



USM UNIVERSITI
SAINS
MALAYSIA



**Pusat
Pengajian
Sains Kimia**



Pusat Pengajian Sains Kimia
School of Chemical Sciences

School of Chemical Sciences UNIVERSITI SAINS MALAYSIA

BACHELOR OF APPLIED SCIENCE IN INDUSTRIAL CHEMISTRY WITH HONOURS

Academic Session 2026/2027

<http://chem.usm.my>



WE LEAD

Transforming Higher Education for a Sustainable Tomorrow

PERSONAL DETAILS

STUDENT INFORMATION:

FULL NAME	:	
STUDENT ID	:	
EMAIL ADDRESS	:	
MOBILE NUMBER	:	
ENTRY CGPA	:	
HOME ADDRESS	:	

EMERGENCY CONTACT:

FULL NAME	:	
MOBILE NUMBER	:	

ACADEMIC ADVISOR INFORMATION:

FULL NAME	:	
MOBILE NUMBER	:	
EMAIL	:	

Main Administrative Staff

DEAN



Assoc. Prof. Dr. Mohd. Rizal Razali

DEPUTY DEANS

(Academic,
Career & International)



Dr. Ng Si Ling

(Research, Innovation & Industry
Community Engagement)



Prof. Dr. Muhammad Nasir
Muhammad Ibrahim

PROGRAMME MANAGERS

(Organic & Inorganic
Chemistry)



Dr. Yam Wen Siew

(Analytical Chemistry)



Assoc. Prof. Dr.
Mazidah Lukman Miskam

(Physical Chemistry)



Assoc. Prof. Ts. Dr. Noor
Haida Mohd Kass

(Industrial Chemistry)



Assoc. Prof. Dr. Chua
Yong Shen

ADMINISTRATIVE OFFICERS

Principal Science Officer
(Technical & Laboratory)



Mrs. Nurul Arita Kuchiar

Principal Assistant Registrar
(Undergraduates)



Mrs. Roslene Rasi Rosalingam

Senior Assistant Registrar
(Postgraduates)



Mr. Mohd Zusril Akini Mohd Shaari

PROGRAMME EDUCATIONAL OBJECTIVES:

- PEO 1 : To produce industrial chemists who apply technical knowledge and skills in line with current industry needs and developments.
- PEO 2 : To produce industrial chemists who are ethical in their behaviour and responsible in improving the socio-economic well-being of society.
- PEO 3 : To produce 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 : To produce industrial chemists who are constantly improving and adapting to current technology, mastering digital and numerical skills, and demonstrating effective information resource management.

PROGRAMME LEARNING OUTCOMES:

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

PLO1	Knowledge (of the discipline)	Apply theoretical, conceptual, and practical knowledge within the field of chemical sciences.
PLO2	Cognitive Skills	Demonstrate scientific, critical, and creative thinking in identifying and solving chemistry-related problems by using appropriate and relevant chemical knowledge and skills toward effective contributions.
PLO3	Practical Skills (of the discipline)	Handle chemicals safely and comply with laboratory equipment operating procedures under supervision within a research laboratory, as well as verifying findings.
PLO4	Interpersonal Skills	Demonstrate social skills, leadership, and collaboration within a team, remain sensitive to community challenges and demonstrate social responsibility for the well-being of society.
PLO5	Communication Skills	Present information and findings clearly and execute effective communication.
PLO6	Digital Skills	Demonstrate the ability to use digital skills in creating effective work and assignments.
PLO7	Numeracy Skills	Demonstrate the ability to use numeracy skills effectively in calculations involving chemical problems.
PO8	Leadership, Autonomy and Responsibility	Demonstrate the ability to work effectively as a leader.
PLO9	Personal Skills	Demonstrate the ability to apply the skills and principles of lifelong learning in academic and career development.
PLO10	Entrepreneurial Skills	Practice quality management systems and demonstrate relevant and appropriate entrepreneurial skills.
PLO11	Ethics and Professionalism	Comply with safety requirements and regulations, legal and ethical principles, and professional codes of practice within research laboratories to balance and uphold positive values and accountability in professional and community engagement.

