Bachelor of Engineering (Mechanical Engineering)

Summary of ME Modular Requirements and Units (For student matriculating from AY22/23 to AY24/25 onwards)

UNIT REQUIREMENTS		Units	TERM	NOTES
UNRESTRICTED ELECTIVE (UE) COURSES		**40**		
COMMON CURRICULUM REQUIREMENTS – see Annex A		**60**		
General Education (GE) Courses:		**24**		
Singapore Studies (GESS) (see footnote)		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:		**36**		
DTK1234	Design Thinking	4		
EG1311	Design and Make	4		
*IE2141	Systems Thinking and Dynamics (see footnote*)	4		
EE2211	Introduction to Machine Learning	4		
*CDE2501	Liveable Cities (see footnote*)	4		
*CDE2000	Creating Narratives (see footnote*)	4		
PF1101A	Project Management and Finance	4		
~~ME4101B~~	~~Mechanical Systems Design~~ ~~**OR**~~ ME4101A B.Eng Dissertation (Both courses are over 2 semesters)	8	Odd/Even	
Mechanical Engineering Major Requirements		**60**		
Engineering Core Courses:		**20**		
MA1505	Mathematics I	4		
MA1512	Differential Equations for Engineering	2		
MA1513	Linear Algebra & Differential Equations	2		
EG2401A	Engineering Professionalism	2		
EG3611A	Industrial Attachment[1]	10		
ME Major Courses:		**40**		
ME1102	Engineering Principles & Practice I	4	Odd	
ME2104	Engineering Principles & Practice II	4	Even	
ME2102	Engineering Innovation and Modelling	4	Odd/Even	
ME2112	Strength of Materials	4	Odd/Even	
ME2121	Engineering Thermodynamics and Heat Transfer	4	Odd/Even	
ME2115/ ME3115	Mechanics of Machines	4	Odd/Even	
ME2134	Fluids Mechanics I	4	Odd/Even	
ME2142/ ME3142	Feedback Control Systems	4	Odd/Even	
ME2162	Manufacturing Processes	4	Odd/Even	
ME Technical Elective		4		
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.

ME major courses are offered in both semesters. (Refer Option A and B sample schedule)

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses. Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.

Please check the current schedule regularly via https://cde.nus.edu.sg/me/undergraduate/beng-me/timetables/ *for possible changes if any.*

Annex A: Catalogue of courses in the Common Curriculum

Common Curriculum Requirements	B.Eng. Basket of Courses
General Education (GE) Courses:	
Singapore Studies (GESS)	Students may read any course from the curated list of courses as approved by the NUS General Education Committee for this pillar. **(Update 2025: Students reading GESS from AY25/26 onwards should read CDE2501 as GESS.)**
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)	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	CS1010% Programming Methodology (any variant)
Data Literacy	GEA1000 Quantitative Reasoning with Data
CDE Common Courses:	
Design Thinking	DTK1234 Design Thinking
Maker Space	EG1311 Design and Make
Systems Thinking	*IE2141 Systems Thinking and Dynamics
Artificial Intelligence	EE2211 Introduction to Machine Learning
Sustainable Futures	*CDE2501 Liveable Cities
Creating Narratives	*CDE2000 Creating Narratives
Project Management	PF1101A Project Management and Finance
Integrated Project	Complete 8 Units from the following list of courses: • ME4101A Bachelor of Engineering Dissertation • ~~ME4101B Mechanical Systems Design~~ • CDE4301 or CDE4301A iDP Dissertation[4]

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses.

Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.

