

PROGRAMME STRUCTURE

Bachelor of Chemical Engineering

Courses	Content	Credit Hours
University Courses	GIG 1012: Philosophy and Current Issues* / GLT 1017: Basic Malay Language**	2
	GIG 1013: Appreciation of Ethics and Civilization	2
	GIG 1003: Basic Entrepreneurship Enculturation	2
	GLT XXXX: English for Communication Programme †	4
	GBX/GBX/GFX/GQX XXXX: University Elective Courses (Student Holistic Empowerment)	8
	GKX XXXX: Co-Curriculum	2
Sub-total Credit Hours		20
Faculty Courses	KIX XXXX: Faculty Core Courses	12
Sub-total Credit Hours		12
Department Courses	KIL XXXX: Department Core Courses	101
	KIL XXXX: Department Elective Courses	10
Sub-total Credit Hours		111
Total Credit Hours		143

* Compulsory for local students.

** Compulsory for international students.

† Students are required to complete the courses based on their English Proficiency qualification (MUET/IELTS/TOEFL), as stipulated in the respective PATH on page 32.

ACADEMIC PLANNER

INTAKE SESSION 2022/2023

YEAR 1						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY COURSES						
GIG1012 / GLT1017	Philosophy And Current Issues* / Basic Malay Language**	2				
GLTXXXX	English Communication I	2				
GIG1013	Appreciation of Ethics and Civilisations		2			
Sub-total Credit Hours		4	2		6	
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
Cluster 1 GBXXXXX	Thinking Matters: Mind and Intellect	2				
Cluster 2 GDXXXXX	Emotional, Physical And Spiritual Intelligence: Heart, Body & Soul					
Cluster 3 GFXXXXX	Technology/Artificial Intelligence And Data Analytics: I-Techie					
Cluster 4 GQXXXXX	Global Issues And Community Sustainability: Making The World A Better Place					
Sub-total Credit Hours		2			2	
FACULTY COURSES						
KIX1001	Engineering Mathematics 1	3				
KIX1002	Engineering Mathematics 2		3			
Sub-total Credit Hours		3	3		6	
DEPARTMENT CORE COURSES						
KIL1002	Chemical Process Principles I	3				
KIL1004	Engineering Drawing	2				
KIL1010	Physical And Analytical Chemistry	3				
KIL1001	Chemical Engineering Thermodynamics I		3			
KIL1005	Numerical Methods For Engineering		3			
KIL1006	Fluid Mechanics I		3			
KIL1009	Physical And Analytical Chemistry Laboratory		2			
KIL3001	Basic Material Science For Chemical Engineering		3			
Sub-total Credit Hours		8	14		22	
TOTAL CREDIT HOURS		17	19		36	

* Compulsory for local students.

** Compulsory for international students.

YEAR 2						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY COURSES						
GLTXXXX	English Communication II	2				
GIG1003	Basic Entrepreneurship Enculturation	2				
Sub-total Credit Hours		4			4	
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
Cluster 1 GBXXXXX	Thinking Matters: Mind And Intellect		2			
Cluster 2 GDXXXXX	Emotional, Physical And Spiritual Intelligence: Heart, Body & Soul					
Cluster 3 GFXXXXX	Technology/Artificial Intelligence And Data Analytics: I-Techie					
Cluster 4 GQXXXXX	Global Issues And Community Sustainability: Making The World A Better Place					
Sub-total Credit Hours			2		2	
FACULTY COURSES						
KIX2006	Engineering Economics and Project Management		3			
Sub-total Credit Hours			3		3	
DEPARTMENT CORE COURSES						
KIL2001	Chemical Process Principles II	2				KIL1002
KIL2002	Organic Chemistry	2				
KIL2005	Chemical Engineering Thermodynamics II	3				KIL1001
KIL2006	Heat Transfer	3				
KIL2007	Mass Transfer	2				KIL1006
KIL2012	Chemical Engineering Computing	2				
KIL2004	Laboratory And Communications I		2			
KIL2008	Separation Processes I		3			KIL2005 KIL 1002
KIL2009	Reaction Engineering I		3			KIL1002
KIL2010	Biochemistry		3			
KIL2011	Applied Statistics For Engineering		3			
Sub-total Credit Hours		14	14		28	
TOTAL CREDIT HOURS		18	19		37	

YEAR 3						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
FACULTY COURSES						
KIX2005	Law, Ethics and Sustainability for Engineers	3				
Sub-total Credit Hours		3			3	
DEPARTMENT CORE COURSES						
KIL3002	Fluid Mechanics II	2				KIL1006
KIL3003	Modelling Of Chemical Processes	2				KIL1005
KIL3006	Process Synthesis And Simulation	3				KIL2008
KIL3007	Separation Processes II	3				KIL2001
KIL3009	Laboratory And Communication II	2				KIL2004
KIL3013	Integrated Design Exercise	2				COMPLETE 50 CREDIT HOURS
KIL3004	Process Control		3			KIL3003
KIL3005	Particle Technology		3			
KIL3008	Process Safety And Loss Prevention		3			
KIL3011	Reaction Engineering II		2			KIL2009
KIL3014	Integrated Design		3			
KIL3015	Design Of Process Equipment		3			KIL2008
Sub-total Credit Hours		14	17	5	36	
TOTAL CREDIT HOURS		17	17	5	39	

