

BIE University Scholars Programme (USP)

AY2022 - 2023 Intake onwards

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)	Foundational Core (FC)		
Bioengineering (USP)	1	21/22*		12		2		9	44/45*
	2	26				5	3		34
	3	13			3		10		26
	4	17	6		9				32
	Total	77/78*	6	12	12	7	13	9	136/137*

Category		AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)		
	CC0002 Navigating the Digital World	2	7
	CC0007 Science & Technology for Humanity	2	
	ML0004 Career and Entrepreneurial Development for the Future World	3	
	Foundational Core (College-level)		
	CB0494 Introduction to Data Science and Artificial Intelligence	3	13
	BG3880 Professional Internship	10	
Major Requirement	BIE Core (C)		
	EG1001 Engineers In Society	2	59
	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 Fundamental Biology for Bioengineers	3	
	BG1801 Bioengineering Lab 1A	1	
	BG1802 Bioengineering Lab 1B	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	
	BG3112 Biofluid Mechanics and Medical Devices	3	

Major Requirement	BG3801	Bioengineering Lab 3	1	18
	BG4104	Machine Learning and Optimization for Bioengineers	3	
	BG4122	Medical Device Design	6	
	BG4801	Final Year Project	8	
	USP Core (USP-C)			
	SP0001	Writing and Reasoning	3	12
	SP0002	Ethics	3	
	SP0007	Fieldwork and Documentation	3	
	SP0008	Living Well	3	
	BIE Major Prescribed Electives (MPE)			
USP Broadening Electives (USP-PE)				12
Broadening and Deepening Electives (BDE)				9
Total				136/137*

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

B.Eng. (Bioengineering) Suggested Study Plan for AY2022-2023 intake (USP) with Professional Internship							
Year 1 Semester 1				Year 1 Semester 2			
Course		Type	AU	Course		Type	AU
CB1102	Introduction to Chemical and Biomedical Engineering	C	1	CB1103	Organic Chemistry For Engineers	C	3
BG1141	Fundamental Biology for Bioengineers	C	3	CB1117	Engineering Mathematics	C	4
BG1801	Bioengineering Lab 1A	C	1	BG1802	Bioengineering Lab 1B	C	1
MH1810	Math 1	C	3	EG1001	Engineers in Society	C	2
PH1011	Physics	C	3	SP0002	Ethics	USP-C	3
	<i>or</i>			SP0007	Field Work and Documentation	USP-C	3
PH1012	Physics A (* For students without 'A' Level Physics)	C	4	BDE 1		BDE	3
SP0001	Writing and Reasoning	USP-C	3				
SP0008	Living Well	USP-C	3				
CC0002	Navigating the Digital World	CC	2				
			*				
			19				19
			20				
Year 2 Semester 1				Year 2 Semester 2			
Course		Type	AU	Course		Type	AU
BG2119	Anatomy and Physiology	C	3	BG2103	Signal Processing in Biosystems	C	3
BG2131	Biomaterials	C	3	BG2104	Electronics for Biomedical Engineering	C	3
BG2142	Biological Thermodynamics	C	3	BG2110	Bioelectricity	C	3
BG2211	Introduction to Computational Thinking	C	3	BG2209	Mechanics for Bioengineers	C	3
BG2801	Bioengineering Lab 2A	C	1	BG2802	Bioengineering Lab 2B	C	1
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	CC0007	Science & Technology for Humanity	CC	3
	BDE 2	BDE	3	CB0494	Introduction to Data Science and Artificial Intelligence	FC	3
			18				19
Year 3 Semester 1				Year 3 Semester 2			
Course		Type	AU	Course		Type	AU
BG3102	Control in Biosystems	C	3	BG3880	Professional Internship	FC	10
BG3104	Biomedical Imaging	C	3				
BG3105	Biomedical Instrumentation	C	3				
BG3112	Biofluid Mechanics and Medical Devices	C	3				
BG3801	Bioengineering Lab 3	C	1				
	USP Elective 1	USP-PE	3				
	BDE 3	BDE	3				
			19				10
Year 4 Semester 1				Year 4 Semester 2			
Course		Type	AU	Course		Type	AU
BG4104	Machine Learning and Optimization for Bioengineers	C	3	BG4122	Medical Device Design	C	3
BG4122	Medical Device Design	C	3	BG4801	Final Year Project	C	4
BG4801	Final Year Project	C	4		BIE PE 2	MPE	3
	BIE PE 1	MPE	3		USP Elective 4	USP-PE	3
	USP Elective 2	USP-PE	3				
	USP Elective 3	USP-PE	3				
			19				13
							136
							137*

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