

B.Eng (Hons) in Bioengineering University Scholars Programme										
AY2025 - 2026 Intake onwards (BIE USP)										
Programme	Year of Study	Number of Academic Units (AU)								Total
		Major Requirement		USP Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	
		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					3	35
	2	27				5	3		2	37
	3	13			3		11		2	29
	4	17	6		9			3		35
	Total	78	6	11	12	5	14	3	7	136
79*										137*
Category									AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (CC)									
	ML0004	Career Design & Workplace Readiness in the							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 Chemical 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	Signal Processing in Biosystems							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	8	
	USP Core (USP-C)			11
	SP0001	Writing and Reasoning	3	
	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 Physics will take 'PH1012 Physics A' (4AU).*

**B.Eng (Hons) in Bioengineering University Scholars Programme**

Suggested Study Plan for AY2025-2026 intake

with Professional Internship (BIE USP)**Year 1 Semester 1**

Course	Type	AU
CB1102 Introduction to Chemical 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

\*  
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
BDE 1	BDE	3

19

**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
ML0004 Career Design & Workplace Readiness in the V.U.C.A World	CC	2
BDE 2	BDE	2

17

**Year 2 Semester 2**

Course	Type	AU
BG2103 Signal Processing in Biosystems	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
SP0061 Science & Technology for Humanity	CC	3
CB0494 Introduction to Data Science and Artificial Intelligence	PS	3

20

**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 3	BDE	2

19

**Year 3 Semester 2**

Course	Type	AU
BG3920 Professional Internship	PS	10

10

**Year 4 Semester 1**

Course	Type	AU
BG4104 Machine Learning and Optimization for Bioengineers	C	3
BG4122 Medical Device Design	C	3
BG4801 Final Year Project	C	4
BIE PE 1	MPE	3
Service Learning	CSL	3
USP Elective 2	USP-PE	3

19

**Year 4 Semester 2**

Course	Type	AU
BG4122 Medical Device Design	C	3
BG4801 Final Year Project	C	4
BIE PE 2	MPE	3
USP Elective 3	USP-PE	3
USP Elective 4	USP-PE	3

16

Total (AU)

136

137\*

\*Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).