

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	10	0	8	3	3	6	42
3	32	0	4 [4]	0	6	0	6	48 [4]
4	10	0	4	0	0	0	6	20
Total	66 [2]	37 [3]	8 [4]	10	9	3	21	154 [9]

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
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
CY0002	Ethics	CNY-Core	3	CNYSP Course

CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course 2-semester long, course registered only in Sem 2 (similar to URECA)
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 to choose from
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 to choose from
			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 to choose from
	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
--

https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00
