



USM UNIVERSITI
SAINS
MALAYSIA



**Pusat
Pengajian
Sains Kimia**



**BACHELOR OF APPLIED SCIENCE IN
INDUSTRIAL CHEMISTRY
WITH HONOURS**

**School of Chemical Sciences
Academic Session 2025/2026**

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



PROGRAMME EDUCATIONAL OBJECTIVES:

- 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 behavior and 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, mastering digital and numerical skills, and demonstrating effective information resource management.

PROGRAMME LEARNING OUTCOMES:

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

PL01	Knowledge (of the discipline)	Apply fundamental knowledge of chemistry to chemistry related practices.
PL02	Cognitive Skills	Demonstrate critical thinking and provide practical solutions to chemistry-related issues by employing appropriate and relevant chemistry knowledge and skills.
PL03	Practical Skills (of the discipline)	Perform safe handling of chemicals and proficient manipulation of laboratory apparatus and analytical instruments.
PL04	Interpersonal Skills	Lead and collaborate with diverse team members and demonstrate social responsibility for the well-being of society.
PL05	Communication Skills	Demonstrate effective communication skills.
PL06	Digital Skills	Demonstrate effective digital skills.
PL07	Numeracy Skills	Demonstrate effective numerical skills.
PO8	Leadership, Autonomy and Responsibility	Demonstrate the ability to work autonomously, and show leadership and professionalism in managing different responsibilities.
PL09	Personal Skills	Manage information and seek new knowledge and skills independently.
PL010	Entrepreneurial Skills	Display relevant and appropriate managerial and entrepreneurial skills.
PL011	Ethics and Professionalism	Balance and uphold positive values, ethics and accountability in societal and professional 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)
<p>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.</p>		

*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 HOURS	CODE	CREDIT HOURS	
University Courses (U)	¹ WUS101	2	² LSP201	2	
	U	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 HOURS		18		16	34

Note: ¹Local students- WUS101/2; International students- SEA205E/4.

² If MUET Band 2.5 & below or TOEFL 45 & below or IELTS 5 & below : LSP101/2 as Code Z, Band 3-3.5 or TOEFL 46- 78 or IELTS 5.5-6.0 : LSP201/2 as Code U

YEAR 2					
COMPONENT	SEMESTER 3		SEMESTER 4		CREDIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	³ HFF225	2	⁴ HFE224	2	
Core Courses (T)	KOT222	3	KTT212	3	
	KAT145	4	KFT133	4	
	KIT257	3	KIT258	4	
Elective (E)	Elective	4	Elective	2	
TOTAL CREDIT HOURS		16		15	31

Note: ³HFE225/2- Local and International students.

⁴HFE224/2- Local students only.

YEAR 3					
COMPONENT	SEMESTER 5		SEMESTER 6		CREDIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	⁵ LKM400	2	² LSP301	2	
	U	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 HOURS		14		18	32

Note: ⁵ Local students- LKM400/2; International students- LKM100/2.

YEAR 4					
COMPONENT	SEMESTER 7		SEMESTER 8		CREDIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
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	2			
	Elective	4			
TOTAL CREDIT HOURS		14			
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		TOTAL CREDIT		
		Local Students	International Students	
General Studies (MPU)				
U1	<u>Local Students</u> <ul style="list-style-type: none"> ▪ HFF225 (Philosophy and Current Issues) (2 credits) ▪ HFE224 (Appreciation of Ethics and Civilisations) (2 credits) ▪ LKM400 (Malay Language IV) (2 credits) <u>International Students of Science and Technology</u> <ul style="list-style-type: none"> ▪ HFF225 (Philosophy and Current Issues) (2 credits) ▪ Malay Language course (2 credits) 	6	4	
U2 (Local students) AND U3 (International students)	<u>Local Students</u> <ul style="list-style-type: none"> ▪ WUS101 (Core Entrepreneurship) (2 credits) ▪ English Language Courses (4 credits) <u>International Students</u> <ul style="list-style-type: none"> ▪ SEA205E (Malaysian Studies) (4 credits) ▪ English Language Courses (4 credits) 	6	8	
U4	<u>Local Students</u> WAR122 (Integrity and Anti-Corruption Course) / Co-Curricular Courses	<u>International Students</u> Co-Curricular Courses	2	2
Options	Students can/have to choose any of the following: <ul style="list-style-type: none"> ▪ Co-curricular courses ▪ Skill courses/Foreign Language Courses/ Other courses offered by other schools 	3	3	
TOTAL CREDIT		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													
CORE (T)																	
ELECTIVE (E)																	
UNIVERSITY (U)																	
TOTAL																	
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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SCHOOL OF CHEMICAL SCIENCES

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