[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 ME students – Option A (IA in Sem 5)

Semester 1		Units	Semester 2		Units
ME1102	Engineering Principles & Practice I	4	ME2104	Engineering Principles & Practice II	4
CS1010E	Programming Methodology (GE 1)	4	MA1512	Differential Equations for Engineering	2
MA1505	Mathematics I	4	MA1513	Linear Algebra & Differential Equations	2
EG1311	Design and Make	4	GEA1000	Quantitative Reasoning with Data(GE 2)	4
GE/UE		4	DTK1234	Design Thinking	4
			PF1101A	Project Management and Finance	4
Sub-total		**20**	**Sub-total**		**20**
Semester 3		**Units**	**Semester 4**		**Units**
ES2631	Critique and Communication of Thinking and Design (GE 3)	4	*CDE2501	Liveable Cities (see footnote*)	4
*IE2141	Systems Thinking and Dynamics(see footnote*)	4	EE2211	Introduction to Machine Learning	4
ME2112	Strength of Materials	4	ME2102	Engineering Innovation and Modelling	4
ME2134	Fluid Mechanics I	4	ME2121	Engineering Thermodynamics and Heat Transfer	4
Singapore Studies (GESS) (see footnote)		4	GE/UE		4
Sub-total		**20**	**Sub-total**		**20**
Semester 5		**Units**	**Semester 6**		**Units**
EG2401A	Engineering Professionalism	2	EG3611A	Industrial Attachment	10
ME2115/ ME3115	Mechanics of Machines	4	ME Technical Elective 1		4
ME2142/ ME3142	Feedback Control Systems	4	GE/UE		4
ME2162	Manufacturing Processes	4			
GE/UE		4			
GE/UE		4			
Sub-total		**22**	**Sub-total**		**18**
Semester 7		**Units**	**Semester 8**		**Units**
~~ME4101B~~	~~Mechanical Systems Design~~ **~~OR~~** ME4101A	4	~~ME4101B~~	~~Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation	4
GE/UE	B.Eng. Dissertation	4	*CDE2000	Creating Narratives (see footnote*)	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 customized your own schedule taking into considerations the semester the courses are offered and the pre- and co-requisites of a course.

ME core courses are offered in both semesters. (Refer Option A and B sample schedule)

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses. Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.

Sample Semester Schedule for ME students – Option B (IA in Sem 6)

Semester 1	Units	Semester 2	Units
ME1102 Engineering Principles & Practice I	4	ME2104 Engineering Principles & Practice II	4
CS1010E Programming Methodology (GE 1)	4	MA1512 Differential Equations for Engineering	2
MA1505 Mathematics I	4	MA1513 Linear Algebra & Differential Equations	2
EG1311 Design and Make	4	GEA1000 Quantitative Reasoning with Data(GE 2)	4
GE/UE	4	DTK1234 Design Thinking	4
		PF1101A Project Management and Finance	4
Sub-total	**20**	**Sub-total**	**20**
Semester 3	**Units**	**Semester 4**	**Units**
ES2631 Critique and Communication of Thinking and Design (GE 3)	4	*CDE2501Liveable Cities (see footnote*)	4
IE2141 Systems Thinking and Dynamics (see footnote)	4	EE2211 Introduction to Machine Learning	4
ME2102 Engineering Innovation and Modelling	4	ME2112 Strength of Materials	4
ME2142/ ME3142 Feedback Control Systems	3142	ME2134 Fluid Mechanics I	4
Singapore Studies (GESS) (see footnote)	4	GE/UE	4
Sub-total	**20**	**Sub-total**	**20**
Semester 5	**Units**	**Semester 6**	**Units**
EG3611A Industrial Attachment	10	EG2401A Engineering Professionalism	2
ME Technical Elective 1	4	ME2162 Manufacturing Processes	4
GE/UE	4	ME2115/ ME3115 Mechanics of Machines	4
		ME2121 Engineering Thermodynamics and Heat Transfer	4
		GE/UE	4
		GE/UE	4
Sub-total	**18**	**Sub-total**	**22**
Semester 7	**Units**	**Semester 8**	**Units**
~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation	4	~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation	4
GE/UE	4	*CDE2000 Creating Narratives (see footnote*)	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 customized your own schedule taking into considerations the semester the courses are offered and the pre- and co-requisites of a course.

ME core courses are offered in both semesters. (Refer Option A and B sample schedule)

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses. Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.