Bachelor of Applied Science in Industrial Chemistry with Honours

PROGRAMME STRUCTURE

(i) Structure of Study Programme

Course Component	Unit Requirement
Core (T)	73
Elective (E)	30
University (U)	17
Total	120

For Bachelor of Applied Science in Industrial Chemistry with Honours , only **one (1)** package is available. This package is designed to allow the students to register for Industrial Training in the final semester (Semester 8).

(ii) Industrial Training

Industrial Training (KIE461/9) is compulsory for all Bachelor of Applied Science in Industrial Chemistry with Honours Degree students. This course can be taken after accumulating at least 111 units.

(iii) Chemistry Project

Students are encouraged to register for Chemistry Project (KUE319/6) during their third year of studies. This involves conducting research work for 2 semesters and submitting a Final Year Project report.

Students who do not wish to register for the Chemistry Project (KUE319/6) may fulfil the 6 credits requirement by registering for other theory courses offered by the School

(iv) Assessment

Course assessment will be based on:

- Examination
- Coursework

The cognitive, psychomotor and/or affective skills will be assessed in coursework (such as assignments, quizzes, tests, presentations, laboratory reports and practical tests) and examination.

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 :

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

LIST OF COURSES OFFERED

Bachelor of Applied Science in Industrial Chemistry with Honours		
(i) Core Courses (T) - 73 credits		Pre-requisites
MAA101/4	Calculus for Science Students 1	
MAA102/4	Calculus for Science Students 2	
ZCA101/4	Physics I (Mechanics)	
KUT100/2	Safety and Security for Chemical Sustainability	
KUT101/2	General Chemistry Practical I	
KUT102/2	General Chemistry Practical II	
KTT112/4	Inorganic Chemistry I	
KOT122/4	Organic Chemistry I	
KFT133/4	Physical Chemistry I	
KAT145/4	Analytical Chemistry I	
KTT212/3	Inorganic Chemistry II	KTT112 (s)
KOT222/3	Organic Chemistry II	KOT122 (s)
KIT257/3	Materials Chemistry	
KIT258/4	Unit Operations	
KUT215/2	Analytical Chemistry Practical I	KUT101 (s), KAT249(c)
KFT234/3	Physical Chemistry II	KFT133 (s)
KAT249/3	Analytical Chemistry II	KAT145 (s)
KUT306/2	Research Methodology in Chemistry	
KIT355/2	Unit Operations Practical	KIT258 (s)
KIT359/2	Materials Chemistry and Chemical Processing Practical	KIT257 (s)
KIT358/3	Polymer Chemistry	KOT122 (s)
KIT458/3	Chemical Processing	KTT112(s), KOT122(s)
KUE319/6 or 6 credits	Chemistry Project or Other theory courses from Analytical, Industrial or Pure Chemistry	

(ii) Elective Courses (E) – 30 credits		
(a) Selection of 20 credits or more		Pre-requisites
KIE461/9	Industrial Training - (Compulsory)	
MAA161/4	Statistics – (Compulsory)	
KUT203/2	Inorganic Chemistry Practical	KUT101 (s)
KUT206/2	Organic Chemistry Practical	KUT102 (s), KOT122 (s)
KUT214/2	Physical Chemistry Practical	KUT102 (s), KFT234 (c)
KUT317/2	Inorganic and Analytical Chemistry Practical	KUT203 (s), KUT215 (s)
KAE445/3	Bioanalysis	KAT344 (s) or KAT 249 (s)
KIE456/3	Food and Palm Oil Chemistry	
KIE359/3	Green Chemistry and Technology	
KAT345/4	Spectroscopic Methods	KAT145 (s)
KTE411/3	Selected Topics in Inorganic Chemistry	KTT212 (s)
KOE423/3	Selected Topics in Organic Chemistry	KOT222 (s)
KFE441/3	Applied Surface Chemistry	KFT234 (s)
An additional 10 credits or less to fulfil the elective component must be taken from any other schools not limited to School of Physics, Mathematical Sciences, Biological Sciences, or Centre for Global Archaeological Research.		

