH3707 program, graduates will be able to:

SLO1	Demonstrate proficiency of knowledge in the enabling sciences (mathematics, computer science and physics) that form the foundation of robotics and mechatronics engineering.
SLO2	Demonstrate expertise and technical knowledge in robotics and mechatronics engineering disciplines such as: mechanics, design, electronics, modelling, control, robotics, autonomous and AI systems.
SLO3	Assess all components of an electrical, mechanical or software system and the national and international standards that apply.
SLO4	Design and implement hardware and software interfaces and document them professionally.
SLO5	Model combinations of common mechanical, electrical and/or software components and design and implement control systems for these robotic and mechatronic systems.
SLO6	Design and implement innovative engineering solutions to complex problems in robotics and mechatronics engineering based on rigorous analysis and application of critically evaluated current research.
SLO7	Design, build and operate robotic and mechatronic systems and devise and implement experiments to evaluate their performance.
SLO8	Communicate professionally and effectively within and outside of robotics and mechatronics engineering.
SLO9	Demonstrate a high level of personal autonomy, perseverance, ethical conduct and professional accountability when working as an individual and within diverse multi-cultural and multi-disciplinary team environments.

The discipline-specific technical knowledge and application skills embedded in this program ensure the attainment of the Engineers Australia Stage 1 competencies through a systematic alignment of Course Learning Outcomes (CLOs), Specialisation Learning Outcomes (SLOs), and Program Learning Outcomes (PLOs).

4. Continuous Improvement

The Head of School, the Deputy Head (Education), the Associate Head of School (Education), and the School Education Committee (SEC) have the overall responsibility for the management of the undergraduate and postgraduate coursework programs within the School. The committee meets regularly to discuss the coordination of teaching, program review, the design and revision of new and existing courses, course organisation and administration, students' feedback on courses, etc.

Proposals for new courses or course revisions in a particular discipline are born out of discussions among all staff in that discipline and relevant industry representatives. New proposals for both undergraduate and postgraduate elective courses are typically driven by discipline-specific academic staff and motivated by current industry or research trends. Course changes are first discussed at the SEC and then at the School level during School Management Committee meetings.

To ensure program design is informed by ongoing evaluation of practice, industry needs, and future demand, the School draws on regular input from the Industry Advisory Board and engagement with Industry Partners. The School has active partnerships with industry organisations that provide regular input on current practice and workforce needs, including through engagement with academic staff and guest lectures. In addition, as Australia's top-ranked Mechanical school, many courses are taught by academics who lead internationally recognised research programs. This leadership, together with strong industry links, keeps teaching research-informed and up to date.

5. Review Process

UNSW's Academic Offering Review and Monitoring Procedure outlines a structured approach to maintaining the quality and relevance of academic programs and courses. It includes both program-level and course-level review processes, with defined responsibilities and timelines.

Program Monitoring is conducted annually for all programs and specialisations. A comprehensive program review must occur at least once every five years for accredited programs, and every seven years for others. These reviews include a self-evaluation report (SER), review panel, review event, and a formal response with an implementation plan. Oversight is provided by the Academic Board and University Academic Quality Committee (UAQC), with input from Faculty Education Committees and Deans.

Course Review within UNSW Engineering is managed through a two-tiered process: Routine Course Review and Comprehensive Course Review. Routine reviews are conducted at the end of each term by Schools, using data such as enrolment, assessment outcomes, academic integrity issues, WAM differences, and student feedback (myExperience). Courses flagged through this process are added to the Comprehensive Course Review roster.

Comprehensive Course Reviews are detailed evaluations led by the Course Convenor in collaboration with a Faculty Educational Developer, Nexus Fellow, or Senior Academic. These reviews assess course design, pedagogy, alignment with learning outcomes, and feedback mechanisms. Outcomes are documented in a Course Development Plan and an Evaluation Report following the next course delivery. Schools must review at least 10% of their courses annually.

Stakeholder involvement spans multiple levels, including the Academic Board, UAQC, Faculty and School committees, Course Convenors, and external contributors such as students and professional bodies.

Frequency of updates includes termly course reviews, annual program monitoring, and five-yearly comprehensive reviews for accredited programs.

