

B.Eng (Hons) in Chemical and Biomolecular Engineering University Scholars Programme

AY2024- 2025 Intake onwards (CBE 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)	Foundational Core (FC)		
Chemical & Biomolecular Engineering (USP)	1	24/25*		12		2		3	41/42*
	2	28				5	3		36
	3	17			3		10		30
	4	8	6		9			6	29
	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
	CH3920 Professional Internship	10	
Major Requirement	CBE Core (C)		
	EG1001 Engineers In Society	2	61
	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	
	CB1131 Introduction to Biomolecular Engineering	3	
	CH1104 Materials & Energy Balance	3	
	CH1801 Chemical & Biomolecular Engineering Laboratory 1A	1	
	CH1802 Chemical & Biomolecular Engineering Laboratory 2	1	
	CH2010 Engineering Statistics	3	
	CH2103 Fluid Systems	3	
	CH2107 Introduction to Computational Thinking	3	
	CH2108 Thermodynamics	3	
	CH2112 Chemical Reaction Engineering	3	
	CH2114 Heat & Mass Transfer in Chemical and Biological Systems	3	
	CH2123 Chemical Thermodynamics	3	
	CH2151 Unit Operations: Fluid-Solid Separation	3	
	CH2801 Chemical & Biomolecular Engineering Laboratory 2A	2	
	CH2802 Chemical & Biomolecular Engineering Laboratory 2B	2	
	CH3104 Biochemical Engineering	3	
	CH3109 Decision Tools for Business & Engineering	3	
	CH3111 Process Control and Dynamics	3	

Major Requirement	CH3121 Chemical, Biological & Plant Safety	2	16
	CH3140 Unit Operations: Fluid-Fluid Separation	3	
	CH3802 Chemical & Biomolecular Engineering Laboratory 5	3	
	CH4801 Final Year Design Project	8	
	USP Core (USP-C)		
	SP0001 Writing and Reasoning	3	12
	SP0002 Ethics	3	
	SP0007 Fieldwork and Documentation	3	
	SP0008 Living Well	3	
	CBE Major Prescribed Electives (MPE)		6
	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).*

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Suggested Study Plan for AY2024-2025 intake					
with Professional Internship (CBE USP)					
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
CB1131 Introduction to Biomolecular Engineering	C	3	CB1117 Engineering Mathematics	C	4
CH1801 Chemical & Biomolecular Engineering Laboratory 1A	C	1	CH1104 Materials & Energy Balance	C	3
MH1810 Math 1	C	3	CH1802 Chemical & Biomolecular Engineering Laboratory 2	C	1
PH1011 Physics	C	3	EG1001 Engineers in Society	C	2
PH1012 Physics A (* For students without 'A' Level Physics)	C	4	SP0002 Ethics	USP-C	3
SP0001 Writing and Reasoning	USP-C	3	SP0007 Field Work and Documentation	USP-C	3
SP0008 Living Well	USP-C	3			
CC0002 Navigating the Digital World	CC	2			
BDE 1	BDE	3			
		*			
	22	23			19
Year 2 Semester1			Year 2 Semester 2		
Course	Type	AU	Course	Type	AU
CH2103 Fluid Systems	C	3	CH2112 Chemical Reaction Engineering	C	3
CH2107 Introduction to Computational Thinking	C	3	CH2114 Heat & Mass Transfer in Chemical and Biological Systems	C	3
CH2108 Thermodynamics	C	3	CH2123 Chemical Thermodynamics	C	3
CH2010 Engineering Statistics	C	3	CH2151 Unit Operations: Fluid-Solid Separation	C	3
CH2801 Chemical & Biomolecular Engineering Laboratory 2A	C	2	CH2802 Chemical & Biomolecular Engineering Laboratory 2B	C	2
ML0004 Career and Entrepreneurial Development for the Future World	CC	2	CC0007 Science & Technology for Humanity	CC	3
			CB0494 Introduction to Data Science and Artificial Intelligence	FC	3
	16				20
Year 3 Semester 1			Year 3 Semester 2		
Course	Type	AU	Course	Type	AU
CH3104 Biochemical Engineering	C	3	CH3920 Professional Internship	FC	10
CH3109 Decision Tools for Business & Engineering	C	3			
CH3111 Process Control and Dynamics	C	3			
CH3121 Chemical, Biological & Plant Safety	C	2			
CH3140 Unit Operations: Fluid-Fluid Separation	C	3			
CH3802 Chemical & Biomolecular Engineering Laboratory 5	C	3			
USP Elective 1	USP-PE	3			
	20				10
Year 4 Semester 1			Year 4 Semester 2		
Course	Type	AU	Course	Type	AU
CH4801 Final Year Design Project	C	4	CH4801 Final Year Design Project	C	4
CBE PE 1	MPE	3	BDE2	BDE	3
CBE PE 2	MPE	3	BDE3	BDE	3
USP Elective 2	USP-PE	3	USP Elective 4	USP-PE	3
USP Elective 3	USP-PE	3			
	16				13
			Total (AU)		136
					137*

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