

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

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	6 [2]	27 [3]	0	2	0	0	3	38 [5]
2	27	6	0	8	0	3	4	48
3	21	0	0	0	6	0	6	33
4	9	0	6	0	3	0	16	34
Total	63 [2]	33 [3]	6	10	9	3	29	153 [5]

[] 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	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYSP Course
EG1001^	Engineers in Society	C	2	Double-counted as Practice Core
CC0015	Health & Wellbeing	CC	2	
XXXXXX	SN Compulsory 3	BDE	3	Please see attached list of core courses to choose from
			14	

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
CB5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
BG2119	Anatomy and Physiology	C	3	
BG2131	Biomaterials	C	3	BG1105
BG2142	Biological Thermodynamics	C	3	BG1103
BG2211	Introduction to Computational Thinking	C	3	CY1601
BG2801	Bioengineering Lab 2A	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
NH0001	Tech-For-Good (T4G)	CSL	3	
			24	

YEAR 2 SEMESTER 2				
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Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYS Course
CB5915	Undergraduate Research	BDE	4	2 semester long, course registered only in Sem 2
BG2103	Signal Processing in Biosystems	C	3	
BG2104	Electronics for Biomedical Engineering	C	3	
BG2110	Bioelectricity	C	3	BG1131
BG2209	Mechanics for Bioengineers	C	3	BG1131 & CB1105
BG2802	Bioengineering Lab 2B	C	1	
CB2002	Introduction to Chemical and Biological Safety	C	1	
SP0061	Science & Technology for Humanity	CC	3	
			24	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG3102	Control in Biosystems	C	3	BG1117 & CY1601
BG3104	Biomedical Imaging	C	3	
BG3105	Biomedical Instrumentation	C	3	
BG3112	Biofluid Mechanics and Medical Devices	C	3	
BG3801	Bioengineering Lab 3	C	1	
MLXXX	Professional Preparation	PS	1	
XXXXXX	SN Compulsory 4	BDE	3	Please see attached list of core courses to choose from
XXXXXX	SN Compulsory 5	BDE	3	
			20	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG4211	CNYS Overseas Final Year Project	C	8	
			8	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG3910	Professional Attachment	PS	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG4104	Machine Learning & Optimization for Bioengineers	C	3	
BG4122	Medical Device Design	C	3	
	BIE PE 1	MPE	3	
	SN Elective 1	BDE	3	Please see attached list of electives to choose from
	SN Elective 2	BDE	3	
	Second Major Interdisciplinary Project	BDE	3	
			18	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG4122	Medical Device Design	C	3	
CB0494	Introduction to Data Science and Artificial Intelligence	PS	3	
	BIE PE 2	MPE	3	
	SN Elective 3	BDE	3	Please see attached list of electives to choose from
	SN Elective 4	BDE	4	
			16	
Total AU for Graduation:			153	

^ These courses are double-counted towards both BIE 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	