PROGRAMME STRUCTURE

BACHELOR OF MECHANICAL ENGINEERING

Courses	Content	Credit Hours
University Courses	GIG1012: Philosophy and Current Issues* / GLT1049: *Bahasa Melayu Komunikasi***	2
	GIG1013: Appreciation of Ethics and Civilization	2
	GIG1003: Basic Entrepreneurship Enculturation	2
	GLTXXXX: English Communication Programme ‡	4
	University Elective Courses (Student Holistic Empowerment)	8
	Co-Curriculum	2
Sub-total Credit Hours		**20**
Faculty Courses	Faculty Core Courses	12
Sub-total Credit Hours		**12**
Department Courses	Department Core Courses	93
	Department Elective Courses	18
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 35.

ACADEMIC PLANNER

INTAKE SESSION 2024/2025

YEAR 1						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY COURSES						
GIG1012 GLT1049	**Philosophy And Current Issues* /** *Bahasa Melayu Komunikasi* **	2				
GLTXXXX	**English Communication I**	2				
GLTXXXX	**English Communication II**		2			
	Sub-total Credit Hours	4	2		6	
FACULTY COURSES						
KIX1001	**Engineering Mathematics 1**	3				
KIX1002	**Engineering Mathematics 2**		3			
	Sub-total Credit Hours	3	3		6	
DEPARTMENT CORE COURSES						
KIG1009	**Statics**	3				
KIG1010	**Fluid Mechanics 1**	3				
KIG1011	**Engineering Materials 1**	3				
KIG1012	**Engineering Design and Modelling**	3				
KIG1013	**Engineering Thermodynamics 1**		3			
KIG1014	**Mechanics Of Materials 1**		3			
KIG1015	**Dynamics**		3			
KIG1016	**Machining And Manufacturing Processes**		4			
	Sub-total Credit Hours	12	13		25	
	TOTAL CREDIT HOURS	19	18		37	

* Compulsory for local students.
** Compulsory for international students.

	YEAR 2					
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY COURSES						
GIG1003	Basic Entrepreneurship Enculturation	2				
GIG1013	Appreciation Of Ethics and Civilisations		2			
Sub-total Credit Hours		2	2		4	
FACULTY COURSES						
KIX2006	Engineering Economics and Project Management		3			
Sub-total Credit Hours			3		3	
DEPARTMENT CORE COURSES						
KIG2012	Mechatronics 1	3				
KIG2013	Computer Programming	3				
KIG2014	Fluid Mechanics 2	3				
KIG2015	Mechanics Of Materials 2	3				
KIG2016	Product Design and Innovation	3				
KIG2017	Design Of Machine Elements		3			
KIG2018	Engineering Thermodynamics 2		3			
KIG2019	Numerical And Statistical Methods in Engineering		3			
KIG2020	Mechatronics 2		3			
Sub-total Credit Hours		15	12		27	
TOTAL CREDIT HOURS		**17**	**17**		**34**	

YEAR 3						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
Cluster 1	Thinking Matters: Mind and Intellect	4				
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					
Sub-total Credit Hours		4			4	
UNIVERSITY COURCES						
	Co-Curriculum		2			
Sub-Total Credit Hours			2		2	
FACULTY COURSES						
KIX2005	Law, Ethics and Sustainability for Engineers		3			
Sub-total Credit Hours			3		3	
DEPARTMENT CORE COURSES						
KIG3007	Integrated Design 1	3				
KIG3008	Instrumentation And Measurement Techniques	3				
KIG3009	Mechanical Vibrations	3				
KIG3010	Engineering Materials 2	3				
KIG3011	Integrated Design 2		3			
KIG3012	Control Engineering		3			
KIG3013	Heat Transfer		3			
KIG3014	Finite Element Analysis		3			
KIG3015	Industrial Training			5		
Sub-total Credit Hours		12	12	5	29	
TOTAL CREDIT HOURS		16	17	5	38	

