



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

School of Chemical Sciences



UNIVERSITI SAINS MALAYSIA | www.usm.my



MAIN ADMINISTRATIVE STAFF

DEAN



Prof. Dr. Rohana Adnan

DEPUTY DEANS



Assoc. Prof. Dr. Melati Khairuddean
(Academic, Career & International)



Assoc. Prof. Dr. Oo Chuan Wei
(Research, Innovation & Industry-Community Engagement)

PROGRAMME MANAGERS



Assoc. Prof. Dr. Ng Eng Poh
(Physical Chemistry)



Dr. Mohd Rizal Razali
(Organic & Inorganic Chemistry)



Dr. Faiz Bukhari Mohd. Suah
(Analytical Chemistry)



Dr. Noor Hana Hanif Abu Bakar
(Industrial Chemistry)

ASSISTANT REGISTRARS



Mr. Subramaniam A/L Govindan
Principal Assistant Registrar
(HR & Postgraduates)



Ms. Fauziah Rastam
Senior Assistant Registrar
(Academic)

COURSE STRUCTURE**(i) Structure of Study Programme**

Course Component	Credit Unit Requirement B.App.Sc. (Hons.)
Core (T)	72
Elective (E) or Elective (E) & Minor (M)	30
University (U)	18
Total	120

(ii) Industrial Training

Students are encouraged to apply for Industrial Training (KIE361/4) after the 6th semester.

(iii) Final Year Project

Students are encouraged to register for Chemistry Project (KUE409/6) during their final 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 (KUE409/6) may fulfill the 6 credits requirement by registering other Elective courses offered by the School.

(iv) Assessment

Course assessment will be based on:

- (i) Examination
- (ii) Course Work

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

LIST OF COURSES OFFERED

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

(ii) Elective Courses (E) – 30 credits		
(a) Compulsory Components – 12 credits		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 credits (minimum)		
KUT206/2	Organic Chemistry Practical	KUT102 (s), KOT122 (s)
KUT304/2	Physical Chemistry Practical	KUT102(s)
(c) Selection of 16 credits (minimum)		
KUT407/2	Inorganic and Analytical Chemistry Practical	KUT203 (s), KUT305 (s) KAT344 (s) or KAT349 (s)
KAE445/3	Bioanalysis	
KIE456/3	Food and Palm Oil Chemistry	
KIE458/3	Selected Topics in Industrial Chemistry	
<p>*Additional 5 credits to fulfill the elective component must be taken from Pure Chemistry, Analytical Chemistry or other courses from Science Schools.</p>		

(iii) Minor (M) & Elective (E) Programmes - 30 credits		
Elective (E) Components		Pre-requisites
(a) Selection of 10 credits or more		
KUE306/2	Research Methodology in Chemistry – <i>(Compulsory)</i>	
KIE361/4	Industrial Training - <i>(Compulsory)</i>	
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	KUT102 (s)
KIE456/3	Food and Palm Oil Chemistry	
KIE458/3	Selected Topics in Industrial Chemistry	
Minor (M) Components		
(b) Selection of 20 credits		
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.) (Industrial Chemistry)

YEAR 1					
COMPONENT	SEMESTER 1		SEMESTER 2		UNIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	WUS101	2	HTU223	2	
Core Courses (T)	KTT112	4	KOT122	4	
	KUT102	2	KUT101	2	
	MAA101	4	MAA102/ MAA161	4	
	ZCA101	4	ZCT104	3	
TOTAL CREDIT HOURS		16	15	31	

YEAR 2					
COMPONENT	SEMESTER 3		SEMESTER 4		UNIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	SHE101	2	LSP300	2	
Core Courses (T)	KOT222	3	KTT212	3	
	KAT245	4	KFT233	4	
	KIT257	3	KIT258	4	
Elective (E) or Minor (M) Courses	Elective/ Minor	3	KUT203/ Minor	2	
TOTAL CREDIT HOURS		15	15	30	

YEAR 3					
COMPONENT	SEMESTER 5		SEMESTER 6		UNIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	LKM400	2	LSP402	2	
	Refer to page 27 - 38	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 CREDIT HOURS		15		14	29

YEAR 4					
COMPONENT	SEMESTER 7		SEMESTER 8		UNIT
	CODE	CREDIT HOURS	CODE	CREDIT HOURS	
University Courses (U)	Refer to page 27 - 38	2	Refer to page 27 - 38	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 CREDIT HOURS		13		17	30
GRAND TOTAL CREDIT HOURS					120

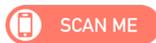
Program Learning Outcomes: Upon completion of this programme, students will be able to:

PLO1	Knowledge (of the discipline)	<ul style="list-style-type: none"> Apply knowledge of industrial chemistry in understanding the issues and challenges in the industries.
PLO2	Practical Skills (of the discipline)	<ul style="list-style-type: none"> Perform safe handling of chemicals and display technical skills relevant to various industries.
PLO3	Social Skills and Responsibilities	<ul style="list-style-type: none"> To demonstrate social skills and responsibility for the well-being of society.
PLO4	Values, Attitudes and Professionalism	<ul style="list-style-type: none"> Balance and uphold positive values, ethics and accountabilities in societal and professional engagements.
PLO5	Communication, Leadership and Teamwork Skills	<ul style="list-style-type: none"> Lead and collaborate with diverse teams and demonstrate effective communication.
PLO6	Problem Solving and Scientific Skills	<ul style="list-style-type: none"> Provide practical solutions to chemistry-related industrial issues by employing appropriate and relevant industrial chemistry.
PLO7	Information Management and Life-long Learning Skills	<ul style="list-style-type: none"> Manage information and seek new knowledge independently.
PLO8	Managerial & Entrepreneurial Skills	<ul style="list-style-type: none"> Display relevant and appropriate managerial and entrepreneurial skills.





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