

CURRICULUM FOR BACHELOR OF ENGINEERING (CHEMICAL AND BIOMOLECULAR ENGINEERING)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN DATA ANALYTICS (CBDA)
(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	16 [4]	23	0	2	0	0	0	41 [4]
2	26 [6]	6	0	8	0	3	4	47 [6]
3	25	0	0	0	6	0	3	34
4	8	0	6	0	3	0	19	36
Total	75 [10]	29	6	10	9	3	26	158 [10]

[] AU of courses that could be used to fulfil Core 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	
CB1102	Introduction to Chemical and Biomedical Engineering	C	1	
BG1141	Fundamental Biology for Bioengineers	C	3	
			20	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007	Climate Change	CNY-Core	3	CNYSP Course
CB1117^	Engineering Mathematics	C	4	CY1601
CB1103	Organic Chemistry For Engineers	C	3	
CH1104	Materials & Energy Balance	C	3	
EG1001	Engineers in Society	C	2	
CC0015	Healthy & Wellbeing	CC	2	
			17	

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 Courses
CB5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
CH2010^	Engineering Statistics	C	3	CY1601
CH2103	Fluid Systems	C	3	
CH2107^	Introduction to Computational Thinking	C	3	CB1117
CH2108	Thermodynamics	C	3	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
	Tech-For-Good (T4G)	CSL	3	
			23	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Courses

CB5915	Undergraduate Research	BDE	4	2 semester long, course registered only in Sem 2
CH2112	Chemical Reaction Engineering	C	3	
CH2114	Heat & Mass Transfer in Chemical and Biological Systems	C	3	
CH2123	Chemical Thermodynamics	C	3	
CH2151	Unit Operations: Fluid-Solid Separation	C	3	
CH2802	Chemical & Biomolecular Engineering Laboratory 2B	C	2	
SP0061	Science & Technology for Humanity	CC	3	
			24	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CH3104	Biochemical Engineering	C	3	
CH3109	Decision Tools for Business & Engineering	C	3	
CH3111	Process Control and Dynamics	C	3	
CH3121	Chemical, Biological & Plant Safety	C	2	
CH3140	Unit Operations: Fluid-Fluid Separation	C	3	
CH3802	Chemical & Biomolecular Engineering Laboratory 5	C	3	
MLXXXX	Professional Preparation	PS	1	
XXXXXX	DA Elective 1	BDE	3	
			21	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CH4211	CNYSF Overseas Final Year Project	C	8	CNYSF Course
			8	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CH3910	Professional Attachment	PS	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CH4801	Final Year Design Project	C	4	
	CBE PE 1	MPE	3	
IE4483	Artificial Intelligence & Data Mining	BDE	3	
BC2406	Analytics I: Visual and Predictive Techniques	BDE	4	
CH4244	Numerical Methods and Data Analytics	BDE	3	CH2107
			17	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CH4801	Final Year Design Project	C	4	
CB0494	Introduction to Data Science and Artificial Intelligence	PS	3	
	CBE PE 2	MPE	3	
MH1403	Algorithms & Computing	BDE	3	
EE4791	Database Systems	BDE	3	
CB4246	Optimisation Using Artificial Intelligence	BDE	3	
			19	
Total AU for Graduation :			158	

^ These courses are double-counted towards both CBE 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	CH2010	Engineering Statistics	3	1	CY1601
Core	CB1117	Engineering Mathematics	4	2	CY1601
MPE	CH2107	Introduction to Computational Thinking	3	1	CY1601
BDE	MH1403	Algorithms and Computing	3	2	BG2211 & CB0494 (co-req)
BDE	EE4791	Database Systems	3	2	-
BDE	EE4483	Artificial Intelligence & Data Mining	3	1	CB1117 & CB0494

BDE	BC2406	Analytics I: Visual and Predictive Techniques	4	1	
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Electives for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	XXXXXX	DA Elective 1	3 or 4	-	-
BDE	CH4244	Numerical Methods and Data Analytics	3	1	CH2107/BG2111
BDE	CB4246	Optimisation Using Artificial Intelligence	3	2	-