6. Curriculum Mapping

A curriculum mapping has been carried out for the MTRNBH Robotics and Mechatronics Engineering specialisation of the 3707 Bachelor of Engineering (Honours) program at UNSW. The specialisation covers all the Engineers Australia Stage 1 Graduate Competencies.

SLO 1 coverage is concentrated primarily in Level 1 and Level 2 courses, where students develop mastery in enabling sciences. First-year courses such as MATH1131/1141, PHYS1121/1131, ENGG1300 and COMP1511 establish foundational knowledge in mathematics, physics, and programming. Second-year courses such as MATH2089, MTRN2500, ELEC2141 and MMAN2300 further develop this foundation by introducing solid mechanics, digital circuits, and furthering maths and programming skills.

SLO 2 demonstrates progression from introduction in Level 2 courses to proficiency in Level 3 and Level 4 courses. Year 3 core courses such as MTRN3020 (Modelling and Control), MTRN3100 (Robot Design), MTRN3500 (Computing Applications), and MTRN3210 (Feedback Control) cement specialist technical knowledge. Advanced electives in Level 4 enable students to achieve proficiency in specialised areas aligned with their career interests.

SLO 3 (assess all components of an electrical, mechanical or software system and the national and international standards that apply) is covered by both fundamental courses such as MMAN1130 (design and manufacturing), ELEC1111 (electrical circuit fundamentals), and COMP1511 (programming fundamentals) and more advanced courses such as MTRN4010 (advanced autonomous systems) and MTRN4230 (robotics).

SLO 4 (design and implement hardware and software interfaces and document them professionally) is covered by discipline core courses. These include hardware focused courses such as ELEC2141 (digital circuit design) and software focused courses such as MTRN2500 (computing for mechatronic engineers) and MTRN3500 (computing applications for mechatronics).

SLO 5 (design, critique, and implement sustainable engineering solutions) shows clear progression through the curriculum. Students have their first experience designing in DESN1000 in Level 1, develop these skills through DESN2000 in Level 2, and progress to proficient application in Level 3 courses such as MTRN3100. The capstone experience in Level 4, through the Thesis sequence, demonstrates proficient capability.

SLO 6 (design and implement innovative engineering solutions to complex problems in robotics and mechatronics engineering based on rigorous analysis and application of critically evaluated current research) is connected to courses with practical problem solving focuses. These include MTRN3100 (robot design), MTRN3210 (feedback control systems), and DESN3000 (strategic design innovation).

SLO 7 (design, build and operate robotic and mechatronic systems and devise and implement experiments to evaluate their performance) is covered by major design courses in the program. These include DESN1000 (introduction to engineering design), DESN2000 (engineering design and professional practice), DESN3000 (strategic design innovation), and MTRN3100 (robot design).

SLO 8 (communicate professionally and effectively within and outside of robotics and mechatronics engineering) is embedded in multiple courses where students are taught effective communication related to robotics and mechatronics. In particular, these skills are emphasised in design courses where effective communication is essential.

SLO 9 (demonstrate a high level of personal autonomy, perseverance, ethical conduct and professional accountability when working as an individual and within diverse multi-cultural and multi-disciplinary team environments) is covered in project-based courses such as MTRN3100 (robot design) and MTRN4230 (robotics). Students also practise these skills in the Thesis projects MMAN4951/4952/4953.

The mapping ensures alignment among CLOs, SLOs, and PLOs within the specialisation. CLOs are created by course coordinators to support relevant SLOs while addressing the specific technical knowledge, skills, and practices expected of students. Each assessment task is clearly mapped to CLOs to ensure direct measurement of student achievement.

Table 1. Mapping of the specialisation learning outcomes to the Engineers Australia Stage 1 Competencies

