

**CURRICULUM FOR BACHELOR OF ENGINEERING (MATERIALS ENGINEERING)**  
**WITH CN YANG SCHOLARS PROGRAMME**  
**SECOND MAJOR IN SUSTAINABILITY**  
**(FIRST YEAR ADMISSION)**  
**AY2025 Intake Onwards**

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Major Requirements			Interdisciplinary Collaborative Core			BDE	Total AU
	School Core	CNYSP-Core	MPE	CC	Professional Series	Care, Serve, Learn		
1	12 [2]	27 [3]	0	2	0	0	3	44 [5]
2	12	6	0	8	3	3	10	42
3	32	0	4 [4]	0	6	0	6	48 [4]
4	10	0	4	0	0	0	6	20
<b>Total</b>	<b>66 [2]</b>	<b>33 [3]</b>	<b>8 [4]</b>	<b>10</b>	<b>9</b>	<b>3</b>	<b>25</b>	<b>154 [9]</b>

[ ] AU of courses that could be used to fulfil Core/MPE requirement and second major requirement concurrently.

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYSP Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
MS1011	Materials Matter	C	1	
MS1017	Introduction to Materials Science	C	2	
CC0015	Health & Wellbeing	CC	2	
			<b>21</b>	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYSP Course
MS1014	Materials Chemistry II	C	2	
MS1018	Properties of Materials	C	2	
MS1008	Introduction to Computational Thinking	C	3	
EG1001^	Engineer & Society	C	2	Double-counted as Practice Core
ES5006	Environmental Sustainability	BDE	3	SN Core Course (People)
			<b>19</b>	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYSP Course
	Overseas Learning Trip			
			<b>4</b>	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course
MS5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
MS1016	Thermodynamics of Materials	C	3	
MS2012	Introduction to Manufacturing Processes	C	3	
SP0061	Science & Technology for Humanity	CC	3	
	SN Core Course (Profit)	BDE	3	Please see attached list of core courses to choose from
	SN Core Course (Policy)	BDE	3	
	Tech-For-Good (T4G)	CSL	3	
			<b>21</b>	

YEAR 2 SEMESTER 2				
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Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Course
MS5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
MS2013	Introduction to Polymer Science	C	3	
MS2014	Materials Structure and Defects	C	3	
MS0003	Introduction to Data Science and Artificial Intelligence	PS	3	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
			<b>21</b>	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS2015	Mechanical Behaviour of Materials	C	3	
MS2016	Introduction to Metallurgy	C	2	
MS2083	Laboratory on Structure-Property Relationship in Polymers	C	1	
MS3014	Analysis of Materials	C	3	
MS3082	Design Lab	C	1	
MS4012	Quality Control	C	3	
MS4013	Biomaterials	C	2	
MS4666^	Environmental Degradation of Plastics	MPE	1	Double-counted as SN Elective (Practice)
XXXXXX	SN Elective 2	BDE	3	<a href="#">Please see attached list of electives</a>
MLXXXX	Profession Preparation	PS	1	
			<b>20</b>	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS2018	Electronic & Magnetic Properties of Materials	C	3	
MS3011	Metallic & Ceramic Materials	C	3	
MS3012	Micro/Nanoelectronic Materials Processing	C	3	
MS3013	Electrochemical Corrosion	C	3	
MS3015	Industrial Design	C	4	
MS2084	Phase Transformations and Kinetics in Steels	C	1	
MS4664^	Environmental Sustainability and Materials	MPE	3	Double-counted as SN Elective (Practice)
XXXXXX	SN Elective 4	BDE	3	<a href="#">Please see attached list of electives</a>
			<b>23</b>	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS3910	Professional Attachment	PS	5	
			<b>5</b>	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS4211	CNYSP Overseas Final Year Project	C	8	CNYSP Course
			<b>8</b>	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS4014	Nanomaterials: Fundamentals and Applications	C	2	
	Major PE 3	MPE	3	
	Major PE 4	MPE	1	
XXXXXX	SN Elective 5	BDE	3	<a href="#">Please see attached list of electives</a>
	Second Major Interdisciplinary Project	BDE	3	
			<b>12</b>	
Total AU for Graduation:			<b>154</b>	

^ These courses are double-counted towards both MAT as well as the Second Major in Sustainability

<b>Compulsory Courses and Electives for Second Major in Sustainability</b>
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<a href="https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00">https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00</a>
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