Sample Semester Schedule for Accredited Poly Direct Entry ME students – Option A

Year 2					
Semester 3		**Units**	**Semester 4**		**Units**
ME1102	Engineering Principles & Practice I	4	ME2104	Engineering Principles & Practice II	4
MA1301	Introductory Mathematics[1]	4	MA1512	Differential Equations for Engineering	2
CS1010E	Programming Methodology (GE 1)	4	MA1513	Linear Algebra & Differential Equations	2
ME2162	Manufacturing Processes	4	GEA1000	Quantitative Reasoning with Data(GE 2)	4
GE/UE		4	ME2112	Strength of Materials	4
			PF1101A	Project Management and Finance	4
Sub-total		**20**	**Sub-total**		**20**
Year 3					
Semester 5		**Units**	**Semester 6**		**Units**
MA1505	Mathematics I	4	*CDE2501	Liveable Cities (see footnote*)	4
ES2631	Critique and Communication of Thinking and Design (GE 3)	4	EE2211	Introduction to Machine Learning	4
*IE2141	Systems Thinking and Dynamics (see footnote*)	4	ME2134	Fluid Mechanics I	4
ME2115/ ME3115	Mechanics of Machines	4	ME2102	Engineering Innovation and Modelling	4
ME2121	Engineering Thermodynamics and Heat Transfer	4	EG2401A	Engineering Professionalism	2
			GE/UE		4
Sub-total		**20**	**Sub-total**		**22**
Year 4					
Semester 7		**Units**	**Semester 8**		**Units**
~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation		4	~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation		4
ME Technical Elective 1		4	GE/UE		4
Singapore Studies (GESS) (see footnote)		4	GE/UE		4
GE/UE		4	*CDE2000	Creating Narratives (see footnote*)	4
GE/UE		4	ME2142/ ME3142	Feedback Control Systems	4
Sub-total		**20**	**Sub-total**		**20**
Total					**122**

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

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

ME core courses are offered in both semesters. (Refer Option A and B sample schedule)

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses. Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.

Sample Semester Schedule for Accredited Poly Direct Entry ME students - Option B

Year 2			
Semester 3	**Units**	**Semester 4**	**Units**
ME1102 Engineering Principles & Practice I	4	ME2104 Engineering Principles & Practice II	4
MA1301 Introductory Mathematics[1]	4	MA1512 Differential Equations for Engineering	2
CS1010E Programming Methodology (GE 1)	4	MA1513 Linear Algebra & Differential Equations	2
ME2162 Manufacturing Processes	4	GEA1000 Quantitative Reasoning with Data(GE 2)	4
GE/UE	4	ME2112 Strength of Materials	4
		PF1101A Project Management and Finance	4
Sub-total	**20**	**Sub-total**	**20**
Year 3			
Semester 5	**Units**	**Semester 6**	**Units**
MA1505 Mathematics I	4	*CDE2501 Liveable Cities (see footnote*)	4
ES2631 Critique and Communication of Thinking and Design (GE 3)	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking and Dynamics (see footnote)	4	ME2134 Fluid Mechanics I	4
ME2102 Engineering Innovation and Modelling	4	ME2142/ ME3142 Feedback Control Systems	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	EG2401A Engineering Professionalism	2
		GE/UE	4
Sub-total	**20**	**Sub-total**	**22**
Year 4			
Semester 7	**Units**	**Semester 8**	**Units**
~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation	4	~~ME4101B Mechanical Systems Design~~ **~~OR~~** ME4101A B.Eng. Dissertation	4
ME2115/ ME3115 Mechanics of Machines	4	GE/UE	4
Singapore Studies (GESS) (see footnote)	4	GE/UE	4
GE/UE	4	*CDE2000 Creating Narratives (see footnote*)	4
GE/UE	4	ME Technical Elective 1	4
Sub-total	**20**	**Sub-total**	**20**
Total			**122**

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

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

ME core courses are offered in both semesters. (Refer Option A and B sample schedule)

* Depending on matriculation year, one, two, or three of these courses marked with * can be **read** from a basket of additional technical courses. Please refer to https://cde.nus.edu.sg/undergraduate/curriculum-structure/ for more details.