

**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
Total	66 [2]	33 [3]	8 [4]	10	9	3	25	154 [9]

[] 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		
			21		

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)	
			19		

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				
			4		

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		
			21		

YEAR 2 SEMESTER 2					
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks	
ENG	English Language	CNY-Core	3	CNYSP Course	
SP0062	Science & Technology for Humanity	CC	3		
MS2013	Introduction to Manufacturing Processes	C	3		
SP0063	Science & Technology for Humanity	CC	3		
ES5007	Environmental Sustainability	BDE	3	SN Core Course (People)	
ES5008	Environmental Sustainability	BDE	3		
ES5009	Environmental Sustainability	BDE	3		
ES5010	Environmental Sustainability	BDE	3		
ES5011	Environmental Sustainability	BDE	3		
ES5012	Environmental Sustainability	BDE	3		
ES5013	Environmental Sustainability	BDE	3		
ES5014	Environmental Sustainability	BDE	3		
ES5015	Environmental Sustainability	BDE	3		
ES5016	Environmental Sustainability	BDE	3		
ES5017	Environmental Sustainability	BDE	3		
ES5018	Environmental Sustainability	BDE	3		
ES5019	Environmental Sustainability	BDE	3		
ES5020	Environmental Sustainability	BDE	3		
ES5021	Environmental Sustainability	BDE	3		
ES5022	Environmental Sustainability	BDE	3		
ES5023	Environmental Sustainability	BDE	3		
ES5024	Environmental Sustainability	BDE	3		
ES5025	Environmental Sustainability	BDE	3		
ES5026	Environmental Sustainability	BDE	3		
ES5027	Environmental Sustainability	BDE	3		
ES5028	Environmental Sustainability	BDE	3		
ES5029	Environmental Sustainability	BDE	3		
ES5030	Environmental Sustainability	BDE	3		
ES5031	Environmental Sustainability	BDE	3		
ES5032	Environmental Sustainability	BDE	3		
ES5033	Environmental Sustainability	BDE	3		
ES5034	Environmental Sustainability	BDE	3		
ES5035	Environmental Sustainability	BDE	3		
ES5036	Environmental Sustainability	BDE	3		
ES5037	Environmental Sustainability	BDE	3		
ES5038	Environmental Sustainability	BDE	3		
ES5039	Environmental Sustainability	BDE	3		
ES5040	Environmental Sustainability	BDE	3		
ES5041	Environmental Sustainability	BDE	3		
ES5042	Environmental Sustainability	BDE	3		
ES5043	Environmental Sustainability	BDE	3		
ES5044	Environmental Sustainability	BDE	3		
ES5045	Environmental Sustainability	BDE	3		
ES5046	Environmental Sustainability	BDE	3		
ES5047	Environmental Sustainability	BDE	3		
ES5048	Environmental Sustainability	BDE	3		
ES5049	Environmental Sustainability	BDE	3		
ES5050	Environmental Sustainability	BDE	3		
ES5051	Environmental Sustainability	BDE	3		
ES5052	Environmental Sustainability	BDE	3		
ES5053	Environmental Sustainability	BDE	3		
ES5054	Environmental Sustainability	BDE	3		
ES5055	Environmental Sustainability	BDE	3		
ES5056	Environmental Sustainability	BDE	3		
ES5057	Environmental Sustainability	BDE	3		
ES5058	Environmental Sustainability	BDE	3		
ES5059	Environmental Sustainability	BDE	3		
ES5060	Environmental Sustainability	BDE	3		
ES5061	Environmental Sustainability	BDE	3		
ES5062	Environmental Sustainability	BDE	3		
ES5063	Environmental Sustainability	BDE	3		
ES5064	Environmental Sustainability	BDE	3		
ES5065	Environmental Sustainability	BDE	3		
ES5066	Environmental Sustainability	BDE	3		
ES5067	Environmental Sustainability	BDE	3		
ES5068	Environmental Sustainability	BDE	3		
ES5069	Environmental Sustainability	BDE	3		
ES5070	Environmental Sustainability	BDE	3		
ES5071	Environmental Sustainability	BDE	3		
ES5072	Environmental Sustainability	BDE	3		
ES5073	Environmental Sustainability	BDE	3		
ES5074	Environmental Sustainability	BDE	3		
ES5075	Environmental Sustainability	BDE	3		
ES5076	Environmental Sustainability	BDE	3		
ES5077	Environmental Sustainability	BDE	3		
ES5078	Environmental Sustainability	BDE	3		
ES5079	Environmental Sustainability	BDE	3		
ES5080	Environmental Sustainability	BDE	3		
ES5081	Environmental Sustainability	BDE	3		
ES5082	Environmental Sustainability	BDE	3		
ES5083	Environmental Sustainability	BDE	3		
ES5084	Environmental Sustainability	BDE	3		
ES5085	Environmental Sustainability	BDE	3		
ES5086	Environmental Sustainability	BDE	3		
ES5087	Environmental Sustainability	BDE	3		
ES5088	Environmental Sustainability	BDE	3		
ES5089	Environmental Sustainability	BDE	3		
ES5090	Environmental Sustainability	BDE	3		
ES5091	Environmental Sustainability	BDE	3		
ES5092	Environmental Sustainability	BDE	3		
ES5093	Environmental Sustainability	BDE	3		
ES5094	Environmental Sustainability	BDE	3		
ES5095	Environmental Sustainability	BDE	3		
ES5096	Environmental Sustainability	BDE	3		
ES5097	Environmental Sustainability	BDE	3		
ES5098	Environmental Sustainability	BDE	3		
ES5099	Environmental Sustainability	BDE	3		
ES5100	Environmental Sustainability	BDE	3		
ES5101	Environmental Sustainability	BDE	3		
ES5102	Environmental Sustainability	BDE	3		
ES5103	Environmental Sustainability	BDE	3		
ES5104	Environmental Sustainability	BDE	3		
ES5105	Environmental Sustainability	BDE	3		
ES5106	Environmental Sustainability	BDE	3		
ES5107	Environmental Sustainability	BDE	3		
ES5108	Environmental Sustainability	BDE	3		
ES5109	Environmental Sustainability	BDE	3		
ES5110	Environmental Sustainability	BDE	3		
ES5111	Environmental Sustainability	BDE	3		
ES5112	Environmental Sustainability	BDE	3		
ES5113	Environmental Sustainability	BDE	3		
ES5114	Environmental Sustainability	BDE	3		
ES5115	Environmental Sustainability	BDE	3		
ES5116	Environmental Sustainability	BDE	3		
ES5117	Environmental Sustainability	BDE	3		
ES5118	Environmental Sustainability	BDE	3		

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	
			21	

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	Please see attached list of electives
MLXXXX	Profession Preparation	PS	1	
			20	

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	Please see attached list of electives
			23	

YEAR 3 SPECIAL SEMESTER

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS3910	Professional Attachment	PS	5	
			5	

YEAR 4 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MS4211	CNYSP Overseas Final Year Project	C	8	CNYSP Course
			8	

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	Please see attached list of electives
	Second Major Interdisciplinary Project	BDE	3	
			12	
Total AU for Graduation:				154

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

Compulsory Courses and Electives for Second Major in Sustainability
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https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_C000