YEAR 4						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY COURSES						
GKXXXXX	Co-Curriculum		2			
Sub-total Credit Hours			2		2	
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
Cluster 1 GBXXXXX	Thinking Matters: Mind And Intellect	2	2			
Cluster 2 GDXXXXX	Emotional, Physical And Spiritual Intelligence: Heart, Body & Soul					
Cluster 3 GFXXXXX	Technology/Artificial Intelligence And Data Analytics: I-Techie					
Cluster 4 GQXXXXX	Global Issues And Community Sustainability: Making The World A Better Place					
Sub-total Credit Hours		2	2		4	
DEPARTMENT CORE COURSES						
KIL4002	Design Project	3	3			KIL3004, KIL3008, KIL2008, KIL3011
KIL4003	Research Project	3	3			KIL3009
KIL4018	Sustainable Development In Engineering	3				
Sub-total Credit Hours			2		2	
DEPARTMENT ELECTIVE COURSES						
KIL4XXX	ELECTIVE COURSE I	2				
KIL4XXX	ELECTIVE COURSE II	2				
KIL4XXX	ELECTIVE COURSE III	2				
KIL4XXX	ELECTIVE COURSE IV		2			
KIL4XXX	ELECTIVE COURSE V		2			
Sub-total Credit Hours		6	4		10	
TOTAL CREDIT HOURS		17	14		31	

DEPARTMENT ELECTIVE COURSES

TYPE	CODE	COURSE NAME	CREDIT HOURS	PRE-REQUISITE
GENERAL	KIL4004	AIR POLLUTION FUNDAMENTAL	2	
	KIL4007	SOLID WASTE MANAGEMENT	2	
	KIL4008	WASTE WATER TREATMENT	2	
	KIL4010	PETROLEUM ENGINEERING	2	
	KIL4013	MEMBRANE TECHNOLOGY AND PROCESSES	2	
	KIL4022	NANOTECHNOLOGY FOR ENERGY CONVERSION AND STORAGE	2	
	KIL4023	TECHNOLOGY, GLOBALIZATION AND SUSTAINABLE DEVELOPMENT	2	KIL4018
	KIL4025	CURRENT TECHNOLOGIES IN OLEOCHEMICALS INDUSTRY	2	KIL2008
	KIL4027	NATURAL GAS ENGINEERING	2	
ADVANCE	KIL4005	PROCESS INTEGRATION	2	
	KIL4006	ADVANCED PROCESS CONTROL	2	KIL3004
	KIL4009	ADSORPTION IN POROUS SOLID	2	
	KIL4011	ADVANCED PROCESS SAFETY AND LOSS PREVENTION	2	KIL3008
	KIL4016	REACTION ENGINEERING FOR BIOREACTORS	2	KIL2010
	KIL4019	ADVANCED FLUIDIZATION ENGINEERING	2	KIL3005
	KIL4020	ADVANCED FUNCTIONAL MATERIALS	2	KIL3001
	KIL4021	CHEMICAL DECOMPOSITION PROCESSES	2	KIL2009
	KIL4024	OPTIMAL CONTROL	2	KIL3004
	KIL4026	MATERIALS CHARACTERIZATION	2	

NOTE :

- I) ALL STUDENTS ARE REQUIRED TO REGISTER FOR 2 GENERAL ELECTIVES AND 3 ADVANCE ELECTIVES IN THE PROGRAMME.
- II) IN ANY GIVEN SEMESTER, STUDENTS ARE ONLY ALLOWED TO REGISTER FOR A MAXIMUM OF 2 ADVANCE ELECTIVES AND 1 GENERAL ELECTIVE TO ENSURE SUFFICIENT SEATS FOR ALL STUDENTS.

CO-CURRICULUM COURSES

The list of co-curriculum courses in the program:

CODE	COURSE
GKA1001	SANGKUTAN @INDUSTRI
GKI 1001	PENYELIDKAN BEBAS
GKK1001	KHIDMAT KOMUNITI
GKP1001	PEMBANGUNAN BAKAT
GKS1001	KESUKARELAWANAN
GPU1001	KEUSAHAWANAN

UNIVERSITY COURSES

STUDENT HOLLISTIC EMPOWERMENT

The Student Holistic Empowerment (SHE) courses are categorized into four (4) clusters:

CLUSTER 1: Thinking Matters: Mind and Intellect

CLUSTER 2: Emotional, Physical And Spiritual Intelligence: Heart, Body & Soul

CLUSTER 3: Technology/Artificial Intelligence And Data Analytics: I-Techie

CLUSTER 4: Global Issues And Community Sustainability: Making The World A Better Place

The list of SHE courses could be found in the following link:

<https://citra.um.edu.my/list-of-university-courses>

NOTE :

ALL STUDENTS ARE REQUIRED TO REGISTER ONE (1) COURSE FROM EACH CLUSTER IN THE PROGRAM