

**Summary of Module Requirements and Credits – for AY16/17 intake**  
**Chemical Engineering, Faculty of Engineering**

Modular Requirements		MCs
<b>University Requirements</b>		<b>20</b>
5 General Education Modules (GEMs): Human Cultures (HC), Quantitative Reasoning (QR), Singapore Studies (SS), Thinking and Expression (T&E), Asking Questions		
<b>Faculty Requirements</b>		<b>11</b>
<sup>1</sup> ES2331 Communicating Engineering	4	
ES1531 Critical Thinking & Writing	4	
EG2401 Engineering Professionalism	3	
<sup>1</sup> Students who score a Band 1 or Band 2 in Qualifying English Test (QET) will need to take ES1103 English for Academic Purposes (4 MC) before taking ES1531 Critical Thinking & Writing. ES1103 will be counted as extra UEM		
<b>Chemical Engineering Major Requirements</b>		
<b>Engineering Core Modules</b>		<b>63</b>
CN1111 Chemical Engineering Principles	4	
CN2108 Chemical Engineering Laboratory I	2	
CN2116 Chemical Kinetics and Reactor Design	4	
CN2121 Chemical Engineering Thermodynamics	4	
CN2122 Fluid Mechanics	4	
CN2125 Heat and Mass Transfer	4	
CN3108 Chemical Engineering Laboratory II	4	
CN3109 Chemical Engineering Laboratory III	2	
CN3124 Fluid-Solid Systems	3	
CN3121 Chemical Process Dynamics and Control	4	
CN3132 Separation Processes	4	
CN3421 Process Modeling and Numerical Simulation	4	
CN3135 Process Safety, Health and Environment	3	
<sup>^</sup> CN4118 B.Eng Dissertation ( <i>related to Life/Chemical Sciences</i> )	8	
CN4122 Process Synthesis and Simulation	3	
CN4123R Final Year Design Project	6	
<b>Restricted Electives</b> 3 to be chosen from LSM3211 Fundamental Pharmacology (4MC) LSM3224 Molecular Basis of Human Diseases (4MC) LSM3231 Protein Structure & Function (4MC) LSM3232 Microbiology (4MC) LSM4211 Toxicology (4MC) LSM4221 Drug Discovery & Clinical Trials (4MC)		<b>12</b>
<b>Science and Mathematics Modules</b>		<b>24</b>
LSM1401 Fundamentals of Biochemistry Replaced by LSM1106 Molecular Cell Biology	4	
MA1505 Mathematics I	4	
MA1506 Mathematics II	4	
CM1502 General and Physical Chemistry for Engineers Replaced by CM2142 Analytical Chemistry 1	4	
IT1005 Introduction to Programming with Matlab	4	
MLE1101 Introductory Materials Science and Engineering	4	
<b>Unrestricted Elective Modules</b> The following modules must be taken CM2121 Organic Chemistry CM3221 Organic Synthesis & Spectroscopy LSM2211 Metabolism & Regulation LSM2233 Cell Biology LSM2191 Laboratory Techniques in Life Sciences		<b>20</b>
<b>Free Electives</b> The following modules must be taken CM1501 Organic Chemistry for Engineers LSM1102 Molecular Genetics LSM2232 Genes and Genomes LSM1301 General Biology (for those without A-level Biology)		<b>12-16</b>
<b>TOTAL</b>		<b>162-166</b>

<sup>^</sup>CN4118 is optional. Interested students can take CN4118 or 2 ChE Technical Electives related to Biomolecular Engineering, in lieu of CN4118.

## Chemistry, Faculty of Science

### Summary of Module Requirements and Credits

Summary of module requirements and credits for cohort matriculated in AY 2016/2017 & later - BSc (Hons) (majoring in Chemistry with Minor in Life Sciences)

<b>Modular Requirements</b>	<b>MCs</b>
<b>University Requirements</b>	<b>20</b>
5 x General Education Modules	
<b>Faculty Requirements</b>	<b>16</b>
Elective modules from at least two distinct subject groups outside the subject group mathematical and statistical sciences (where 4 MCs may come from the subject group of chemical sciences but not having the CM prefix)	12
MA1421 Basic Applied Mathematics for Sciences or MA1102R Calculus	4
<b>Major Requirements</b>	<b>100</b>
CM1111 Inorganic Chemistry I	
CM1121 Organic Chemistry I	
CM1131 Physical Chemistry I	
CM1191 Experiments in Chemistry I	
CM2191 Experiments in Chemistry II	
CM2192 Experiments in Chemistry III	
CM2101 Principles of Spectroscopy	
CM2111 Inorganic Chemistry	
CM2121 Organic Chemistry	
CM3242 Instrumental Analysis II	
Level 3000 modules (exclude CM3x6x modules):  CM3291 Inorganic & Organic Laboratory CM3292 Analytical and Physical Laboratory CM3221 Organic Synthesis & Spectroscopy CM3222 Organic Reaction Mechanisms and 2 more level 3000 or higher CM module	
CM4199A Honours Project in Chemistry	
Level 4000 CM & LSM modules:  CM42xx any other Level 4000 elective CM4227 Chemical Biology CM4228 Catalysis  LSM4211 Toxicology LSM4221 Drug Discovery & Clinical Trials)	
<b>Unrestricted Elective Modules</b> <b>The following modules must be taken</b> <b>LSM2211</b> <b>LSM2232</b> <b>LSM2233</b> <b>LSM2191</b> <b>LSM3211</b> <b>LSM3231</b> <b>CN2116</b> <b>CN2121</b> <b>and can be used to satisfy the 32 MCs required in this category.</b>	<b>32</b>
<b>Total</b>	<b>168</b>