Chemistry
Applicable to students admitted in 2012-13

1. Major Programme

S7 students

Students are required to complete a minimum of 69 units of courses as follows:

(i)	Required Courses (Notes): CHEM2120, 2200, 2270, 2300, 2320, 2330, 2380, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3310, 3320, 3410, 3810/3820, 3830, 3860, 3870, 4030/4040, 4330, 4820 plus at least three courses ** from CHEM4100, 4200, 4400, 4710^^	63 units
(ii)	Elective Courses: 6 units from - undergraduate electives: CHEM4302, 4430, 4630, 4640, 4720, 4730, 4780, 4781, 4784, 4785, 4788 - graduate electives (to be assessed with graduate students): CHEM5080, 5302, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	6 units
		Total: 69 units

** The excessive course may be counted as an elective in the final year of studies if a student has taken more than three from CHEM4100, 4200, 4400, 4710^^.

^^ CHEM4710 can be replaced by CHEM5080.

Recommended course pattern	
First Year of Attendance CHEM2120/2850, 2200/2820, 2270, 2300/2830, 2320, 2330, 2380, 2400/2408	25 units
Second Year of Attendance CHEM3130, 3860, 3410, 3870, 3220, 3230, 3810/3820, 3310, 3320, 3830	24 units
Third Year of Attendance CHEM4030/4040, 4330, 4820, at least three from CHEM4100, 4200, 4400, 4710 PLUS 6 units from the elective courses.	20 units
	Total: 69 units

Notes:
1. Students should obtain Grade "D" or above in each of the courses of CHEM2120/2850, 2200/2820, 2270, 2300/2830, 2320, 2330, 2380, and 2400/2408. Otherwise, they are required to repeat the courses. Students who cannot meet the Grade "D" requirement in any one of the courses mentioned above after two attempts will be required to withdraw from the University. Please refer to Reg. 15.2(e) of the General Regulations Governing Full-time Undergraduate Studies.
2. A student in his final year of attendance may, subject to approval by the Department, select CHEM4980/4990 and submit an undergraduate thesis in place of CHEM4030/4040.
3. A student in the final year of attendance may, under special circumstances and with written approval by the Department, select CHEM4480 and/or 4490 to substitute up to two units of any lecture or laboratory courses in the Chemistry Major Programme.

Students with associate degrees and students with higher diplomas

Students are required to complete 58-64 units (associate degree holders) or 53-59 units (higher diploma holders) of courses as follows:

(i)	Required Courses (Notes): CHEM2270, 3130, 3220, 3230, 3310, 3320, 3410, 3810/3820, 3830, 3860, 3870, 4030/4040, 4330, 4820 plus at least **three courses from CHEM4100, 4200, 4400, 4710^^	39 units
(ii)	Elective Courses:	
(a)	6 units from - undergraduate electives: CHEM4302, 4430, 4630, 4640, 4720, 4730, 4780, 4781, 4784, 4785, 4788 - graduate electives (to be assessed with graduate students): CHEM5080, 5302, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	6 units
(b)	8-19 units from CHEM2120, 2200, 2300, 2320, 2330, 2380, 2400, 2408, 2820, 2830, 2850	8-19 units
	Total:	53-64 units

** The excessive course may be counted as an elective in the final year of studies if a student has taken more than three from CHEM4100, 4200, 4400, 4710^^.

^^ CHEM4710 can be replaced by CHEM5080.

Notes:
1. Courses to be taken each year to be decided after consultation.
2. A student in his final year of study may, subject to approval by the Department, select CHEM4980/4990, and submit an undergraduate thesis in place of CHEM4030/4040.

3. A student in the final year of attendance may, under special circumstances and with written approval by the Department, select CHEM4480 and/or 4490 to substitute up to 2 units of any lecture or laboratory courses in Chemistry Major Programme.

