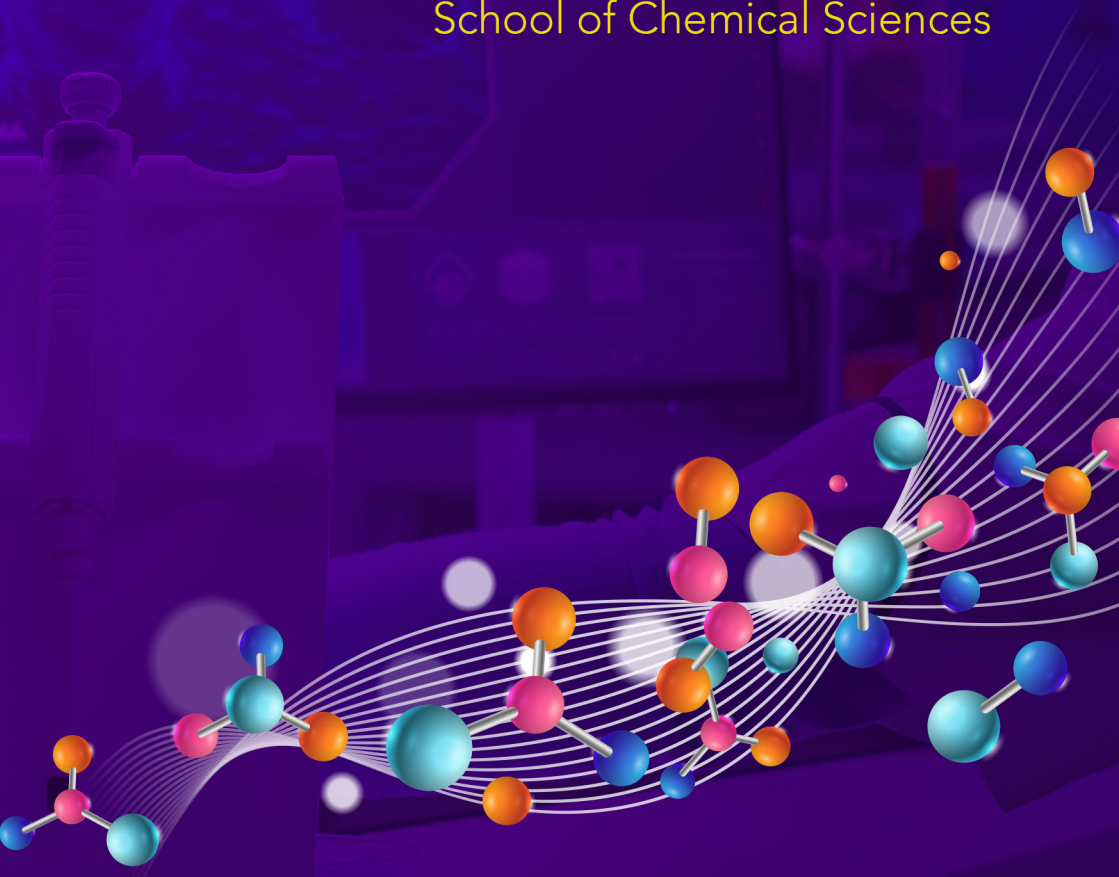
UNIVERSITI SAINS MALAYSIA

B.App.Sc.(Hons.)

(Industrial Chemistry)

School of Chemical Sciences



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(Organic & Inorganic Chemistry)

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(Analytical Chemistry)

Assoc. Prof. Dr. Noor Hana Hanif Abu Bakar
(Industrial Chemistry)

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(HR & Postgraduates)

Mr. Mohd Zuaril Akimi Mohd Shaari
Senior Assistant Registrar
(Academic)

B. App. Sc. (Hons.) (Industrial Chemistry)

PROGRAMME STRUCTURE

(i) Structure of Study Programme

Course Component	Unit Requirement B.App.Sc. (Hons.)
Core (T)	72
Elective (E)	30/10
Minor (M)	0/20
University (U)	18
Total	**120**

(ii) Industrial Training

It is compulsory for students to apply for Industrial Training (KIE361/4) after the 6th semester.

(iii) Chemistry Project

Students are encouraged to register for Chemistry Project (KUE409/6) during their final year of study. This involves conducting research work for 2 semesters and submitting a Chemistry Project report.

Students who do not wish to register for the Chemistry Project (KUE409/6) may fulfill the 6 units requirement by registering other Elective courses offered by the School.

(iv) Assessment

Course assessment will be based on:

(i) Examination
(ii) Coursework

The assessment will cover knowledge, applications, analytical, communication and writing skills. Skills will be assessed through the coursework in the form of assignments, quizzes, tests, presentations and/or laboratory reports.

SCHOOL OF CHEMICAL SCIENCES

Course Code

Each course has a course code which is made up of 3 alphabets and 3 numbers.

