

## CBE 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)		
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)	<b>Common Core (University-level)</b>		
	CC0002 Navigating the Digital World	2	7
	CC0007 Science & Technology for Humanity	2	
	ML0004 Career and Entrepreneurial Development for the Future World	3	
	<b>Foundational Core (College-level)</b>		
	CB0494 Introduction to Data Science and Artificial Intelligence	3	13
	BG3880 Professional Internship	10	
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	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).*

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2022-2023 intake (USP)**  
**with Professional Internship**

**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
or		
PH1012 Physics A (* For students without 'A' Level Physics)	C	4
SP0001 Writing and Reasoning	USP-C	3
SP0008 Living Well	USP-C	3
CC0002 Navigating the Digital World	CC	2
BDE 1	BDE	3

\*  
22 23

**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

19

**Year 2 Semester 1**

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 and Entrepreneurial Development for the Future World	CC	2

16

**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
CC0007 Science & Technology for Humanity	CC	3
CB0494 Introduction to Data Science and Artificial Intelligence	FC	3

20

**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
USP Elective 1	USP-PE	3

20

**Year 3 Semester 2**

Course	Type	AU
CH3880 Professional Internship	FC	10

10

**Year 4 Semester 1**

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

16

**Year 4 Semester 2**

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

13

**Total (AU)**

**136**

**137\***

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