

B.Eng (Hons) in Bioengineering with 2nd Major in Sustainability

with Professional Internship

AY2026 - 2027 Intake (BESN)

Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	Total
		Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
Bioengineering with Second Major in Sustainability	1	21 [2]		7		3	6	37 [2]
	2	27		7	3		6	43
	3	13			13		3	29
	4	11	12				13	36
	Total	72 [2]	12	14	16	3	28	145 [2]
		73* [2]		146* [2]				

Category		AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (CC)		
	CC0001 Inquiry and Communication in the Interdisciplinary World	2	14
	CC0003 Ethics & Civics in a Multi-Cultural World	2	
	CC0006 Sustainability: Society, Economy & Environment	3	
	CC0007 Science & Technology for Humanity	3	
	CC0015 Health & Wellbeing	2	
	ML0004 Career Design & Workplace Readiness in a Dynamic World	2	
	Professional Series (PS)		
	CB0494 Introduction to Data Science and Artificial Intelligence	3	16
	HW0288 Engineering Communication	2	
	MLXXXX Professional Preparation	1	
	BG3920 Professional Internship	10	
	Care, Service, Learn (CSL)		
	Service Learning	3	3
Major Requirement	BIE Core		
	^EG1001 Engineers In Society	2	16
	MH1810 Math 1	3	
	PH1011* Physics	3	
	CB1102 Introduction to Chemistry, Chemical Engineering and Biomedical Engineering	1	
	CB1103 Organic Chemistry For Engineers	3	
	CB1117 Engineering Mathematics	4	

Major Requirement	BG1141	Cellular & Molecular Biology for Bioengineers	3	56
	BG1801	Bioengineering Lab 1A	1	
	BG1802	Bioengineering Lab 1B	1	
	CB2002	Introduction to Chemical and Biological Safety	1	
	BG2103	Biosignal Processing	3	
	BG2104	Electronics for Biomedical Engineering	3	
	BG2110	Bioelectricity	3	
	BG2119	Anatomy and Physiology	3	
	BG2131	Biomaterials	3	
	BG2142	Biological Thermodynamics	3	
	BG2209	Mechanics for Bioengineers	3	
	BG2211	Introduction to Computational Thinking	3	
	BG2801	Bioengineering Lab 2A	1	
	BG2802	Bioengineering Lab 2B	1	
	BG3102	Control in Biosystems	3	
	BG3104	Biomedical Imaging	3	
	BG3105	Biomedical Instrumentation	3	
	BG3112	Cardiovascular Engineering	3	
	BG3801	Bioengineering Lab 3	1	
	BG4104	Machine Learning and Optimization for Bioengineers	3	
		BG4801 Final Year Project OR BG4123 Capstone Project	8	
	BIE Major Prescribed Electives (MPE)			12

2nd Major in Sustainability	Sustainability Compulsory Courses		
	<i>Choose 1 Course from EACH of the 5 Knowledge Area</i> 1) PEOPLE EM5109 Environmental Issue & Sustainability (3AU) ES5006 Environmental Sustainability (3AU) HV5001 Introduction to Environmental Humanities (3AU) 2) Planet ES5001 Natural Hazards and Society (3AU) ES5005 Environmental Earth System Science (3AU) ES5007 Climate and Climate Change (3AU)	12	28
2nd Major in Sustainability	3) Profit AB0603 Social Entrepreneurship (3AU) HE5091 Principles of Economics (3AU) 4) Practice EG1001 Engineers in Society (NA) 5) Policy HU1002 Introduction to Urban Planning (3AU) HA1001 Introduction to International Relations and Foreign Policy (3AU) HA1003 Introduction to Public Administration and Public Policy (3AU)		
	Interdisciplinary Project	3	
	Sustainability Electives Choose 3- 4 courses from the list of electives (min. 12 AUs) https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00	13	
Total			145
			146*

*Students without 'A' Level/Senior High School Physics will take 'PH1012 Physics A' (4AU)

^Counted towards 2nd Major in sustainability requirement (total 2AU)

B.Eng. (Bioengineering) with 2nd Major in Sustainability

Suggested Study Plan for AY2026-2027 intake (BESN)

with Professional Internship**Year 1 Semester 1**

Course	Type	AU
CB1102 Introduction to Chemistry, Chemical Engineering and Biomedical Engineering	C	1
BG1141 Cellular & Molecular Biology for Bioengineers	C	3
BG1801 Bioengineering Lab 1A	C	1
MH1810 Math 1	C	3
PH1011 Physics	C	3
<i>or</i>		
PH1012 Physics A (* For students without 'A' Level Physics)	C	4
CC0001 Inquiry and Communication in the Interdisciplinary World	CC	2
SN Compulsory 1	BDE	3
		16
		17

Year 2 Semester 1

Course	Type	AU
BG2119 Anatomy and Physiology	C	3
BG2131 Biomaterials	C	3
BG2142 Biological Thermodynamics	C	3
BG2211 Introduction to Computational Thinking	C	3
BG2801 Bioengineering Lab 2A	C	1
CC0003 Ethics & Civics in a Multi-Cultural World	CC	2
SN Compulsory 2	BDE	3
		18

Year 3 Semester 1

Course	Type	AU
BG3102 Control in Biosystems	C	3
BG3104 Biomedical Imaging	C	3
BG3105 Biomedical Instrumentation	C	3
BG3112 Cardiovascular Engineering	C	3
BG3801 Bioengineering Lab 3	C	1
HW0288 Engineering Communication	PS	2
MLXXXX Professional Preparation	PS	1
SN Elective 2	BDE	3
		19

Year 4 Semester 1

Course	Type	AU
BG4104 Final Year Project OR Capstone Project	C	4
Machine Learning and Optimization for Bioengineers	C	3
BIE PE 1	MPE	3
BIE PE 2	MPE	3
BIE PE 3	MPE	3
SN Elective 3	BDE	3
		19

Year 1 Semester 2

Course	Type	AU
CB1103 Organic Chemistry For Engineers	C	3
CB1117 Engineering Mathematics	C	4
BG1802 Bioengineering Lab 1B	C	1
[^] EG1001 Engineers in Society	C	2
CC0007 Science & Technology for Humanity	CC	3
ML0004 Career Design & Workplace Readiness in a Dynamic World	CC	2
Service Learning	CSL	3
SN Elective 1	BDE	3
		21

Year 2 Semester 2

Course	Type	AU
BG2103 Biosignal Processing	C	3
BG2104 Electronics for Biomedical Engineering	C	3
BG2110 Bioelectricity	C	3
BG2209 Mechanics for Bioengineers	C	3
BG2802 Bioengineering Lab 2B	C	1
CC0006 Sustainability: Society, Economy & Environment	CC	3
CC0015 Health & Wellbeing	CC	2
CB2002 Introduction to Chemical and Biological Safety	C	1
CB0494 Introduction to Data Science and Artificial Intelligence	PS	3
SN Compulsory 3	BDE	3
		25

Year 3 Semester 2

Course	Type	AU
BG3920 Professional Internship	PS	10
		10

Year 4 Semester 2

Course	Type	AU
Final Year Project OR Capstone Project	C	4
BIE PE 4	MPE	3
SN Compulsory 4	BDE	3
Interdisciplinary Project	BDE	3
SN Elective 4	BDE	4
		17
Total (AU)		145
		146*

*Students without 'A' Level/Senior High School Physics will take 'PH1012 Physics A' (4AU)

[^]EG1001 is counted towards fulfilling the 'Practice' Knowledge Area for their 2nd Major in Sustainability