NUS DEPARTMENT OF MECHANICAL ENGINEERING
Bachelor of Engineering (Robotics and Machine Intelligence)

Summary of RMI Course Requirements and Units (For students matriculating from AY2025/2026)

UNIT REQUIREMENTS		Units	TERM	NOTES
UNRESTRICTED ELECTIVE (UE) COURSES		**40**		
COMMON CURRICULUM REQUIREMENTS – see Annex A		**40**		
General Education (GE) Courses:		**24**		
CDE2501	Sustainable Systems for Liveable Cities	4		
Cultures and Connections (GEC)		4		
Communities and Engagement (GEN)		4		
ES2631	Critique and Communication of Thinking and Design	4		
CS1010E	Programming Methodology	4		
GEA1000	Quantitative Reasoning with Data	4		
Common Courses:		**16**		
DTK1234	Design Thinking	4		
EG1311	Design and Make	4		
EE2211 EE2213	Introduction to Machine Learning or Introduction to Artificial Intelligence	4		
PF1101A	Project Management and Finance	4		
Robotics and Machine Intelligence Major Requirements		**80**		
Engineering Core Courses:		**20**		
MA1511	Engineering Calculus	2		
MA1512	Differential Equations for Engineering	2		
MA1513	Linear Algebra & Differential Equations	2		
CE2407A	Uncertainty Analysis for Engineers	2		
EG2401A	Engineering Professionalism	2		
EG3611A	Industrial Attachment[1]	10		
RMI Major Courses:		**60**		
RB1101	Fundamentals of Robotics I	4	Odd	
RB2101	Fundamentals of Robotics II	4	Even	
RB2202	Kinematics and Dynamics for Robots	4	Odd	
RB2203	Robot Control	4	Even	
RB2301	Robot Programming	4	Odd	
RB2302	Fundamentals of Artificial Neural Networks	4	Even	
RB3301	Introduction to Machine Intelligence	4	Even	
RB3302	Planning and Navigation	4	Odd	
RB3303	Robotic System Design and Application	4	Even	
RB4101A	B.Eng Dissertation	8	Odd/Even	
RMI Technical Electives		16		
MA1301	***Introductory Mathematics (For direct poly intake only)[2]***			
TOTAL		**160**		

[1] Engineering students may take up to 20 Units of credit-bearing internships, of which up to 10 Units can be used to fulfil the major internship requirement and the remaining will be counted towards Unrestricted Electives (UE) Course. This limit does not apply to students enrolled in the co-op degree programme.

[2] Accredited Polytechnic Direct Entry Students will have to take MA1301 Introductory Mathematics to be counted towards Unrestricted Elective (UE) Course.

Please check the current schedule regularly for possible changes, if any.

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Annex A: Catalogue of courses in the Common Curriculum

Common Curriculum Requirements	B.Eng. Basket of Courses
General Education (GE) Courses:	
Singapore Studies	CDE2501 Sustainable Systems for Liveable Cities
Critique and Expression	ES2631 Critique and Communication of Thinking and Design
Digital Literacy	CS1010% Programming Methodology (any variant)
Data Literacy	GEA1000 Quantitative Reasoning with Data or any course from the basket of courses approved by the NUS General Education Committee for this pillar.
Cultures and Connections (GEC)	Students may read any course from the curated list of courses as approved by the NUS General Education Committee for this pillar.
Communities and Engagement (GEN)	Courses from the curated list of courses as approved by the NUS General Education Committee for this pillar.
CDE Common Courses:	
Design Thinking	DTK1234 Design Thinking
Maker Space	EG1311 Design and Make
Artificial Intelligence	EE2211 Introduction to Machine Learning OR EE2213 Introduction to Artificial Intelligence
Project Management	PF1101A Project Management and Finance

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Sample Semester Schedule for RMI students (matriculating from AY2025/2026 onwards)