SLO/PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	PLO13	PLO14	PLO15	PLO16
1. Demonstrate proficiency of knowledge in the enabling sciences (mathematics, computer science and physics) that form the foundation of robotics and mechatronics engineering.	x	x														
2. Demonstrate expertise and technical knowledge in robotics and mechatronics engineering disciplines such as: mechanics, design, electronics, modelling, control, robotics, autonomous and AI systems.			x		x			x								
3. Assess all components of an electrical, mechanical or software system and the national and international standards that apply.			x		x	x					x					
4. Design and implement hardware and software interfaces and document them professionally.					x			x				x		x		
5. Model combinations of common mechanical, electrical and/or software components and design and implement control systems for these robotic and mechatronic systems.			x				x		x							
6. Design and implement innovative engineering solutions to complex problems in robotics and mechatronics engineering based on rigorous analysis and application of critically evaluated current research.				x		x	x						x			
7. Design, build and operate robotic and mechatronic systems and devise and implement experiments to evaluate their performance.							x	x		x						
8. Communicate professionally and effectively within and outside of robotics and mechatronics engineering.												x		x		
9. Demonstrate a high level of personal autonomy, perseverance, ethical conduct and professional accountability when working as an individual and within diverse multi-cultural and multi-disciplinary team environments.											x				x	x

Table 2. Mapping of courses to the specialisation learning outcomes

CLO	1. Demonstrate proficiency of knowledge in the enabling sciences (mathematics, computer science and physics) that form the foundation of robotics and mechatronics engineering.	2. Demonstrate expertise and technical knowledge in robotics and mechatronics engineering disciplines such as: mechanics, design, electronics, modelling, control, robotics, autonomous and AI systems.	3. Assess all components of an electrical, mechanical or software system and the national and international standards that apply.	4. Design and implement hardware and software interfaces and document them professionally.	5. Model combinations of common mechanical, electrical and/or software components and design and implement control systems for these robotic and mechatronic systems.	6. Design and implement innovative engineering solutions to complex problems in robotics and mechatronics engineering based on rigorous analysis and application of critically evaluated current research.	7. Design, build and operate robotic and mechatronic systems and devise and implement experiments to evaluate their performance.	8. Communicate professionally and effectively within and outside of robotics and mechatronics engineering.	9. Demonstrate a high level of personal autonomy, perseverance, ethical conduct and professional accountability when working as an individual and within diverse multi-cultural and multi-disciplinary team environments.
Level 1 Core Courses									
COMP1511 Programming Fundamentals	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	
DESN1000 Introduction to Engineering Design and Innovation	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced
ELEC1111 Electrical Circuit Fundamentals	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced	Introduced
ENGG1300 Engineering Mechanics	Introduced	Introduced						Introduced	
MATH1131 Mathematics 1A	Introduced	Introduced			Introduced	Introduced		Introduced	
MATH1141 Higher Mathematics 1A	Introduced	Introduced			Introduced	Introduced		Introduced	
MATH1231 Mathematics 1B	Introduced	Introduced			Introduced	Introduced		Developed	
MATH1241 Higher Mathematics 1B	Introduced	Introduced			Introduced	Introduced		Developed	
MMAN1130 Design and Manufacturing		Introduced	Introduced	Introduced	Introduced			Introduced	
PHYS1121 Physics 1A	Introduced	Introduced	Introduced		Introduced	Introduced	Introduced	Introduced	Introduced
PHYS1131 Higher Physics 1A	Introduced	Introduced	Introduced		Introduced	Introduced	Introduced	Introduced	Introduced
Level 2 Core Courses									
COMP2521 Data Structures and Algorithms	Developed	Developed	Developed	Developed	Developed	Developed	Developed		Developed
DESN2000 Engineering Design and Professional Practice		Developed		Developed		Developed	Developed	Developed	Developed

