NUS DEPARTMENT OF MECHANICAL ENGINEERING
Summary of ME Modular Requirements and Credits (For student matriculating from AY21/22 onwards)

MODULAR REQUIREMENTS		MCs	TERM	NOTES
UNRESTRICTED ELECTIVE MODULES (UEM)		**40**		
COMMON CURRICULUM REQUIREMENTS – see Annex A		**60**		
General Education (GE) Modules:		**24**		
Singapore Studies (GESS)		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 Modules:		**36**		
DTK1234	Design Thinking	4		
EG1311	Design and Make	4		
IE2141	Systems Thinking and Dynamics	4		
EE2211	Introduction to Machine Learning	4		
EG2501	Liveable Cities	4		
CDE2000	Creating Narratives	4		
PF1101	Fundamentals of Project Management	4		
ME4101B	Mechanical Systems Design **OR**	8	Odd/Even	
ME4101A	B.Eng Dissertation (Both modules are over 2 semesters)			
Mechanical Engineering Major Requirements		**60**		
Engineering Core Modules:		**20**		
MA1505	Mathematics I	4		
MA1512	Differential Equations for Engineering	2		
MA1513	Linear Algebra & Differential Equations	2		
EG2401A	Engineering Professionalism[1]	2		
EG3611A	Industrial Attachment[2]	10		
ME Major Modules:		**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	Mechanics of Machines	4	Odd/Even	
ME2134	Fluids Mechanics I	4	Odd/Even	
ME2142	Feedback Control Systems	4	Odd/Even	
ME2162	Manufacturing Processes	4	Odd/Even	
ME Technical Electives		4		
MA1301	*Introductory Mathematics (For direct poly intake only)[3]*			
TOTAL		**160**		

[1] Students enrolled in the Engineering Scholars Programme will read EG2101 Pathways to Engineering Leadership instead.

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

[3] Accredited Polytechnic Direct Entry Students will have to take MA1301 Introductory Mathematics to be counted towards Unrestricted Electives Modules.

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

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 modules in the Common Curriculum

Common Curriculum Pillar	B.Eng.
	Basket of Modules
General Education (GE) Modules:	
Singapore Studies (GESS)	Students may read any module from the curated list of modules as approved by the NUS General Education Committee for this pillar.
Cultures and Connections (GEC)	Students may read any module from the curated list of modules as approved by the NUS General Education Committee for this pillar.
Communities and Engagement (GEN)	Students may read any module from the curated list of modules 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
Common Modules:	
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	EG2501 Liveable Cities
Creating Narratives	CDE2000 Creating Narratives
Project Management	PF1101 Fundamentals of Project Management
Integrated Project	Complete 8 MC from the following list of modules: • ME4101A Bachelor of Engineering Dissertation • ME4101B Mechanical Systems Design • EG4301 DCP Dissertation[4]

Sample Semester Schedule for ME students (matriculating from AY2021/2022 onwards) – Option A (IA in Sem 5)

Semester 1		MCs	Semester 2		MCs
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/UEM		4	DTK1234	Design Thinking	4
			PF1101	Fundamentals of Project Management	4
Sub-total		**20**	**Sub-total**		**20**
Semester 3		MCs	Semester 4		MCs
ES2631	Critique and Communication of Thinking and Design (GE 3)	4	EG2501	Liveable Cities	4
IE2141	Systems Thinking and Dynamics	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
GE/UEM		4	GE/UEM		4
Sub-total		**20**	**Sub-total**		**20**
Semester 5		MCs	Semester 6		MCs
EG2401A	Engineering Professionalism	2	EG3611A	Industrial Attachment	10
ME2115	Mechanics of Machines	4	ME Technical Elective 1		4
ME2142	Feedback Control Systems	4	GE/UEM		4
ME2162	Manufacturing Processes	4			
GE/UEM		4			
GE/UEM		4			
Sub-total		**22**	**Sub-total**		**18**
Semester 7		MCs	Semester 8		MCs
ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation		4	ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation		4
GE/UEM		4	CDE2000	Creating Narratives	4
GE/UEM		4	GE/UEM		4
GE/UEM		4	GE/UEM		4
GE/UEM		4	GE/UEM		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 modules are offered and the pre- and co-requisites of a module.