A B C x y z

Course Serial Number

Course Level :
1 = Level 100 courses
2 = Level 200 courses
3 = Level 300 courses
4 = Level 400 courses

Type of Course :
School of Chemical Sciences
T = Core courses
E = Elective courses

Course Categories:
A = Analytical Chemistry
T = Inorganic Chemistry
O = Organic Chemistry
F = Physical Chemistry
U = Practical/General
I = Industrial Chemistry

School/Centre :

K = School of Chemical Sciences
Z = School of Physics
B = School of Biological Sciences
M = School of Mathematical Sciences
L = School of Languages, Literacies & Translation
W = Centre for Co-Curricular Programme

Industrial Chemistry

LIST OF COURSES OFFERED

B.App.Sc. (Hons.) – Applied Science (Industrial Chemistry)		
(i) Core Courses (T) - 72 units		**Pre-requisites**
MAA102/4 or MAA161/4	Calculus for Science Student 2 or Statistics for Sciences Students	
MAA101/4	Calculus for Science Student 1	
ZCA101/4	Physics I (Mechanics)	
ZCT104/3	Physics IV (Modern Physics)	
KUT101/2	General Chemistry Practical I	
KUT102/2	General Chemistry Practical II	
KTT112/4	Inorganic Chemistry I	
KOT122/4	Organic Chemistry I	
KTT212/3	Inorganic Chemistry II	KTT112 (s)
KOT222/3	Organic Chemistry II	KOT122 (s)
KFT233/4	Physical Chemistry I	KTT112 (s) or KOT122 (s)
KAT245/4	Analytical Chemistry I	KTT112 (s) or KOT122 (s)
KIT257/3	Materials Chemistry	
KIT258/4	Unit Operations	
KUT305/2	Analytical Chemistry Practical I	KUT101(s), KAT349 (c)
KFT332/3	Physical Chemistry II	KFT233 (s)
KAT349/3	Analytical Chemistry II	KAT245 (s), KUT305 (c)
KIT355/2	Unit Operations Practical	KIT258 (s)
KIT357/2	Industrial Practical	KIT257 (s)
KIT358/3	Polymer Chemistry	KOT122 (s)
KIT458/3	Chemical Processing	KTT112 (s), KOT122 (s)
KUE409/6 or	Chemistry Project or	
6 units	Other theory courses from Analytical Chemistry, Industrial Chemistry and Pure Chemistry.	

(ii) Elective Courses (E) – 30 units		
(a) Compulsory Components – 12 units		**Pre-requisites**
KUT203/2	Inorganic Chemistry Practical	KUT101 (s)
MAT223/4	Differential Equations I	
KUE306/2	Research Methodology in Chemistry	
KIE361/4	Industrial Training	
(b) Selection of 2 units (minimum)		
KUT206/2	Organic Chemistry Practical	KUT102 (s), KOT122 (s)
KUT304/2	Physical Chemistry Practical	KUT102(s)
(c) Selection of 16 units (minimum)		
KUT407/2	Inorganic and Analytical Chemistry Practical	KUT203 (s), KUT305 (s)
KAE445/3	Bioanalysis	KAT344 (s) or KAT349 (s)
KIE456/3	Food and Palm Oil Chemistry	
KIE458/3	Selected Topics in Industrial Chemistry	

*Additional 5 units to fulfill the elective component must be taken from Pure Chemistry, Analytical Chemistry or other courses from Science Schools.

(iii) Minor (M) & Elective (E) Programmes - 30 units		
Elective (E) Components		**Pre-requisites**
(a) Selection of 10 units or more		
KUE306/2	Research Methodology in Chemistry – *(Compulsory)*	
KIE361/4	Industrial Training - *(Compulsory)*	
KUT203/2	Inorganic Chemistry Practical	KUT101 (s)
KUT206/2	Organic Chemistry Practical	KUT102 (s), KOT122 (s)
MAT223/4	Differential Equations I	
KUT304/2	Physical Chemistry Practical	KFT332 (c) : KUT102 (s)
KIE456/3	Food and Palm Oil Chemistry	KOT122 (s)
KIE458/3	Selected Topics in Industrial Chemistry	
Minor (M) Components		
(b) Selection of 20 units		
Select from any minor programme. Please refer to the book of Minor Programme Guideline		

(s) = sequential (Course must be taken earlier)
(c) = concurrent (Course must be taken concurrently)

Proposed Schedule by Semester

B.App.Sc. (Hons.) – Applied Science (Industrial Chemistry)

YEAR 1					
COMPONENT	SEMESTER 1		SEMESTER 2		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	WUS101	2	LSP300	2	
Core Courses (T)	KTT112	4	KOT122	4	
	KUT102	2	KUT101	2	
	MAA101	4	MAA102/ MAA161	4	
	ZCA101	4	ZCT104	3	
TOTAL UNITS		16		15	31

YEAR 2					
COMPONENT	SEMESTER 3		SEMESTER 4		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	HFF225	2	HFE224	2	
Core Courses (T)	KOT222	3	KTT212	3	
	KAT245	4	KFT233	4	
	KIT257	3	KIT258	4	
Elective (E) or Minor (M) Courses	E/M	3	KUT203 / M	2	
TOTAL UNITS		15		15	30

Note: HFF225/2 (Falsafah dan Isu Semasa) and HFE224/2 (Penghayatan Etika dan Peradaban) are two new university courses to replace HTU223/2 (Tamadun Islam dan Tamadun Asia-TITAS) and SHE101/2 (Hubungan Etnik).

