



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

School of Chemical Sciences

2023/2024

# MAIN ADMINISTRATIVE STAFF

## DEAN



**Prof. Dr. Rohana Adnan**

## DEPUTY DEANS



**Assoc. Prof. Dr. Mohd Rizal Razali**  
(Academic, Career & International)



**Assoc. Prof. Dr. Ng Eng Poh**  
(Research, Innovation & Industry-Community Engagement)

## PROGRAMME MANAGERS



**Dr. Ng Si Ling**  
(Physical Chemistry)



**Assoc. Prof. Dr. Oo Chuan Wei**  
(Organic & Inorganic Chemistry)



**Dr. Mardiana Saaid**  
(Analytical Chemistry)



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

## ADMINISTRATIVE OFFICERS



**Ts. Dr. Mohamed Azlan Ashaari**  
Deputy Registrar  
(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)	73
Elective (E)	30
University (U)	17
<b>Total</b>	<b>120</b>

For Bachelor of Applied Science (Hons.) (Industrial Chemistry), 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 (Hons.) (Industrial Chemistry) students. This course can be taken after accumulating at least 95 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 Chemistry Project report.

#### (iv) Assessments

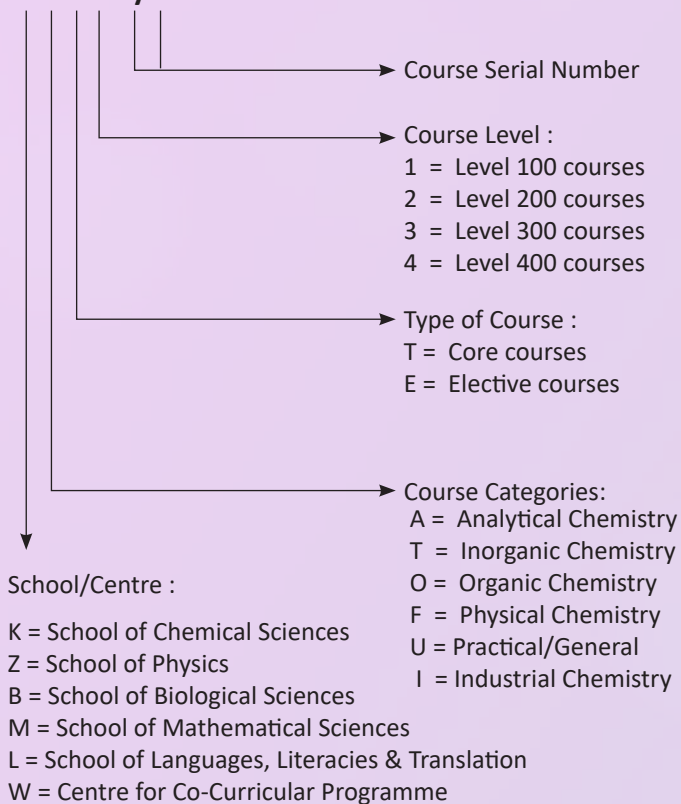
The cognitive, psychomotor and/or affective skills will be assessed in coursework (assignments, quizzes, test, presentations, laboratory reports and practical tests) and examination.

## 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**



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

### LIST OF COURSES OFFERED

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

(i) Core Courses (T) - 73 Units		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	KTT112 (s) or KOT122 (s)
KAT145/4	Analytical Chemistry I	KTT112 (s) or KOT122 (s)
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)
KFT231/3	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	Material 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 units	Chemistry Project or Other theory courses from Analytical, Industrial or Pure Chemistry	



**(ii) Elective Courses (E) – 30 units**

<b>(a) Selection of 20 units or more</b>		<b>Pre-requisites</b>
KIE461/9	Industrial Training - ( <i>Compulsory</i> )	
MAA161/4	Statistics – ( <i>Compulsory</i> )	
KUT203/2	Inorganic Chemistry Practical	KUT101 (s)
KUT206/2	Organic Chemistry Practical	KUT102 (s), KOT122 (s)
KUT214/2	Physical Chemistry Practical	KUT102 (s), KFT231 (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	KFT231 (s)

An additional **10 units or less** to fulfil the elective component must be taken from any other schools not limited to School of Physics, Mathematical Sciences, Biological Sciences, Industrial Technology, or Centre for Global Archaeological Research.

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

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

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

## 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	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	
<b>TOTAL UNITS</b>		<b>18</b>		<b>16</b>	<b>34</b>

YEAR 2					
COMPONENT	SEMESTER 3		SEMESTER 4		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	*HFF225	2	*HFE224	2	
	KOT222	3	KTT212	3	
Core Courses (T)	KAT145	4	KFT133	4	
	KIT257	3	KIT258	4	
Elective (E)	Elective	4	Elective	2	
<b>TOTAL UNITS</b>		<b>16</b>		<b>15</b>	<b>31</b>

**Note:** \*HFF225/2 (Philosophy and Current Issues) and HFE224/2 (Appreciation of Ethics and Civilisations)

YEAR 3					
COMPONENT	SEMESTER 5		SEMESTER 6		UNITS
	CODE	UNITS	CODE	UNITS	
University Courses (U)	LKM400	2	LSP301	2	
	U	1			
Core Courses (T)	KFT231	3	KIT358	3	
	KIT359	2	KIT355	2	
	KUT306	2	KUE319	3	
			KUT215	2	
			KAT249	3	
Elective (E)	Elective	4	Elective	3	
<b>TOTAL UNITS</b>		<b>14</b>		<b>18</b>	<b>32</b>

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



## LANGUAGE REQUIREMENT:

### ENGLISH LANGUAGE :

- All Bachelor's degree students must take four (4) units from the English Language courses and pass with a minimum Grade 'C' to fulfil the University requirement for graduation.
  - LSP201/2 : General English I
  - LSP301/2 : General English II
- Students with MUET Bands 3.5 and below / IELTS 5.5 / TOEFL 35-45 need to take LSP101/2 (Code Z) : Progressive English.
  - Pass with minimum Grade 'C' in order to register for LSP201.
  - LSP101 is a pre-requisite course. The unit is not counted for graduation.

### MALAY LANGUAGE :

- All Bachelor's degree students must take LKM400/2 – Malay Language IV and pass with minimum Grade 'C' to fulfil the University requirement for graduation.
- LKM400/2 is compulsory for local students.

## 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:

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



molecular search  
analysing...



Double-stranded DNA  
Microscopic silicon pillars  
Working lens: 7000x  
Image calibration: 11



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