

B.Eng (Hons) in Bioengineering University Scholars Programme

AY2026 - 2027 Intake (BIE USP)

Programme	Year of Study	Number of Academic Units (AU)								
		Major Requirement		USP Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	Total
		Core (C)	Major PE (MPE)	USP Core (USP-C)	USP Broadening Electives (USP-PE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
Bioengineering (USP)	1	21		11		2			3	37
	2	27				3	3	3	2	38
	3	13			3		11		2	29
	4	11	12		9					32
	Total	72	12	11	12	5	14	3	7	136
73*										137*

Category			AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (CC)			
	ML0004	Career Design & Workplace Readiness in a Dynamic World	2	5
	SP0061	Science & Technology for Humanity	3	
	Professional Series (PS)			
	CB0494	Introduction to Data Science and Artificial Intelligence	3	14
	MLXXXX	Professional Preparation	1	
BG3920	Professional Internship	10		
Care, Service, Learn (CSL)				
	Tech-For-Good (T4G)	3	3	
Major Requirement	BIE Core (C)			
	EG1001	Engineers In Society	2	57
	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	
	BG1141	Cellular & Molecular Biology for Bioengineers	3	
	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	
Major Requirement	BG3112	Cardiovascular Engineering	3	21
	BG3801	Bioengineering Lab 3	1	
	BG4104	Machine Learning and Optimization for Bioengineers	3	
	BG4122	Medical Device Design	6	
	BG4801	Final Year Project		
	or	or	8	
	BG4123	Capstone Project		
	USP Core (USP-C)			
	SP0001	Writing and Reasoning	3	11
	SP0002	Ethics	3	
	SP0007	Fieldwork and Documentation	3	
	SP0008	Living Well	2	
BIE Major Prescribed Electives (MPE)			6	
USP Broadening Electives (USP-PE)			12	
Broadening and Deepening Electives (BDE)				7
Total				136

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

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Suggested Study Plan for AY2026-2027 intake

with Professional Internship (BIE USP)**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
PH1012	Physics A (* For students without 'A' Level Physics)	C	4
SP0001	Writing and Reasoning	USP-C	3
SP0008	Living Well	USP-C	2

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16 17**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
SP0002	Ethics	USP-C	3
SP0007	Field Work and Documentation	USP-C	3
ML0004	Career Design & Workplace Readiness in a Dynamic World	CC	2

18**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
SP0061	Science & Technology for Humanity	CC	3
	Service Learning	CSL	3

19**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
CB2002	Introduction to Chemical and Biological Safety	C	1
CB0494	Introduction to Data Science and Artificial Intelligence	PS	3
	BDE 1	BDE	2

19**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
MLXXXX	Professional Preparation	PS	1
	USP Elective 1	USP-PE	3
	BDE 2	BDE	2

19**Year 3 Semester 2**

Course		Type	AU
BG3920	Professional Internship	PS	10

10**Year 4 Semester 1**

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

19**Year 4 Semester 2**

Course		Type	AU
	Final Year Project OR Capstone Project	C	4
	BIE PE 4	MPE	3
	BIE PE 4	MPE	3
	USP Elective 3	USP-PE	3
	USP Elective 4	USP-PE	3

16**Total (AU)****136****137***

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