PROGRAMME STRUCTURE

BACHELOR OF BIOMEDICAL 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	81
	Department Elective Courses	35
Sub-total Credit Hours		**116**
TOTAL CREDIT HOURS		**148**

* 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 34.

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 Programme I**	2				
GIG1013	**Appreciation of Ethics and Civilisations**		2			
GLTXXXX	**English Communication II**		2			
Sub-total Credit Hours		4	4		8	
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
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**		2			
CLUSTER 4	**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						
KIB1009	**Statistics For Biomedical Engineering**	3				
KIB1010	**Anatomy And Physiology**	3				
KIB1011	**Statics And Mechanics of Materials**	3				
KIB1012	**Circuit Theory**	3				
KIB1013	**Biomedical Engineering Lab 1**		2			
KIB1014	**Human Musculoskeletal System**		2			
KIB1015	**Dynamics**		3			
KIB1016	**Electronic Devices**		3			
Sub-total Credit Hours		12	10		22	
TOTAL CREDIT HOURS		19	19	0	38	

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

YEAR 2						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
UNIVERSITY ELECTIVE COURSES (STUDENT HOLISTIC EMPOWERMENT)						
GIG1003	Basic Entrepreneurship Enculturation	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						
KIB2009	Biomedical Engineering Lab 2	2				
KIB2010	Biomedical Engineering, Healthcare and Ethics	3				
KIB2011	Biomaterials	3				
KIB2012	Biomedical Engineering Design 1	2				
KIB2013	Fundamentals Of Prosthetics and Orthotics Engineering	3				
KIB2014	Numerical Methods and Programming	2				
KIB2015	Safety And Standards in Biomedical Engineering		3			
KIB2016	Fluid Mechanics and Transport Processes in Biomedical Engineering		3			
KIB2017	Electromagnetism And Biomedical Devices		3			
KIB2018	Biomechanics of Human Motion		3			
KIB2019	Biomedical Engineering Lab 3		2			
KIB2020	Biomedical Engineering Design 2		2			
Sub-Total Credit Hours		15	16		31	
TOTAL CREDIT HOURS		17	19		36	

YEAR 3						
CODE	COURSE	S1	S2	SS	TOTAL CREDIT	PRE-REQUISITE
ELECTIVE UNIVERSITY COURSES (STUDENT HOLISTIC EMPOWERMENT)						
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	2				
CLUSTER 4	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	
PROGRAMME ELECTIVE COURSES						
KIB3XXX	Elective Courses (Biomedical Field)		15			
KIB3XXX	Elective Courses (Prosthetics and Orthotics Field)					
Sub-Total Credit Hours			15		15	
DEPARTMENT CORE COURSES						
KIB3015	Sustainability and Practice in Biomedical Engineering	3				
KIB3016	Biomedical Signal Processing	3				
KIB3017	Medical Imaging	3				
KIB3018	Experimental and Computational Biomechanics	3				
KIB3019	Biomedical Integrate Design Project 1	2				
KIB3030	Biomedical Integrate Design Project 2		3			
KIB3031	Industrial Training			5		
Sub-total Credit Hours		14	3	5	22	
TOTAL CREDIT HOURS		19	18	5	42	

YEAR 4						
CODE	**COURSE**	**S1**	**S2**	**SS**	**TOTAL CREDIT**	**PRE-REQUISITE**
UNIVERSITY COURSES						
	Co-Curriculum	2				
Sub-Total Credit Hours		2			2	
DEPARTMENT CORE COURSES						
KIB4020	**Final Year Project (P)**	2	4		6	
Sub-Total Credit Hours		2	4		6	
PROGRAMME ELECTIVE COURSES						
KIB4XXX	**Elective Course I**	3				
KIB4XXX	**Elective Course II**	3				
KIB4XXX	**Elective Course III**	3				
KIB4XXX	**Elective Course IV**		3			
KIBXXXX	**Open Elective Course**	2				
KIBXXXX	**Open Elective Course**		6			
Sub-Total Credit Hours		11	9		20	
ELECTIVE UNIVERSITY 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	
TOTAL CREDIT HOURS		17	15		32	

DEPARTMENT ELECTIVE COURSES

CODE	COURSE NAME	CREDIT HOURS
PROGRAMME ELECTIVE COURSES IN BIOMEDICAL		
KIB3020	Electrical Safety Design of Medical Devices and System	3
KIB3021	Photonics In Biomedical Engineering	3
KIB3022	Biomedical Control System	3
KIB3023	Microcomputer And Digital System	3
KIB3024	Medical Electronics	3
KIB4014	Instrumentation And Measurement	3
KIB4015	Computational Modelling in Biomedical Engineering	3
KIB4016	Healthcare Technology and Clinical Management	3
KIB4021	Artificial Intelligence in Biomedical Engineering	3
PROGRAMME ELECTIVE COURSES IN PROSTHETICS AND ORTHOTICS		
KIB3025	Biomechanics in Prosthetics and Orthotics	3
KIB3026	Below Knee Prosthetics	3
KIB3027	Principles of Upper Limb Prosthetics and Orthotics Design	3
KIB3028	Principles of Lower Limb Orthotics Design	3
KIB3029	Above Knee Prosthetics	3
KIB4017	Industrial Prosthetics Design	3
KIB4018	Industrial Orthotics Design	3
KIB4019	Practice Management in Prosthetic and Orthotics	3
KIB4022	Advanced Prosthetics and Orthotics Engineering	3
OPEN PROGRAMME ELECTIVE COURSES		
KIB4023	Sports Biomechanics and Rehabilitation	2
KIB4024	Assistive Technology in Rehabilitation	2
KIB4025	Mechanical Circulatory and Respiratory Support	2
KIB4026	Biomechatronics	2
KIB4027	Pattern And Image Analysis	2
KIB4028	Micro Technologies for Biomedical Engineering	2
KIB4029	Medical IT and Telemedicine	2
KIB4030	Clinical Prosthetics	2
KIB4031	Clinical Orthotics	2
KIB4032	Spinal Orthoses	2
KIB4033	Tissue Engineering	2
KIB4034	Advanced Biomaterials	2
KIB4035	Biochemistry And Analytical Techniques	2
KIB4036	Wireless Power Transfer in Biomedical Engineering	2

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