

**B.Eng. (Chemical and Biomolecular Engineering)**  
**Summary of Programme Requirement and Academic Units (AY2007/2008)**

Programme Requirement	Academic Units (AU)	
<b>University General Education Requirement (GER)</b>		
<b>GER Core Courses (GER-Core)</b>		<b>12</b>
HW110 Effective Communication	2	
HW210 Technical Communication	2	
HW310 Professional Communication	2	
CH4901 Engineers and Society	3	
CH4902 Human Resource Management	3	
<b>GER Prescribed Electives (GER-PE)</b>		<b>15</b>
3 x GER-PE (AHSS) from Arts, Humanities and Social Sciences	9	
1 x GER-PE (MB) from Management and Business	3	
1 x GER-PE (STS) from Science, Technology and Society	3	
<b>GER Unrestricted Electives (GER-UE)</b>		<b>9</b>
3 x GER-UE	9	
English Proficiency* (for students who have not passed or been exempted from the Qualifying English Test at the time of admission)		
<b>Chemical and Biomolecular Engineering Major Requirement</b>		
<b>Major Core Courses (CBE-Core)</b>		<b>101</b>
CH1002 Physics for Engineers	4	
CH1004 Materials and Energy Balance	3	
CH1005 Materials Science	3	
CH1006 Mathematics for Engineers A	3	
CH1007 Mathematics for Engineers B	3	
CH1011 Introduction to Programming	1	
CH1020 Physical and Analytical Chemistry	2	
CH1031 Biomolecular Engineering I	4	
CH1032 Biochemical Engineering	4	
CH1701 Chemical and Biomolecular Engineering Laboratory 1	1	
CH1702 Chemical and Biomolecular Engineering Laboratory 2	1	
CH2002 Organic Chemistry and Spectrophotometry	4	
CH2003 Fluids Systems	4	
CH2004 Heat and Mass Transfer in Chemical and Biological Systems	4	
CH2005 Biomolecular Engineering II	3	
CH2008 Thermodynamics	3	
CH2007 Computational Methods in Chemical Engineering	3	
CH3002 Chemical Reaction Engineering	4	
CH2040 Chemical Engineering Unit Operations I	4	
CH2701 Chemical and Biomolecular Engineering Laboratory 3	2	

CH2702 Chemical and Biomolecular Engineering Laboratory 4	2	
CH3001 Chemical and Biomedical Process Control and Dynamics	4	
CH3003 Chemical Thermodynamics	3	
CH3010 Modeling Chemical and Biological Systems	3	
CH3041 Chemical Engineering Unit Operations II	3	
CH3702 Chemical and Biomolecular Engineering Laboratory 5	3	
CH3720 Industrial Attachment	10	
CH4001 Chemical, Biological and Plant Safety	3	
CH4701 Final Year Design Project	10	
<b>Major Prescribed Electives (CBE-PE)</b>		<b>21</b>
7 x CBE-PE	21	
<b>TOTAL</b>		<b>158</b>
<b>Specialisations (Please note the courses listed are subject to availability.)</b>		
<b>Specialisation Group 1: Pharmaceutical Engineering</b>		
CH4213 Pharmacokinetics and Bio-pharmaceutics	3	
CH4106 Formulation of Active Pharmaceutical Ingredients Dosage Forms	3	
CH4303 Bioseparations	3	
<b>Specialisation Group 2: Nanotechnology and Green Processing</b>		
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	
<b>Specialisation Group 3: Biotechnology and Therapeutic Engineering</b>		
CH4303 Bioseparations	3	
CH4306 Bioanalytical Techniques	3	
CH4308 Therapeutic Engineering	3	
<b>CBE Prescribed Electives that do not fall under any specialisations</b>		
CH4702 Independent Research Project	3	
CH4703 Independent Research Project	3	