

**CURRICULUM FOR BACHELOR OF ENGINEERING (MATERIALS ENGINEERING)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN DATA ANALYTICS
(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	18 [6]	23	0	2	0	0	0	43 [6]
2	9	6	0	8	3	3	11	40
3	32 [3]	0	0	0	6	0	9	47 [3]
4	10	0	8 [3]	0	0	0	3	21 [3]
Total	69 [9]	29	8 [3]	10	9	3	23	151 [12]

[] 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	CNYSP Courses	
MS1014	Materials Chemistry II	C	2		
MS1018	Properties of Materials	C	2		
MS1008^	Introduction to Computational Thinking	C	3	DA Knowledge Area 3	
MS2013	Introduction to Polymer Science	C	3		
MH2811^	Mathematics II	C	3	DA Knowledge Area 2	
EG1001	Engineer & Society	C	2		
			18		

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		
BC2406	Analytics I: Visual and Predictive Techniques	BDE	4	DA Knowledge Area 7	
	Tech-For-Good (T4G)	CSL	3		
			19		

YEAR 2 SEMESTER 2					
-------------------	--	--	--	--	--

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
MS2014	Materials Structure and Defects	C	3	
MS0003	Introduction to Data Science and Artificial Intelligence	PS	3	
MH1403	Algorithms and Computing	BDE	3	DA Knowledge Area 4
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	DA Knowledge Area 1
MS4013	Biomaterials	C	2	
SC2207	Introduction to Databases	BDE	3	DA Knowledge Area 5
SC4020	Data Analytics and Mining	BDE	3	DA Knowledge Area 6
MLXXXX	Profession Preparation	PS	1	
			22	

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	
XXXXXX	DA Elective 1	BDE	3	
			20	

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	
MS4671^	Introduction to Materials Simulation	MPE	3	DA Elective 2
Major PE 1		MPE	3	
Major PE 2		MPE	2	
XXXXXX	DA Elective 3	BDE	3	
			13	
	Total AU for Graduation:		151	

[^] These courses are double-counted towards both MAT as well as the Second Major in Data Analytics.

Compulsory Courses for Second Major in Data Analytics

Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
Core	MS4012	Quality Control	3	1&2	-
Core	MH2811	Mathematics II	3	1&2	MH1810 (co-req)
Core	MS1008	Introduction to Computational Thinking	3	1&2	-
BDE	MH1403	Algorithms and Computing	3	2	MS1008
BDE	SC2207	Introduction to Databases	3	2	MH1403
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	BC2406	Analytics I: Visual and Predictive Techniques	4	1	Year 2 standing

Electives for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	XXXXXX	DA Elective 1	3		-
MPE	MS4671	Introduction to Materials Simulation	3	2	MS1008, MS0003
BDE	XXXXXX	DA Elective 3	3		-