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

Sample Semester Schedule for ME students (matriculating from AY2021/2022 onwards) – Option B (IA in Sem 6)

Semester 1	MCs	Semester 2	MCs
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/UEM	4	DTK1234 Design Thinking	4
		PF1101 Fundamentals of Project Management	4
Sub-total	**20**	**Sub-total**	**20**
Semester 3	MCs	Semester 4	MCs
ES2631 Critique and Communication of Thinking and Design (GE 3)	4	EG2501 Liveable Cities	4
IE2141 Systems Thinking and Dynamics	4	EE2211 Introduction to Machine Learning	4
ME2102 Engineering Innovation and Modelling	4	ME2112 Strength of Materials	4
ME2142 Feedback Control Systems	4	ME2134 Fluid Mechanics I	4
GE/UEM	4	GE/UEM	4
Sub-total	**20**	**Sub-total**	**20**
Semester 5	MCs	Semester 6	MCs
EG3611A Industrial Attachment	10	EG2401A Engineering Professionalism	2
ME Technical Elective 1	4	ME2162 Manufacturing Processes	4
GE/UEM	4	ME2115 Mechanics of Machines	4
		ME2121 Engineering Thermodynamics and Heat Transfer	4
		GE/UEM	4
		GE/UEM	4
Sub-total	**18**	**Sub-total**	**22**
Semester 7	MCs	Semester 8	MCs
ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation	4	ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation	4
GE/UEM	4	CDE2000 Creating Narratives	4
GE/UEM	4	GE/UEM	4
GE/UEM	4	GE/UEM	4
GE/UEM	4	GE/UEM	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 modules are offered and the pre- and co-requisites of a module.

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

Sample Semester Schedule for <u>Accredited Poly Direct Entry</u> ME students (matriculating from AY2021/2022 onwards) – Option A

Year 2				
Semester 3		**MCs**	**Semester 4**	**MCs**
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
ME2102 Engineering Innovation and Modelling		4	GEA1000 Quantitative Reasoning with Data(GE 2)	4
GE/UEM		4	ME2112 Strength of Materials	4
			PF1101 Fundamentals of Project Management	4
Sub-total		**20**	**Sub-total**	**20**

Year 3				
Semester 5		**MCs**	**Semester 6**	**MCs**
MA1505 Mathematics I		4	EG2501 Liveable Cities	4
ES2631 Critique and Communication of Thinking and Design (GE 3)		4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking and Dynamics		4	ME2134 Fluid Mechanics I	4
ME2115 Mechanics of Machines		4	ME2162 Manufacturing Processes	4
ME2121 Engineering Thermodynamics and Heat Transfer		4	EG2401A Engineering Professionalism	2
			GE/UEM	4
Sub-total		**20**	**Sub-total**	**22**

Year 4				
Semester 7		**MCs**	**Semester 8**	**MCs**
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/UEM	4
GE/UEM		4	GE/UEM	4
GE/UEM		4	CDE2000 Creating Narratives	4
GE/UEM		4	ME2142 Feedback Control Systems	4
Sub-total		**20**	**Sub-total**	**20**

Total	**122**

[1] MA1301 will be counted towards Unrestricted Electives Modules.

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

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

Sample Semester Schedule for <u>Accredited Poly Direct Entry</u> ME students (matriculating from AY2021/2022 onwards) – Option B

Year 2			
Semester 3	**MCs**	**Semester 4**	**MCs**
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
ME2102 Engineering Innovation and Modelling	4	GEA1000 Quantitative Reasoning with Data(GE 2)	4
GE/UEM	4	ME2112 Strength of Materials	4
		PF1101 Fundamentals of Project Management	4
Sub-total	**20**	**Sub-total**	**20**

Year 3			
Semester 5	**MCs**	**Semester 6**	**MCs**
MA1505 Mathematics I	4	EG2501 Liveable Cities	4
ES2631 Critique and Communication of Thinking and Design (GE 3)	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking and Dynamics	4	ME2134 Fluid Mechanics I	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	ME2142 Feedback Control Systems	4
ME2162 Manufacturing Processes	4	EG2401A Engineering Professionalism	2
		GE/UEM	4
Sub-total	**20**	**Sub-total**	**22**

Year 4			
Semester 7	**MCs**	**Semester 8**	**MCs**
ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation	4	ME4101B Mechanical Systems Design **OR** ME4101A B.Eng. Dissertation	4
ME2115 Mechanics of Machines	4	GE/UEM	4
GE/UEM	4	GE/UEM	4
GE/UEM	4	CDE2000 Creating Narratives	4
GE/UEM	4	ME Technical Elective 1	4
Sub-total	**20**	**Sub-total**	**20**

Total	**122**

[1] MA1301 will be counted towards Unrestricted Electives Modules.

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

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