2. Minor Programme

Students are required to complete a minimum of 21 units of courses including: CHEM2120/2850, 2200, 2400/2408, 2822, 3220/3810 and at least five units from CHEM2330, 3320, 3410, ENSC4525, 4535

Course List

Course Code	*Course Title*	*Unit*
CHEM1070	Principles of Modern Chemistry	3
CHEM1870	Essential Experimental Chemistry	2
CHEM1280	Introduction to Organic Chemistry and Biomolecules	3
CHEM2270	Student Oriented Teaching	1
CHEM2120	Main Group Chemistry	2
CHEM2850	Inorganic Chemistry Laboratory I	2
CHEM2200	Basic Principles and Hydrocarbons	3
CHEM2820	Organic Chemistry Laboratory I	2
CHEM2300	Thermodynamics and Chemical Equilibrium	2
CHEM2830	Physical Chemistry Laboratory I	2
CHEM2320	Fundamentals of Spectroscopic Analysis	2
CHEM2330	Tools in Physical Chemistry	3
CHEM2380	Chemical Safety and Practices	2
CHEM2382	Chemistry of Life	2
CHEM2400	Analytical Chemistry	2
CHEM2408	Analytical Chemistry Laboratory I	2
CHEM2822	Introductory Organic Chemistry Laboratory	1
CHEM3130	Transition Metal Chemistry	3
CHEM3860	Inorganic Chemistry Laboratory II	2
CHEM3220	Alcohols, Ethers, and Carbonyl Compounds	2
CHEM3230	Amines, Arenes, and Heterocycles	2
CHEM3810	Organic Chemistry Laboratory II	2
CHEM3820	Organic Chemistry Laboratory III	2
CHEM3310	Chemical Bonding	2
CHEM3320	Chemical Kinetics	2
CHEM3830	Physical Chemistry Laboratory II	2
CHEM3410	Instrumental Analysis	3
CHEM3870	Analytical Chemistry Laboratory II	2
CHEM4030	Problem-based Learning I	0
CHEM4040	Problem-based Learning II	4
CHEM4100	Advanced Inorganic Chemistry	2

CHEM4200	Pericyclic Reactions and Biomolecules	2
CHEM4302	Statistical Thermodynamics	2
CHEM4330	Molecular Spectroscopy	2
CHEM4820	Physical Chemistry Laboratory III	2
CHEM4400	Advanced Analytical Chemistry	2
CHEM4710	Quantum Chemistry	2
CHEM4480	Undergraduate Special Project I	1
CHEM4490	Undergraduate Special Project II	1
CHEM4980	Undergraduate Thesis I	0
CHEM4990	Undergraduate Thesis II	4

The following elective courses are for undergraduates. Courses to be offered each year are to be decided by the Chemistry Department.

CHEM4430	Practices in Testing Laboratory	2
CHEM4630	Asymmetric Organic Synthesis	2
CHEM4640	Pharmaceutical Chemistry	2
CHEM4710	Quantum Chemistry	2
CHEM4720	Molecular Modeling	2
CHEM4730	Special Topics in Chemistry	2
CHEM4780	Mass Spectrometry	2
CHEM4781	NMR Spectroscopy	2
CHEM4784	Bioanalytical Methods	2
CHEM4785	Industrial Chemistry	2
CHEM4788	Chemical Applications in Forensic Science	2

The following elective courses are for postgraduate students. Undergraduates may consider taking these courses to fulfill their programme requirement starting from 2010-11 at the approval of Department. They should be aware that taking these courses is subject to more stringent standards and undergraduates are to be assessed with postgraduate students simultaneously. Courses to be offered each year are to be decided by the Chemistry Department.

CHEM5080	Introduction to Macromolecules	2
CHEM5302	Advanced Statistical Mechanics	2
CHEM5530	Organometallic Chemistry	2
CHEM5540	Bioinorganic Chemistry	2
CHEM5550	Organolanthanide Chemistry	2
CHEM5620	Synthetic Methods in Organic Chemistry	2
CHEM5630	Synthesis of Natural Products	2
CHEM5642	Supramolecular Chemistry	2
CHEM5660	Advanced Organic Chemistry: Structure and Mechanisms	2
CHEM5680	Introduction to Chemical Biology	2
CHEM5780	MS of Biomolecules	2
CHEM5781	Advanced NMR Spectroscopy	2

CHEM5782	Principles of Biomolecular NMR Spectroscopy	2
CHEM5783	Introduction to Laser Spectroscopy	2
CHEM5784	Instrumental Analysis of Biomolecules	2
CHEM5910	Current Topics in Chemistry	2
CHEM5930	Molecular Quantum Mechanics	2