ELEC2141 Digital Circuit Design	Developed	Developed		Developed	Developed		Developed		
ENGG2400 Mechanics of Solids 1		Developed			Developed	Developed	Developed	Developed	
ENGG2500 Fluid Mechanics for Engineers	Developed	Developed	Developed		Developed	Developed	Developed		
MATH2018 Engineering Mathematics 2D	Developed	Developed			Developed	Developed			
MATH2019 Engineering Mathematics 2E	Developed	Developed			Developed	Developed			
MATH2089 Numerical Methods and Statistics	Developed	Developed	Developed	Developed	Developed	Developed	Developed	Developed	
MMAN2300 Engineering Mechanics 2		Introduced						Introduced	
MMAN2700 Thermodynamics	Developed	Developed	Developed		Developed	Developed	Developed		
MTRN2500 Computing for Mechatronic Engineers		Developed		Developed	Developed		Developed	Developed	Developed
Level 3 Core Courses									
DESN3000 Strategic Design Innovation						Proficient		Proficient	Proficient
MTRN3020 Modelling and Control of Mechatronic Systems			Developed	Developed	Developed				
MTRN3100 Robot Design					Developed	Developed	Developed	Developed	Developed
MTRN3210 Feedback Control Systems		Developed	Developed	Developed	Developed	Developed			
MTRN3500 Computing Applications in Mechatronics Systems				Developed		Developed			
Level 4 Core Courses									
MTRN4010 Advanced Autonomous Systems	Developed	Developed	Developed	Developed		Developed			
MTRN4230 Robotics	Developed	Developed	Developed		Developed	Developed	Developed		
Thesis Courses									
MMAN4951 Thesis A		Proficient	Proficient					Proficient	Proficient
MMAN4952 Thesis B		Proficient	Proficient					Proficient	Proficient
MMAN4953 Thesis C		Proficient	Proficient					Proficient	Proficient
Recommended Discipline Electives									
COMP3141 Software System Design and Implementation					Introduced				
COMP3331 Computer Networks and Applications	Developed	Proficient	Proficient	Proficient	Developed	Developed	Developed		Proficient
COMP3431 Robotic Software Architecture		Proficient		Proficient		Proficient	Proficient		Developed
COMP9417 Machine Learning and Data Mining	Developed	Proficient			Proficient	Proficient	Proficient	Developed	Developed

COMP9444 Neural Networks and Deep Learning	Proficient				Proficient	Proficient	Proficient	Developed	Developed
COMP9517 Computer Vision	Developed	Proficient		Developed		Proficient	Proficient		
ENGG3060 Rehabilitation and Assistive Technology		Developed		Developed		Proficient	Proficient	Proficient	Proficient
ENGG3741 Introduction to Nuclear Engineering	Proficient	Developed	Proficient		Developed	Developed		Developed	Proficient
MANF4611 Process Modelling and Simulation	Developed	Developed		Proficient	Proficient	Proficient	Proficient		
MMAN4400 Engineering Management		Developed	Proficient			Developed	Developed		Proficient
MMAN9350 Digital and Artificial Intelligence Technologies for Engineering Applications		Developed	Proficient		Developed	Proficient	Proficient	Developed	Developed
MTRN4231 Robotics Project		Developed		Developed	Developed	Developed	Proficient	Developed	Developed
MTRN9400 Control of Robotic Systems	Proficient	Proficient			Proficient	Proficient			
Discipline Electives									
AERO9500 Space Systems Architectures and Orbits	Proficient	Developed			Developed	Introduced		Introduced	
AERO9610 The Space Segment		Proficient		Developed					
AERO9660 Advanced Aerospace Propulsion		Developed			Developed	Proficient	Proficient		
ENGG2400 Mechanics of Solids 1		Introduced							
ENGG2500 Fluid Mechanics for Engineers		Developed							
ENGG2600 Engineering Vertically Integrated Project	Introduced	Developed		Introduced	Introduced	Developed	Developed	Developed	Developed
ENGG3001 Fundamentals of Humanitarian Engineering		Developed	Developed			Developed	Developed	Proficient	Proficient
ENGG3060 Rehabilitation and Assistive Technology		Developed		Developed		Proficient	Proficient	Proficient	Proficient
ENGG3600 Engineering Vertically Integrated Project	Developed	Proficient		Proficient	Proficient	Developed	Proficient	Proficient	Proficient
ENGG4600 Engineering Vertically Integrated Project	Developed	Proficient		Proficient	Proficient	Developed	Proficient	Proficient	Proficient
ENGG4841 Systems Engineering Fundamentals		Developed	Developed	Developed	Proficient	Developed	Proficient		Developed
MANF3510 Process Technology and Automation				Introduced	Introduced	Introduced			
MANF4430 Reliability and Maintenance Engineering		Proficient	Proficient			Proficient	Proficient		Proficient
MANF6860 Strategic Manufacturing Management		Introduced	Introduced					Introduced	Introduced