YEAR 3					
COMPONENT	SEMESTER 5		SEMESTER 6		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	LKM400	2	LSP402	2	
	U	2			
Core Courses (T)	**KFT332	3	**KAT349	3	
	KIT357	2	KUT305	2	
			KIT358	3	
			KIT355	2	
Elective (E) or Minor (M) Courses	KUT206 / KUT304/ Minor	2	KUE306	2	
	MAT223	4			
TOTAL UNIT HOURS		15		14	29

Note: **KFT332 can be registered with or without KUT304 and KAT349 can be registered with or without KUT305

YEAR 4					
COMPONENT	SEMESTER 7		SEMESTER 8		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	U	2	U	2	
Core Courses (T)	KUE409	3	KUE409	3	
			KIT458	3	
Elective (E) or Minor (M) Courses	KIE361	4			
	Elective / Minor	4	Elective / Minor	9	
TOTAL UNITS		13		17	30
GRAND TOTAL UNITS					120

Programme Educational Objectives (PEO):

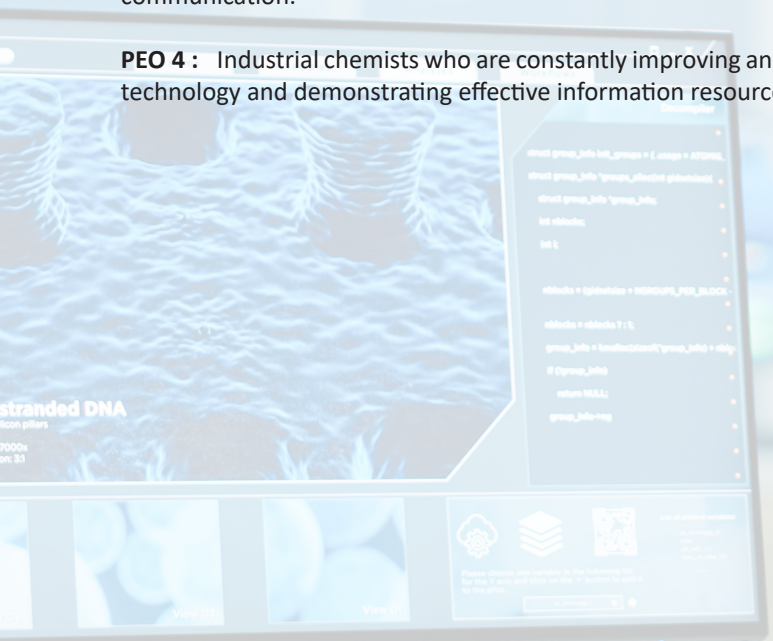
In line with the mission of the School of Chemical Sciences, Bachelor of Applied Science (Honours) (Industrial Chemistry) offers high quality science education with the following aims:

PEO 1 : Industrial chemists who apply technical knowledge and skills in line with current industry needs and developments.

PEO 2 : Industrial chemists who are ethical in their behaviour and are responsible in improving the socio-economic well-being of society

PEO 3 : Industrial chemists who can act as leaders or team members in providing scientific solutions to problems faced by society and industry through effective communication.

PEO 4 : Industrial chemists who are constantly improving and adapting to current technology and demonstrating effective information resource management



Program Learning Outcomes: Upon completion of this programme, students will be able to:

PLO 1	**Knowledge (of the discipline)**	Apply fundamental knowledge of chemistry to chemistry-related practices.
PLO 2	**Practical Skills (of the discipline)**	Perform safe handling of chemicals and proficient manipulation of laboratory apparatus and analytical instruments.
PLO 3	**Cognitiver Skills**	Demonstrate critical thinking and provide practical solutions to chemistry-related issues by employing appropriate and relevant chemistry knowledge and skills.
PLO 4	**Communication Skills**	Demonstrate effective communication.
PLO 5	**Interpersonal Skills**	Lead and collaborate with diverse team members and demonstrate social responsibility for the well-being of society.
PLO 6	**Ethics and Professionalism**	Balance and uphold positive values, ethics and accountability in societal and professional engagement.
PLO 7	**Personal Skills**	Manage information and seek new knowledge and skills independently.
PLO 8	**Entrepreneurial Skills**	Display relevant and appropriate managerial and entrepreneurial skills.
PLO 9	**Leadership, Autonomy and Responsibility**	Demonstrate the ability to work effectively as a leader
PLO 10	**Digital Skills**	Solve chemistry-related problems using digital technology and software
PLO 11	**Numeracy Skills**	Show numerical ability to analyse and solve chemistry-related problem

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SCAN ME

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