Programme Structure

Bachelor of Biomedical Engineering

Courses	Content	Credit Hours
University Courses	GIG1012: Philosophy and Current Issues* / GLT1017: Basic Malay Language**	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 29.

Academic Planner

Intake Session 2023/2024

	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 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		2			
CLUSTER 3	Technology/Artificial Intteligence and Data Analytics: I-Techie					
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	Appreciation Of Ethics and Civilisations	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	2				
CLUSTER 2	Emotional, Physical and Spiritual Intelligence: Heart, Body & Soul					
CLUSTER 3	Technology/Artificial Intteligence and Data Analytics: I-Techie					
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 Intteligence 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 Modeling in Biomedical Engineering	3
KIB4016	Healthcare Technology and Clinical Management	3
KIB4021	Artificial Inteligence 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
	Advanced Prosthetics and Orthotics Engineering	3
OPEN PROGRAMME ELECTIVE COURSES		
KIB4023	Sports Biomechanics and Rehabilitiation	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

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

Student Holistic Empowerment Courses

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

CLUSTER	COURSE
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

Note:

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

The list of Co-Curricular and SHE courses offered for each semester could be found through the following link:

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