MANF9400 Industrial Management								Introduced	Introduced
MANF9420 Operations and Supply Chain Management in Engineering				Introduced	Introduced		Introduced	Introduced	Introduced
MANF9472 Production Planning and Control								Introduced	Introduced
MECH4100 Mechanical Design 2		Proficient				Proficient	Proficient	Proficient	Proficient
MECH4305 Fundamental and Advanced Vibration Analysis	Proficient	Proficient		Introduced	Introduced	Introduced		Developed	
MECH4320 Engineering Mechanics 3									
MECH4620 Computational Fluid Dynamics	Introduced								
MECH4770 Fundamentals and Design of Electrochemical Energy Storage Systems		Proficient	Proficient			Proficient	Proficient		Proficient
MECH4880 Refrigeration and Air Conditioning 1		Developed			Developed		Developed		Developed
MECH4900 Mechanics of Fracture and Fatigue		Developed	Developed	Proficient					
MECH9325 Fundamentals of Acoustics and Noise		Developed	Developed		Developed	Developed	Proficient		Developed
MECH9420 Composite Materials and Mechanics	Proficient	Proficient	Proficient			Proficient	Proficient	Proficient	Proficient
MECH9650 Applied Bio and Microfluidics	Developed	Developed	Developed		Developed	Proficient	Proficient	Proficient	Proficient
MECH9720 Solar Thermal Energy Design	Proficient	Developed	Developed		Developed	Developed	Developed	Developed	Developed
MECH9761 Automobile Engine Technology	Developed	Proficient	Developed		Developed	Developed		Proficient	Proficient
MMAN2700 Thermodynamics		Developed							
MMAN4200 Additive Manufacturing	Introduced	Developed				Developed	Developed	Developed	Developed
MMAN4250 Micro/Nanofabrication and Technology	Developed	Proficient	Developed			Proficient	Proficient		Developed
SOLA5052 Bioenergy and Renewable Fuels	Developed	Developed			Developed	Developed	Developed		Proficient
SOLA5053 Wind Energy Converters	Developed	Proficient			Developed	Proficient	Developed		Proficient
SOLA5056 Sustainable Energy for Developing Countries		Developed	Developed			Proficient	Developed	Proficient	Proficient
SOLA5057 Energy Efficiency		Developed	Developed			Proficient	Proficient	Proficient	Proficient

7. Assessments

A review of assessment distribution indicates that the specialisation has a balance between examination, quizzes, assignments/reports, and lab work. Design courses, thesis, and other professional engineering courses use a wider range of assessment types, including presentations and portfolios.

A complete overview of the assessment types is provided in Figures 1-3. Figure 1 shows assessment distribution for all specialisation courses, while Figures 2 and 3 show assessment distribution for core and elective courses, respectively.

Analysis of assessment distribution in core courses (Figure 2) reveals that assessments rely heavily on invigilated/secured components, with 44.83% combined of tests (26.21%) and examinations (18.62%). This is followed by lab-work (15.86%) and assignments (11.72%). Notably, the proportion of laboratory work (15.86%) is higher than in other specialisations, reflecting the hands-on nature of Robotics and Mechatronics where practical application of theory on hardware is critical. Assignments and projects together make up nearly 20% of the assessment, allowing for scaffolded learning of complex systems.

Analysis of assessment distribution in elective courses (Figure 3) shows distinct patterns that reflect opportunities for specialisation. Assignments (26.88%) comprise the largest single proportion, a significant increase from core courses, while exams (combined 34.41% between tests and examinations) remain a substantial component. The elective portfolio includes a diverse range of assessment types, including reports (10.22%) and projects (9.68%), which allow students to engage in deep, open-ended problem solving typical of advanced robotics applications.

The thesis pathway (MMAN4951/4952/4953) scaffolds independent research and professional work, with students demonstrating progressive capability through draft chapters, literature reviews, methodology reports, and final thesis documents. These courses provide extensive formative feedback through regular supervisor meetings and milestone reviews.

