AY2024-25 CURRICULUM FOR BACHELOR OF ENGINEERING (BIOENGINEERING)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (BESN)
(FIRST YEAR ADMISSION)

Last Updated : 31-Jan-24

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	6	27	0	5	0	6	**44**
2	26	10	0	8	0	0	**44**
3	21	0	0	0	5	3	**29**
4	9	0	6	0	3	16	**34**
Total	**62**	**37**	**6**	**13**	**8**	**25**	**151**

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	
CC0002	Navigating the Digital World	CC	2	
			22	

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**
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
EM5109	Environmental Issue & Sustainability	BDE	3	**People Core**
AB0603	Social Entrepreneurship	BDE	3	**Profit Core**
			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
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 and Entrepreneurial Development for the Future World	CC	2	
			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)

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
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	
SP0061	Science & Technology for Humanity	CC	3	
			23	

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	
HA1001	Introduction to International Relations and Foreign Policy	BDE	3	**Policy Core**
			16	

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

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BG3910	Professional Attachment	FC	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	FC	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:		**151**	

^ 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