

Double Degree in Engineering and Economics

B.Eng (Hons) in Chemical & Biomolecular Engineering and BSocSci (Hons) in Economics

AY2023 - 2024 Intake onwards

with Professional Internship (CBEC)

Programme	Year of Study	Number of Academic Units (AUs)					
		Major Requirement		Interdisciplinary Collaborative Core		Broadening and Deepening Electives	Total
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)		
Double Degree in Chemical & Biomolecular Engineering and Economics	1	36/37*		9			45/46*
	2	34		8	3		45
	3	20			12		32
	4	14	22				36
	5		14			3	17
		104/105*	36	17	15	3	175/176*
<i>Individual Degree Requirements</i>							
Chemical & Biomolecular Engineering	1	24/25*		9			
	2	28		8	3		
	3	17			12		
	4	8	6				
	5						
	Total	77/78*	6	17	15	21	136/137*
Economics	1	12		9			
	2	6		8	3		
	3	3			12		
	4	14	16				
	5		14				
	Total	35	30	17	15	30	127

B.Eng (Hons) in Chemical & Biomolecular Engineering and BSocSci (Hons) in Economics

Category		AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)		
	CC0001 Inquiry and Communication in the Interdisciplinary World	2	17
	CC0002 Navigating the Digital World	2	
	CC0003 Ethics & Civics in a Multi-Cultural World	2	
	CC0005 Healthy Living & Wellbeing	3	
	CC0006 Sustainability: Society, Economy & Environment	3	
	CC0007 Science & Technology for Humanity	3	
	ML0004 Career and Entrepreneurial Development for the Future World	2	
	Foundational Core (College-level)		
Major Requirement	HW0288 Engineering Communication	2	15
	CB0494 Introduction to Data Science and Artificial Intelligence	3	
	CH3920 Professional Internship	10	
	CBE Core (C)		
	EG1001 Engineers In Society	2	39
	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	

Major Requirement	CH2114	Heat & Mass Transfer in Chemical and Biological Systems	3	38
	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	
	CH3121	Chemical, Biological & Plant Safety	2	
	CH3140	Unit Operations: Fluid-Fluid Separation	3	
	CH3802	Chemical & Biomolecular Engineering Laboratory 5	3	
	CH4801	Final Year Design Project	8	
	Econs Core (C)			27
	HE1001	Microeconomics I	3	
	HE1002	Macroeconomics I	3	
	HE2001	Microeconomics II	3	
	HE2002	Macroeconomics II	3	
	HE2003	Econometrics I	3	
	HE3001	Microeconomics III	3	
	HE3002	Macroeconomics III	3	
	HE3003	Econometrics II	3	
	MH1820	Introduction to Probability and Statistical Methods	3	
	Major Prescribe Electives (MPE)			36
	CBE Major Prescribed Electives (2 courses)		6	
	Econs Level 3xxx (6 courses)		18	
	Econs Level 4xxx (3 courses)		12	
Broadening and Deepening Electives (BDE)			3	
Total			175/176*	

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

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with Professional Internship (CBEC)			
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)		4
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2
CC0002	Navigating the Digital World	CC	2
HE1001	Microeconomic I	C	3
HE1002	Macroeconomic I	C	3
		21	22
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
CC0006	Sustainability: Society, Economy & Environment	CC	3
ML0004	Career and Entrepreneurial Development for the Future World	CC	2
HE3001	Microeconomics III	C	3
		22	
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
HW0288	Engineering Communication	FC	2
HE3002	Macroeconomics III	C	3
		22	
Year 4 Semester 1			
Course	Type	AU	
CH4801	Final Year Design Project	C	4
	CBE PE 1	MPE	3
HE2003	Econometrics I	C	3
	Econ PE3XXX 1	MPE	3
	Econ PE3XXX 2	MPE	3
	Econ PE3XXX 3	MPE	3
		19	
Year 5 Semester 1			
Course	Type	AU	
	BDE 1	BDE	3
	Econ PE3XXX 5	MPE	3
	Econ PE3XXX 6	MPE	3
	Econ PE4XXX 2	MPE	4
	Econ PE4XXX 3	MPE	4
		17	
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
CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
CC0005	Healthy Living & Wellbeing	CC	3
HE2001	Microeconomics II	C	3
HE2002	Macroeconomics II	C	3
			24
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
MH1820	Introduction to Probability and Statistical Methods	C	3
			23
Year 3 Semester 2			
Course	Type	AU	
CH3920	Professional Internship	FC	10
			10
Year 4 Semester 2			
Course	Type	AU	
CH4801	Final Year Design Project	C	4
	CBE PE 2	MPE	3
HE3003	Econometrics II	C	3
	Econ PE3XXX 4	MPE	3
	Econ PE4XXX 1	MPE	4
			17
Year 5 Semester 2			
Course	Type	AU	
			0
		Total (AU)	175
			176*