Reflective practice and peer assessment are embedded throughout the program to develop metacognitive awareness and critical evaluation skills. Design courses (DESN1000, DESN2000, DESN3000) require students to maintain design journals documenting their learning process, design iterations, and team collaboration experiences. The School has implemented many processes to ensure that academic integrity is maintained:

- All exam papers are reviewed by another academic, along with worked solutions.
- Online exams use as much randomisation as practically possible for the question type (question banks, numerical input randomisation and in some cases multiple parallel versions of questions with slightly different solution paths). Post-COVID online assessments are generally discouraged throughout all courses in the school to guarantee academic integrity.
- For many exam-style assessments, pen and paper answers are uploaded to Moodle via an ExamScan process managed by faculty. This improves marking procedures, especially when done at scale in large courses.
- In-person lab activities have been centre stage in our program and have been increased substantially as our programs have moved back to in-person face-to-face delivery modes.
- Academics are encouraged to include open-ended elements in all their examination questions, with students answering short essay-style questions. This enables the marker to check the alignment between simple answers and comprehension.

- Reports are submitted using TurnItIn, which ensures that students are not plagiarising or colluding, but does not deter some forms of contract cheating.
- Model report/assignment rubrics have been provided to reward open-ended and creative solutions by students to discourage collusion and contract cheating. These have shown some initial promise, but much more evaluation and testing are required.
- Important works, such as thesis, have two (or three) markers to ensure consistency.
- Some courses have taken on viva-style assessments for all students, but these have proved challenging at scale without centralised support for scheduling.

ROBOTICS AND MECHATRONICS ENGINEERING

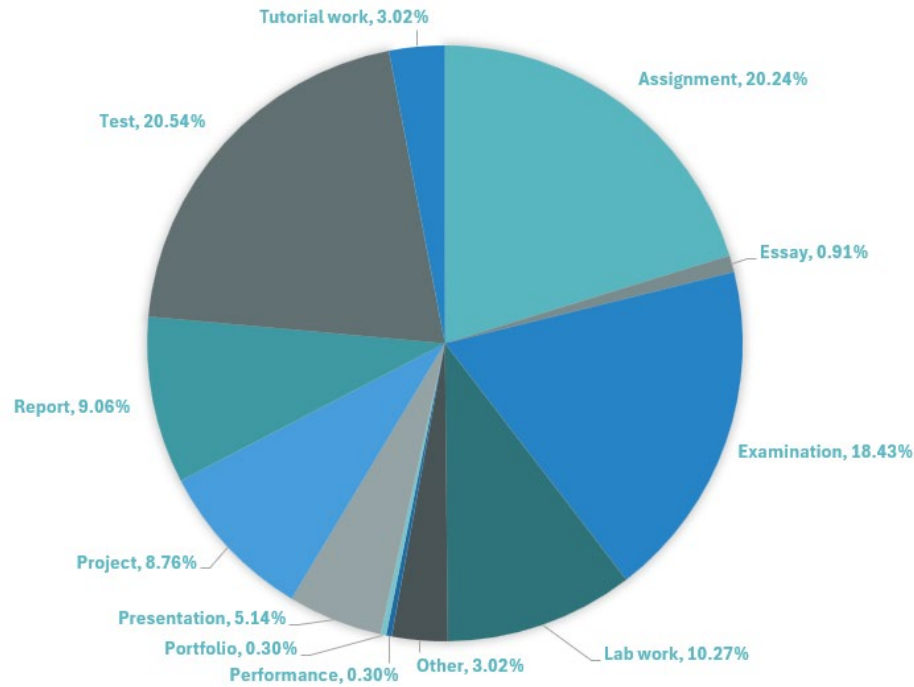


Figure 1. Percentage of assessment types used within the specialisation.