*All the courses offered are subject to changes when the need arises.

(s) = sequential (Course must be taken earlier)

(c) = concurrent (Course must be taken concurrently)

BACHELOR OF APPLIED SCIENCE IN INDUSTRIAL CHEMISTRY WITH HONOURS

YEAR 1					
COMPONENT	SEMESTER 1		SEMESTER 2		CREDIT
	CODE	CREDIT	CODE	CREDIT	
University Courses (U)	¹ WUS101	2	³ WAR122	2	
	² SHE102	2			
Core Courses (T)	KTT112	4	KOT122	4	
	KUT102	2	KUT101	2	
	MAA101	4	MAA102	4	
	ZCA101	4	KUT100	2	
Elective (E)			Elective	2	
TOTAL CREDIT		18		16	34

Note: ¹ Local students– WUS101/2; International students– U course.

² Local students– SHE102/2; International students– SHE103E/2.

³ Local students– WAR122/2; International students– WAR123E/2.

YEAR 2					
COMPONENT	SEMESTER 3		SEMESTER 4		CREDIT
	CODE	CREDIT	CODE	CREDIT	
University Courses (U)			⁵ HFEF226	2	
	U	1	⁶ LKM400	2	
Core Courses (T)	KOT222	3	KTT212	3	
	KAT145	4	KFT133	4	
	KIT257	3	KIT258	4	
Elective (E)	Elective	3	Elective	3	
Prerequisite Courses (Z)	⁴ LSP201	2			
TOTAL CREDIT		14		18	32

Note: ⁴ If MUET is 3.5 & below/ TOEFL 40 & below/ IELTS 5.0 & below/ PTE 47 & below.

⁵ Local students– HFF226/2; International students– SHE104E/2.

⁶ Local students– LKM400/2; International students– LKM100/2.

YEAR 3					
COMPONENT	SEMESTER 5		SEMESTER 6		CREDIT
	CODE	CREDIT	CODE	CREDIT	
University Courses (U)	⁴ LSP301	2			
	U (Ko-K)	1			
Core Courses (T)	KFT234	3	KIT358	3	
	KIT359	2	KIT355	2	
	KUT306	2	KUE319	3	
			KUT215	2	
			KAT249	3	
Elective (E)	Elective	4	Elective	3	
TOTAL CREDIT		15		16	31

Note: ⁴ If MUET is 3.5 & below/ TOEFL 40 & below/ IELTS 5.0 & below/ PTE 47 & below.

YEAR 4					
COMPONENT	SEMESTER 7		SEMESTER 8		CREDIT
	CODE	CREDIT	CODE	CREDIT	
University Courses (U)	U	2			
Core Courses (T)	KUE319	3	KIE461: Industrial Training for 1 Semester (18 weeks) with Industry/ Government Agency/ Private Company	9	
	KIT458	3			
Elective (E)	Elective	3			
	Elective	3			
TOTAL CREDIT		14		9	23
GRAND TOTAL CREDIT HOURS					120

UNIVERSITY COURSE REQUIREMENTS

Students are required to take 17 credits for the following University courses/options for University needs:

