

**B.Eng. (Chemical and Biomolecular Engineering)
Summary of Programme Requirement and Academic Units**

Programme Requirement	Academic Units (AU)	
University Requirement		
General Education Requirement Core (GER-Core)		12
HW0110 Effective Communication	2	
HW0210 Technical Communication	2	
HW0310 Professional Communication	2	
CH4901 Engineers and Society	3	
CH4903 Environmental Sustainability	3	
General Education Requirement Elective (GER-Elective)		15
GER-Elective in Arts, Humanities and Social Sciences (AHSS)	3	
GER-Elective in Business and Management (BM)	3	
GER-Elective in Science, Technology and Society (STS)	3	
GER-Elective in Liberal Studies (LS)	3	
GER-Elective in any areas (AHSS, BM, STS or LS)	3	
Unrestricted Elective (UE)		11
Unrestricted Elective	11	
English Proficiency* <small>(for students who have not passed or been exempted from the Qualifying English Test at the time of admission)</small>		
Chemical and Biomolecular Engineering Major Requirement		
Core Course (CBE-Core)		91
CH1101 Mathematics 1	3	
CH1104 Materials and Energy Balance	3	
CH1105 Materials Science	3	
CH1106 Mathematics for Engineers A	3	
CH1107 Mathematics for Engineers B	3	
CH1111 Introduction to Programming	1	
CH1120 Physical and Analytical Chemistry	2	
CH1131 Biomolecular Engineering I	3	
CH1801 Chemical and Biomolecular Engineering Laboratory 1	1	
CH1802 Chemical and Biomolecular Engineering Laboratory 2	1	
CH2102 Organic Chemistry and Spectrophotometry	4	
CH2103 Fluids Systems	4	
CH2104 Heat and Mass Transfer in Chemical and Biological Systems	4	
CH2105 Biomolecular Engineering II	3	
CH2107 Computational Methods in Chemical Engineering	3	
CH2108 Thermodynamics	3	
CH2140 Principles of Separation Processes	4	
CH2801 Chemical and Biomolecular Engineering Laboratory 3	2	

CH2802 Chemical and Biomolecular Engineering Laboratory 4	2	
CH3101 Chemical and Biomedical Process Control and Dynamics	4	
CH3102 Chemical Reaction Engineering	4	
CH3103 Chemical Thermodynamics	3	
CH3004 Biochemical Engineering	4	
CH3141 Particle Technology & Separation Processes	3	
CH3802 Chemical and Biomolecular Engineering Laboratory 5	3	
CH3820 Industrial Attachment	8	
CH4101 Chemical, Biological and Plant Safety	2	
CH4801 Final Year Design Project	8	
Core Elective (CBE-Elective)		9
3 x CBE-Elective	9	
TOTAL		138
CBE Elective (Please note the courses listed are subject to availability.)		
CBE Elective Group 1: Pharmaceutical Engineering		
CH4213 Pharmacokinetics and Bio-pharmaceutics	3	
CH4106 Formulation of Active Pharmaceutical Ingredients Dosage Forms	3	
CH4303 Bioseparations	3	
CBE Elective Group 2: Nanotechnology and Green Processing		
CH4241 Surface Science in Catalysis and Nanotechnology	3	
CH4242 Catalysts & Nano-Support Materials	3	
CH4243 Advanced Reaction Engineering	3	
CH4222 Industrial Chemical Processes	3	
CH4223 Petroleum Refining	3	
CBE Elective Group 3: Biotechnology and Therapeutic Engineering		
CH4303 Bioseparations	3	
CH4304 Synthetic Biology	3	
CH4306 Bioanalytical Techniques	3	
CH4308 Therapeutic Engineering	3	
Other CBE Electives		
CH4702 Independent Research Project	3	
CH4703 Independent Research Project	3	