Semester 1	Units	Semester 2	Units
CE2407A Uncertainty Analysis for Engineers	2	DTK1234 Design Thinking	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design and Make	4	MA1512 Differential Equations for Engineering	2
MA1511 Engineering Calculus	2	MA1513 Linear Algebra & Differential Equations	2
RB1101 Fundamentals of Robotics I	4	PF1101A Project Management and Finance	4
GE/UE	4	RB2101 Fundamentals of Robotics II	4
Sub-total	**20**	**Sub-total**	**20**
Semester 3	**Units**	**Semester 4**	**Units**
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	CDE2501 Sustainable Systems for Liveable Cities	4
RB2202 Kinematics and Dynamics for Robots	4	ES2631 Critique and Comm. of Thinking and Design	4
RB2301 Robot Programming	4	RB2203 Robot Control	4
RB3302 Planning and Navigation	4	RB2302 Fundamentals of Artificial Neural Networks	4
GE/UE	4	GE/UE	4
Sub-total	**20**	**Sub-total**	**20**
Semester 5	**Units**	**Semester 6**	**Units**
EG3611A Industrial Attachment	10	RB3301 Introduction to Machine Intelligence	4
EG2401A Engineering Professionalism	2	RB3303 Robotic System Design and Application	4
RMI Technical Elective 1	4	RMI Technical Elective 2	4
GE/UE	4	GE/UE	4
		GE/UE	4
Sub-total	**20**	**Sub-total**	**20**
Semester 7	**Units**	**Semester 8**	**Units**
RB4101A B.Eng. Dissertation	4	RB4101A B.Eng. Dissertation	4
RMI Technical Elective 3	4	RMI Technical Elective 4	4
GE/UE	4	GE/UE	4
GE/UE	4	GE/UE	4
GE/UE	4	GE/UE	4
Sub-total	**20**	**Sub-total**	**20**
Total			**160**

Please note that this semester schedule is only a sample, you can customize your own schedule taking into consideration the semester the courses are offered and the pre- and co-requisites of a course.

More information on the Industrial Attachment may be found here.

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Sample Semester Schedule for Accredited Poly Direct Entry RMI students (matriculating from AY2025/2026 onwards)

Year 2			
Semester 3	**Units**	**Semester 4**	**Units**
CS1010E Programming Methodology	4	MA1512 Differential Equations for Engineering	2
CDE2501 Sustainable Systems for Liveable Cities	4	MA1513 Linear Algebra & Differential Equations	2
RB1101 Fundamentals of Robotics I	4	GEA1000 Quantitative Reasoning with Data	4
MA1301 Introductory Mathematics[1] (UE 1)	4	PF1101A Project Management and Finance	4
PC1201 Fundamentals of Physics[2] (UE 2)	4	RB2101 Fundamentals of Robotics II	4
		RB2302 Fundamentals of Artificial Neural Networks	4
Sub-total	**20**	**Sub-total**	**20**
Year 3			
Semester 5	**Units**	**Semester 6**	**Units**
CE2407A Uncertainty Analysis for Engineers	2	ES2631 Critique and Comm. of Thinking and Design	4
MA1511 Engineering Calculus	2	EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4
RB2202 Kinematics and Dynamics for Robots	4	EG2401A Engineering Professionalism	2
RB2301 Robot Programming	4	RB2203 Robot Control	4
RB3302 Planning and Navigation	4	RB3301 Introduction to Machine Intelligence	4
RMI Technical Elective 1	4	GE/UE	4
Sub-total	**20**	**Sub-total**	**22**
Year 4			
Semester 7	**Units**	**Semester 8**	**Units**
RB4101A B.Eng. Dissertation	4	RB4101A B.Eng. Dissertation	4
RMI Technical Elective 2	4	RB3303 Robotic System Design and Application	4
RMI Technical Elective 3	4	RMI Technical Elective 4	4
GE/UE	4	GE/UE	4
GE/UE	4	GE/UE	4
Sub-total	**20**	**Sub-total**	**20**
Total			**122**

[1]Mathematics bridging course: MA1301

- Students who do not meet the following criteria will need to read the Mathematics bridging course, before you can start reading the required Mathematics courses.
- MA1301 will be counted towards Unrestricted Elective (UE) Course.
- Students not required to read MA1301 may take other GE/UE to fulfil the UE requirements.
- Students not required to read MA1301 may consider taking MA1511 and CE2407A in your Semester 3 (1st Year Sem 1).
- Please refer to here for more information.

[2]Physics bridging course: PC1201:

- Students who do not possess A-level H2 Physics or IB HL Physics or NUSHS Major CAP in Physics or its equivalent may be asked to read a Physics bridging course.
- PC1201 will be counted towards Unrestricted Elective (UE) Course.
- Students not required to read PC1201 may take other GE/UE to fulfil the UE requirements.
- Please refer to here for more information.

Please note that this semester schedule is only a sample, you can customize your own schedule taking into consideration the semester the courses are offered and the pre- and co-requisites of a course.

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