

CBE 2014 onwards

B.Eng. (Chemical and Biomolecular Engineering)

Summary of Programme Requirement and Academic Units (AY2014/2015 onwards)

PROGRAMME REQUIREMENT	ACADEMIC UNITS (AU)	
University Requirement		
General Education Requirement: Core Courses (GER-Core)		12
CH0491 Engineers & Society	3	
ET0001 Entrepreneurship & Innovation	1	
GC0001 Introduction to Sustainability	1	
HW0188 Engineering Communication I	2	
HW0288 Engineering Communication II	2	
HY0001 Ethics & Moral Reasoning	1	
ML0001 Absolute Basics for Career	1	
ML0002 Career Power Up	1	
General Education Requirement: Prescribed Electives (GER-PE)		9
GER-PE in Business & Management (BM)	3	
GER-PE in Liberal Arts (LA)	3	
GER-PE in Science, Technology & Society (STS)	3	
General Education Requirement: Unrestricted Electives (GER-UE)		15
Unrestricted Elective	15	
HW0001 English Proficiency <i>(for students who have not passed or been exempted from the Qualifying English Test at the time of admission)</i>		
Major Requirement - Chemical and Biomolecular Engineering		
Core Courses (CBE-Core)		91
CH1102 Introduction to Chemical Engineering in New Era	1	
CH1104 Materials and Energy Balances	4	
CH1105 Materials Science	3	
CH1108 Thermodynamics	4	
CH1117 Engineering Mathematics	4	
CH1131 Biomolecular Engineering	4	
CH1801 Chemical and Biomolecular Engineering Laboratory 1	1	
CH1802 Chemical and Biomolecular Engineering Laboratory 2	1	
MH1810 Mathematics 1	3	
CH2102 Organic Chemistry and Spectrophotometry	4	
CH2103 Fluids Systems	4	
CH2104 Heat and Mass Transfer in Chemical and Biological Systems	4	
CH2106 Introduction to Multidisciplinary Engineering	2	
CH2107 Computational Methods in Chemical Engineering	3	
CH2109 Decision Tools for Business & Engineering	3	
CH2140 Unit Operation	4	
CH2801 Chemical and Biomolecular Engineering Laboratory 3	2	
CH2802 Chemical and Biomolecular Engineering Laboratory 4	2	
CH3101 Process Control and Dynamics	4	
CH3102 Chemical Reaction Engineering	4	
CH3103 Chemical Thermodynamics	3	
CH3104 Biochemical Engineering	3	
CH3141 Advanced Unit Operations	3	
CH3802 Chemical and Biomolecular Engineering Laboratory 5	3	
CH3820 Professional Internship	8	
CH4101 Chemical, Biological and Plant Safety	2	
CH4801 Final Year Design Project	8	

CBE 2014 onwards

Major Prescribed Electives (CBE-PE)		9
3 x CBE-Elective		
TOTAL		136
CBE Electives (<u>Please note</u> the courses listed are subject to availability)		
CBE Elective Group 1: Pharmaceutical and Biotech		
CH4102 Special Topics in Pharmaceutical Manufacturing	3	
CH4105 Food Engineering	3	
CH4106 Formulation of Active Pharmaceutical Ingredients Dosage Forms	3	
CH4213 Pharmacokinetics and Bio-pharmaceutics	3	
CH4303 Bioseparations	3	
CH4304 Synthetic Biology	3	
CH4305 Special Topics in Biotechnology	3	
CH4306 Bioanalytical Techniques	3	
CH4308 Therapeutic Engineering	3	
CBE Elective Group 2: Chemical and Energy Industry		
CH4103 Chemistry of Heterocyclic Compounds	3	
CH4220 Special Topics in Industrial Chemistry & Green Processing	3	
CH4222 Industrial Chemical Processes	3	
CH4223 Petroleum Refining	3	
CH4250 Special Topics in Polymers for Nanotechnology	3	
CH4405 Catalysis and Surface Science	3	
Other CBE Elective		
CH4702 Independent Research Project	3	
CH4703 Independent Research Project	3	