ROBOTICS AND MECHATRONICS ENGINEERING CORE

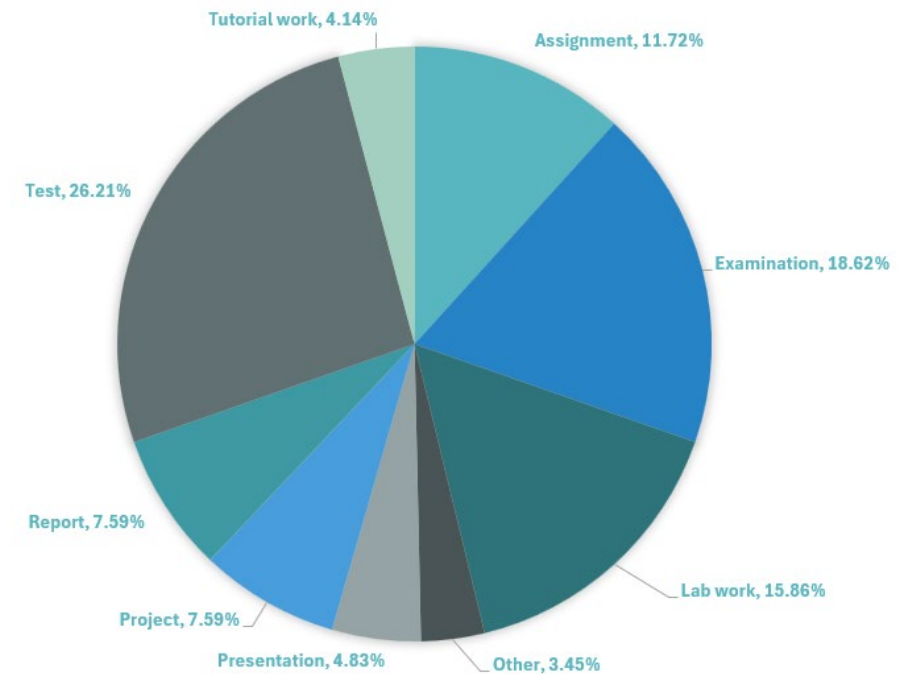


Figure 2. Percentage of assessment types used within the core of the specialisation.

ROBOTICS AND MECHATRONICS ENGINEERING ELECTIVES

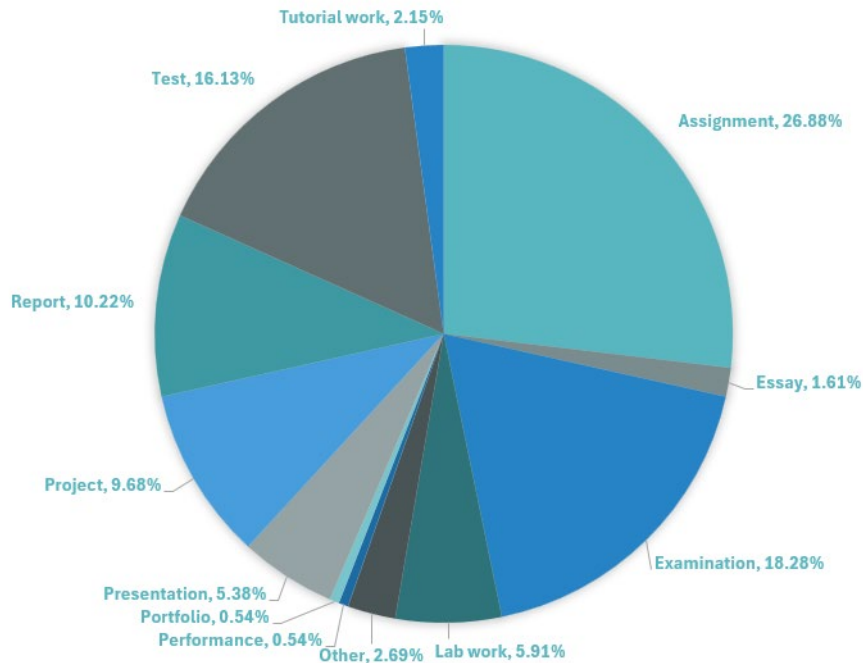


Figure 3. Percentage of assessment types used within the electives of the specialisation.

8. Specialisation Progression Plan

UNSW’s Robotics and Mechatronics Engineering program actively supports student reflection and self-assessment through structured progression plans that map graduate capabilities across the degree. These plans help students track their development in key areas such as problem-solving, communication, teamwork, and technical proficiency. By aligning course activities, assessments, and learning outcomes with the UNSW Graduate Capabilities Framework, students are encouraged to reflect on their growth at multiple stages – from foundational skills in early courses to advanced project work in later years. Tools such as self-assessment rubrics, reflective reports, and milestone reviews within capstone and design projects further reinforce this process, enabling students to identify strengths, set goals, and take ownership of their professional development. This approach ensures graduates are not only technically competent but also self-aware and industry-ready.

Students can track their progression through the “myPlan” checker tool.

[myPlan | Current Students - UNSW Sydney](#)

A progression checklist and/or study plan is also available for students for the single degree and the double degree offerings.

[Progression checksheets & study plans | Engineering - UNSW Sydney](#)