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

List of Courses that Contributes to BEng (Chemical and Biomolecular				AU Load	
Discipline Requirement	Core	EG1001	Engineers In Society	2	77AU
		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 A	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	
		CH3121	Chemical, Biological & Plant Safety	2	
		CH3140	Unit Operations B	3	
		CH3802	Chemical & Biomolecular Engineering Laboratory 5	3	
		CH4801	Final Year Design Project	8	
	BDE	HE1001	Microeconomics I	3	21AU 15AU from compulsory Economics Core courses. Remaining 3AU from Year 3 and 4 Economics PE that yield the highest CGPA. + 5AU (PA only)
		HE1002	Macroeconomics I	3	
		HE2001	Microeconomics II	3	
		HE2002	Macroeconomics II	3	
		HE2003	Econometrics I	3	
		HEXXXX	Economics PE	3	
			BDE 1	3	

	Major PE	BGXXXX BGXXXX	BIE PE 1 BIE PE 2	3 3	6AU
Interdisciplinary Collaborative Core	Common Core	CC0001	Inquiry and Communication in the Interdisciplinary World	2	17AU
		CC0002	Navigating the Digital World	2	
		CC0003	Ethics & Civics in a Multi-Cultural World	2	
		CC0005	Healthy Living & Wellbeing	3	
		CC0006	Sustainability: Society, Economy & Environment	3	
		CC0007	Science & Technology for Humanity	3	
		ML0004	Career and Entrepreneurial Development for the Future World	2	
		Foundational Core	HW0288	Engineering Communication	
	CB0494		Introduction to Data Science and Artificial Intelligence	3	
	CH3920/ CH3910		Professional Internship/ Professional Attachment	10/5	
TOTAL					136 AU

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

List of courses that contribute towards BSocSci (Econs)				AU Load	
Discipline Requirement	Core	HE1001	Microeconomics I	3	32AU
		HE1002	Macroeconomics I	3	
		HE2001	Microeconomics II	3	
		HE2002	Macroeconomics II	3	
		HE2003	Econometrics I	3	
		HE3001	Microeconomics III	3	
		HE3002	Macroeconomics III	3	
		HE3003	Econometrics II	3	
		BG4801	Final Year Project	8	
	MPE	MH1820	Introduction to Probability and Statistical Methods	3	33AU
		HE3XXX	Econs PE1	3	
		HE3XXX	Econs PE2	3	
		HE3XXX	Econs PE3	3	
		HE3XXX	Econs PE4	3	
		HE3XXX	Econs PE5	3	
		HE3XXX	Econs PE6	3	
		HE4XXX	Econs PE7	4	
		HE4XXX	Econs PE8	4	
		HE4XXX	Econs PE9	4	

	BDE	EG1001 MH1810 PH1011* CB1102 CB1103 CB1117 CB1131 CH1104 CH1801 CH1802	Engineers In Society Math 1 Physics Introduction to Chemical and Biomedical Engineering Organic Chemistry For Engineers Engineering Mathematics Introduction to Biomolecular Engineering Materials & Energy Balance Chemical & Biomolecular Engineering Laboratory 1A Chemical & Biomolecular Engineering Laboratory 2	2 3 3 1 3 4 3 3 1 1	9AU from Year 1 Engineering graded Core courses that yield the highest CGPA.
	BDE	CH2010 CH2103 CH2107 CH2108 CH2112 CH2114 CH2123 CH2151 CH2801 CH2802 CH3104 CH3109 CH3111 CH3121 CH3140 CH3802	Engineering Statistics Fluid Systems Introduction to Computational Thinking Thermodynamics Chemical Reaction Engineering Heat & Mass Transfer in Chemical and Biological Systems Chemical Thermodynamics Unit Operations: Fluid-Solid Separation Chemical & Biomolecular Engineering Laboratory 2A Chemical & Biomolecular Engineering Laboratory 2B Biochemical Engineering Decision Tools for Business & Engineering Process Control and Dynamics Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5	3 3 3 3 3 3 3 3 2 2 3 3 3 2 3 3	21AU from Year 2 and 3 Engineering graded courses that yield the highest CGPA + 5AU (PA only)
Interdisciplinary Collaborative Core	Common Core	CC0001 CC0002 CC0003 CC0005 CC0006 CC0007 ML0004	Inquiry and Communication in the Interdisciplinary World Navigating the Digital World Ethics & Civics in a Multi-Cultural World Healthy Living & Wellbeing Sustainability: Society, Economy & Environment Science & Technology for Humanity Career and Entrepreneurial Development for the Future World	2 2 2 3 3 3 2	17AU

	Foundatio nal Core	HW0288	Engineering Communication	2	15AU or 10AU (for PA only)
		CB0494	Introduction to Data Science and Artificial Intelligence	3	
		CH3920/ CH3910	Professional Internship/ Professional Attachment	10/5	
		TOTAL			

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