YEAR 4						
CODE	**COURSE**	**S1**	**S2**	**SS**	**TOTAL CREDIT**	**PRE-REQUISITE**
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
Cluster 1	**Thinking Matters: Mind and Intellect**	**2**	**2**			
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**					
Sub-total Credit Hours		**2**	**2**		**4**	
DEPARTMENT CORE COURSES						
KIG4052	**Materials Selection in Mechanical Design**	**3**				
KIG4053	**Production And Operations Management**	**3**				
KIG4054	**Final Year Project 1**	**3**				
KIG4055	**Final Year Project 2**		**3**			
Sub-total Credit Hours		**9**	**3**		**12**	
DEPARTMENT ELECTIVE COURSES						
	Elective Course I	**3**				
	Elective Course II	**3**				
	Elective Course III		**3**			
	Elective Course IV		**3**			
	Elective Course V		**3**			
	Elective Course VI		**3**			
Sub-total Credit Hours		**6**	**12**		**18**	
TOTAL CREDIT HOURS		**17**	**17**		**34**	

DEPARTMENT ELECTIVE COURSES

CODE	COURSE	CREDIT HOURS	PRE-REQUISITE
KIG4056	Tribology	3	
KIG4057	Machinery Vibration and Condition Monitoring	3	
KIG4058	Engineering Acoustics and Noise Control	3	
KIG4059	Internal Combustion Engine	3	
KIG4060	Heat Exchanger Equipments	3	
KIG4061	Pump Characteristics and Application	3	
KIG4062	Computational Fluid Dynamics	3	
KIG4063	Heating, Ventilation, Air Conditioning And Refrigeration	3	KIG2018, KIG3013
KIG4064	Human Factors Design	3	
KIG4065	Sustainable Design	3	
KIG4066	Rapid Manufacturing Technology	3	
KIG4067	Manufacturing Strategy	3	
KIG4068	Machine Learning	3	
KIG4069	Ceramic Engineering	3	
KIG4070	Constitutive Modeling of Materials	3	
KIG4071	Electronic Packaging	3	
KIG4072	Failure Analysis and Prevention	3	
KIG4073	Metals And Alloys Engineering	3	
KIG4074	Nanomaterials	3	
KIG4075	Polymer And Rubber Engineering	3	
KIG4076	Semiconductor Manufacturing Process and Technology	3	
KIG4077	Mold and Die Design	3	
KIG4078	Microfabrication and Devices	3	
KIG4079	Theory And Applications in Metal Forming	3	
KIG4080	Industrial Robotics	3	
KIG4085	Corrosion Engineering	3	
KIG4086	Power Plant Engineering	3	
KIG4087	Technopreneurship In Engineering	3	

UNIVERSITY COURSES

The list of university courses offered for each semester could be found through the following link:

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

A. Student Holistic Empowerment (SHE)

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

All students are required to register one (1) course from each cluster.

B. Co-curricular Courses

The list of co-curricular courses available is as follows:

CODE	COURSE
GKA1001	Attach@Industry
GKI1001	Independent Research
GKK1001	Community Services
GKP1001	Talent Development
GKS1001	Volunteerism
GKU1001	Entrepreneurship

