

NUS DEPARTMENT OF MECHANICAL ENGINEERING

Summary of RMI Course Requirements and Units (For students matriculating from AY2025/26 onwards)

UNIT REQUIREMENTS	Units	TERM	NOTES
UNRESTRICTED ELECTIVE (UE) COURSES	40		
COMMON CURRICULUM REQUIREMENTS – see Annex A	40		
General Education (GE) Courses:	24		
CDE2501 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 Introduction to Machine Learning <u>or</u> EE2213 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 Engineerings	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.

Annex A: Catalogue of courses in the Common Curriculum

Common Curriculum Pillar	B.Eng.
	Basket of Courses
General Education (GE) Courses:	
Singapore Studies (GESS)	CDE2501 Liveable Cities
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)	Students may read any course from the curated list of courses as approved by the NUS General Education Committee for this pillar.
Critique and Expression	ES2631 Critique and Communication of Thinking and Design
Digital Literacy	CS1010E Programming Methodology
Data Literacy	GEA1000 Quantitative Reasoning with Data
CDE Common Courses:	
Design Thinking	DTK1234 Design Thinking
Maker Space	EG1311 Design and Make
Artificial Intelligence	EE2211 Introduction to Machine Learning <u>or</u> EE2213 Introduction to Artificial Intelligence
Project Management	PF1101A Project Management and Finance

⁴ CDE4301 or CDE4301A is a 12 Unit course that forms part of the Innovation and Design Second Major. Students taking this will fulfil the Integrated Project pillar (8 Units) and an additional 4 Units of Unrestricted Elective (UE) Course.

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 Introduction to Artificial Intelligence	4	CDE2501	Liveable Cities	4
EE2213					
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](#).

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

Year 2							
Semester 3			Units	Semester 4		Units	
MA1301	Introductory Mathematics ¹ (UE 1)		4	MA1512	Differential Equations for Engineering		2
CS1010E	Programming Methodology		4	MA1513	Linear Algebra & Differential Equations		2
CE2407A	Uncertainty Analysis for Engineers		2	GEA1000	Quantitative Reasoning with Data		4
ES2631	Critique and Comm. of Thinking and Design		4	PF1101A	Project Management and Finance		4
RB1101	Fundamentals of Robotics I		4	RB2101	Fundamentals of Robotics II		4
				RB2302	Fundamentals of Artificial Neural Networks		4
Sub-total			18	Sub-total		20	
Year 3							
Semester 5			Units	Semester 6			Units
GE/UE			4	CDE2501	Liveable Cities		4
MA1511	Engineering Calculus		2	EE2211	Introduction to Machine Learning <u>or</u>		4
				EE2213	Introduction to Artificial Intelligence		
RB2202	Kinematics and Dynamics for Robots		4	EG2401A	Engineering Professionalism		2
RB2301	Robot Programming		4	GE/UE			4
RB3302	Planning and Navigation		4	RB2203	Robot Control		4
RMI Technical Elective 1			4	RB3301	Introduction to Machine Intelligence		4
Sub-total			22	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

¹MA1301 will be counted towards Unrestricted Elective (UE) Course.

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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