UNIVERSITY COURSE REQUIREMENTS			CREDIT TOTAL	
			Local Students	International Students
General Studies (MPU)				
U1	<u>Local Students</u> - HFF226 (Philosophy and Current Challenges) (2 credits) - SHE102 (Malaysian Nation -State Aspiration) (2 credits) - WAR122 (Integrity and Anti-Corruption) (2 credits) <u>International Students of Science and Technology</u> - SHE103E (Malaysian Citra 1) (2 credits) - Malay Language course (2 credits) - WAR123E (Integrity and Anti-Corruption) (2 credits)		6	
	<u>International Students of Arts</u> <i>(program with Malay Language as the medium of instruction)</i> - SHE103E (Malaysian Citra 1) (2 credits) - LKM100 (Malay Language I) (Z) - LKM200 (Malay Language II) (U) (2 credits) - WAR123E (Integrity and Anti-Corruption) (2 credits)	<u>International Students of Arts</u> <i>(program with English Language as the medium of instruction)</i> - SHE103E (Malaysian Citra 1) (2 credits) - LKM100 (Malay Language I) (U) (2 credits) - WAR123E (Integrity and Anti-Corruption) (2 credits)		6
U2	<u>Local Students</u> - LKM400 (Malay Language IV) (2 credits) - English Language Course (2 credits)* <u>International Students</u> - English Language Course (2 credits)*		4	
				2
U3	<u>Local Students</u> - WUS101 (Core Entrepreneurship) (2 credits) <u>International Students</u> - SHE104E (Malaysian Citra 2) (2 credits)		2	
				2
U4	<u>Local Students</u> Co-Curricular Courses*	<u>International Students</u> Co-Curricular Courses*	2	2
Options	Students can/have to choose any of the following: - Co-curricular courses - Skill courses/Foreign Language Courses/ Other courses offered by other schools		3	5
CREDIT TOTAL			17	17

OUR VISION

To realise the aspiration of Universiti Sains Malaysia in Transforming Higher Education for a Sustainable Tomorrow.

OUR MISSION

To produce chemistry graduates who are knowledgeable, highly skilled, well mannered and possess excellent work ethics suited for the requirements of the public and industrial sectors.

- To provide quality chemistry students with quality education.
- To instil awareness among chemistry students towards the welfare of society.
- To provide modern facilities for chemistry teaching and research.
- To attract excellent students from Malaysia and overseas to embrace chemistry at USM.

GRADE POINT AVERAGE SYSTEM (GPA)

GRADE	GRADE POINT
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0.00

PNG > 2.00: ACTIVE

CREDIT PER SEMESTER:

- Minimum : 9 Units
- Maximum : 20 Units

PNG < 1.99: P1, P2, FO

- Not allowed for e-registration
- P1: Maximum : 12 Units
- P2: Maximum : 10 Units

SCHOOL OF CHEMICAL SCIENCES, UNIVERSITI SAINS MALAYSIA

YEAR	1				2				3				4				TOTAL
SEMESTER	I	Unit	II	Unit	I	Unit	II	Unit	I	Unit	II	Unit	I	Unit	II	Unit	
CORE (T)																	
ELECTIVE (E)																	
UNIVERSITY (U)																	
TOTAL																	
PREREQUISITE COURSES (Z)																	
PNG																	
PNG-AT																	
PNGK																	
STUDENT'S SIGNATURE																	

YEAR 1	SEMESTER I	SEMESTER II
COMMENTS BY ACADEMIC ADVISOR		
ACADEMIC ADVISOR'S SIGNATURE		
STUDENT'S SIGNATURE		
DATE		

YEAR 2	SEMESTER I	SEMESTER II
COMMENTS BY ACADEMIC ADVISOR		
ACADEMIC ADVISOR'S SIGNATURE		
STUDENT'S SIGNATURE		
DATE		

YEAR 3	SEMESTER I	SEMESTER II
COMMENTS BY ACADEMIC ADVISOR		
ACADEMIC ADVISOR'S SIGNATURE		
STUDENT'S SIGNATURE		
DATE		

YEAR 4	SEMESTER I	SEMESTER II
COMMENTS BY ACADEMIC ADVISOR		
ACADEMIC ADVISOR'S SIGNATURE		
STUDENT'S SIGNATURE		
DATE		



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<https://chem.usm.my/index.php/others/current-undergraduate>

SCHOOL OF CHEMICAL SCIENCES

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