

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

AY2025- 2026 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)	Professional Series (PS)	Care, Serve, Learn (CSL)		
Chemical & Biomolecular Engineering (USP)	1	24		11					3	38
	2	28			3	5	3			39
	3	17					11			28
	4	8	6		9			3	5	31
	Total	77	6	11	12	5	14	3	8	136

Category			AU	Total AU
Interdisciplinary Collaborative Core (ICC)	<b>Common Core (CC)</b>			
	ML0004	Career Design & Workplace Readiness in the	2	5
	SP0061	Science & Technology for Humanity	3	
	<b>Professional Series (PS)</b>			
	CB0494	Introduction to Data Science and Artificial Intelligence	3	14
	MLXXXX	Professional Preparation	1	
	BG3920	Professional Internship	10	
	<b>Care, Service, Learn (CSL)</b>			
		Tech-For-Good (T4G)	3	3
Major Requirement	<b>CBE Core (C)</b>			
	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	11
	SP0002	Ethics	3	
	SP0007	Fieldwork and Documentation	3	
	SP0008	Living Well	2	
	CBE Major Prescribed Electives (MPE)			6
USP Broadening Electives (USP-PE)			12	
Broadening and Deepening Electives (BDE)				8
Total				136

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

**B.Eng (Hons) in Chemical and Biomolecular Engineering University Scholars Programme**
**Suggested Study Plan for AY2025-2026 intake**
with Professional Internship (CBE USP)
**Year 1 Semester 1**

Course	Type	AU
CB1102 Introduction to Chemical and Biomedical Engineering	C	1
CB1131 Introduction to Biomolecular Engineering	C	3
CH1801 Chemical & Biomolecular Engineering Laboratory 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
BDE 1	BDE	3

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**Year 2 Semester1**

Course	Type	AU
CH2103 Fluid Systems	C	3
CH2107 Introduction to Computational Thinking	C	3
CH2108 Thermodynamics	C	3
CH2010 Engineering Statistics	C	3
CH2801 Chemical & Biomolecular Engineering Laboratory 2A	C	2
ML0004 Career Design & Workplace Readiness in the V.U.C.A World	CC	2
USP Elective 1	USP-PE	3

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**Year 3 Semester 1**

Course	Type	AU
CH3104 Biochemical Engineering	C	3
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
MLXXXX Professional Preparation	PS	1

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**Year 4 Semester 1**

Course	Type	AU
CH4801 Final Year Design Project	C	4
CBE PE 1	MPE	3
CBE PE 2	MPE	3
Service Learning	CSL	3
USP Elective 2	USP-PE	3

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**Year 1 Semester 2**

Course	Type	AU
CB1103 Organic Chemistry For Engineers	C	3
CB1117 Engineering Mathematics	C	4
CH1104 Materials & Energy Balance	C	3
CH1802 Chemical & Biomolecular Engineering Laboratory 2	C	1
EG1001 Engineers in Society	C	2
SP0002 Ethics	USP-C	3
SP0007 Field Work and Documentation	USP-C	3

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**Year 2 Semester 2**

Course	Type	AU
CH2112 Chemical Reaction Engineering	C	3
CH2114 Heat & Mass Transfer in Chemical and Biological Systems	C	3
CH2123 Chemical Thermodynamics	C	3
CH2151 Unit Operations: Fluid-Solid Separation	C	3
CH2802 Chemical & Biomolecular Engineering Laboratory 2B	C	2
SP0061 Science & Technology for Humanity	CC	3
CB0494 Introduction to Data Science and Artificial Intelligence	PS	3

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**Year 3 Semester 2**

Course	Type	AU
CH3920 Professional Internship	PS	10

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**Year 4 Semester 2**

Course	Type	AU
CH4801 Final Year Design Project	C	4
BDE2	BDE	3
BDE3	BDE	2
USP Elective 3	USP-PE	3
USP Elective 4	USP-PE	3

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Total (AU)

136

137\*

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