PATH FOR ENGLISH COMMUNICATION PROGRAMME

ENGLISH COMMUNICATION PROGRAMME (UNIVERSITY COURSE) LIST OF COURSES TO BE COMPLETED BY ALL STUDENTS			
PATH 1	**PATH 2**	**PATH 3**	**PATH 4**
• **MUET BAND 2** • **IELTS Band 4.0** • **TOEFL Paper – Based Test (437 – 473)** • **TOEFL Computer – Based Test (123 – 150)** • **TOEFL Internet – Based Test (41 – 52)** • **PTE (Academic) – (10 – 28)**	• **MUET BAND 3** • **IELTS Band 4.5 – 5.0** • **TOEFL Paper – Based Test (477 – 510)** • **TOEFL Computer – Based Test (153 – 180)** • **TOEFL Internet – Based Test (53 – 64)** • **PTE (Academic) – (29 - 41)**	• **MUET BAND 4** • **IELTS Band 5.5 – 6.0** • **TOEFL Paper – Based Test (513 – 547)** • **TOEFL Computer – Based Test (183 – 210)** • **TOEFL Internet – Based Test (65-78)** • **PTE (Academic) – (42 – 57)** • **FCE (B & C)** • **GCE A Level (English) (Minimum C)** • **IGCSE/GCSE (English) (A, B & C)**	• **MUET BAND 5 & BAND 6** • **IELTS Band 6.5 – 9.0** • **TOEFL Paper – Based Test (550 – 677)** • **TOEFL Computer – Based Test (213 – 300)** • **TOEFL Internet – Based Test (79 – 120)** • **PTE (Academic) (58 – 90)** • **FCE (A)** • **GCE A Level (English) (B & A)**
Students need to complete 2 courses (2 courses x 2 credits each) from this PATH	Students need to complete 2 courses (2 courses x 2 credits each) from this PATH	Students need to complete 2 courses (2 courses x 2 credits each) from this PATH	Students need to complete 2 courses (2 courses x 2 credits each) from this PATH
COMPULSORY GLT1018 – Proficiency in English I	**COMPULSORY** GLT1021 – Proficiency in English II	**COMPULSORY** GLT1024 – Proficiency in English III	**CHOOSE TWO:** • GLT1027 – Advanced Oral Communication* • GLT1028 – Advanced Business Writing* • Alternative courses - Foreign Language *Students can only register for one course per semester
** CHOOSE ONE: • GLT1019 – Let's Speak • GLT1020 – Fundamental Writing	**** CHOOSE ONE:** • GLT1022 – Speak Up • GLT1023 – Effective Workplace Writing	**** CHOOSE ONE:** • GLT1025 – Effective Oral Communication • GLT1026 – Writing at the Workplace	

**   These courses have prerequisites and students can only register for them after obtaining a PASS in the compulsory course as stipulated in the respective PATH.

LIST OF FOREIGN LANGUAGE COURSES

Alternative Courses for Path 4

No.	Course Code	Course Name	Credit Hours
1	GLT1029	Bahasa Arab Asas 1 / *Basic Arabic Language 1*	2
2	GLT1030	Bahasa Arab Asas 2 / *Basic Arabic Language 2*	2
3	GLT1031	Bahasa Jepun Asas 1 / *Basic Japanese Language 1*	2
4	GLT1032	Bahasa Jepun Asas 2 / *Basic Japanese Language 2*	2
5	GLT1033	Bahasa Korea Asas 1 / *Basic Korean Language 1*	2
6	GLT1034	Bahasa Korea Asas 2 / *Basic Korean Language 2*	2
7	GLT1035	Bahasa Parsi Asas / *Basic Persian Language*	2
8	GLT1036	Bahasa Portugis Asas 1 / *Basic Portuguese Language 1*	2
9	GLT1037	Bahasa Portugis Asas 2 / *Basic Portuguese Language 2*	2
10	GLT1038	Bahasa Rusia Asas 1 / *Basic Russian Language 1*	2
11	GLT1039	Bahasa Rusia Asas 2 / *Basic Russian Language 2*	2
12	GLT1040	Bahasa Sepanyol Asas 1 / *Basic Spanish Language 1*	2
13	GLT1041	Bahasa Sepanyol Asas 2 / *Basic Spanish Language 2*	2
14	GLT1042	Bahasa Thai Asas 1 / *Basic Thai Language 1*	2
15	GLT1043	Bahasa Thai Asas 2 / *Basic Thai Language 2*	2
16	GLT1044	Bahasa Turki Asas / *Basic Turkish Language*	2