

KULLIYAH OF INFORMATION AND COMMUNICATION TECHNOLOGY

BACHELOR IN COMPUTER SCIENCE (HONOURS)

(FOR BATCH 241 AND ABOVE)

GENERAL PROGRAMME STRUCTURE, CREDIT HOUR AND GRADUATION REQUIREMENTS

GENERAL PROGRAMME STRUCTURE, CREDIT HOUR AND GRADUATION REQUIREMENT	
Course Categories	Credit Hours
University Required Courses	22
Core Computing Courses	21
Discipline Core Courses	36
Field Electives	18
Free Electives	12
Final Year Project (I &II)	7
Industrial Attachment	9
Total Credit Requirements for graduation Malaysian & International	125

UNIVERSITY REQUIRED COURSES				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
UNGS 1301	Basic Philosophy and Islamic Worldview	3	-	IRKHS
UNGS 2290	Knowledge & Civilization in Islam	2	-	IRKHS
UNGS 2380	Ethics and Fiqh of Contemporary Issues	3	-	IRKHS
TQTD 1002	Tilawah Al-Quran 1	0.5	-	CELPAD
TQTD 2002	Tilawah Al-Quran 2	0.5	TQTD 1002	CELPAD
LQAD 2003	Arabic for Ibadah 1	0.5	-	CELPAD
LQAD 2003	Arabic for Ibadah 2	0.5	LQAD 1003	CELPAD
CCUB 1061	Usrah 1	0.5	-	STADD
CCUB 1062	Usrah 2	0.5	CCUB 1061	STADD
LEED 1301	English for Academic Writing	3	-	CELPAD
CCFM 2061	Family Management	0.5	-	STADD
CCLM 2051	Leadership	0.5	-	STADD
CCSS 1020, CCSS 2010, CCSS 3010	Skills 1	1	-	STADD
	Skills 2			
LMBD 1131	Bahasa Melayu I* (International Only)	1	-	CELPAD
LMBD1132	Bahasa Melayu II* (International Only)	1	LMBD 1131	CELPAD
LM 2026	Bahasa Melayu Kerjaya (Malaysian Only)	2	-	
SCSH 1201	Sustainable Development Issues, Principles and Practices	2	-	SC4SH
SCSH 2163	Usrah in Action 1(SD: Community Profiling	1	SCSH 1201	SC4SH
SCSH 3164	Usrah in Action 2	1	SCSH 2163	SC4SH
	Total Credits	22		

CORE COMPUTING COURSES				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
BICS 1301	Elements of Programming	3	-	DCS
BICS 1302	Introduction to Computer Organization	3	-	DCS
BICS 1303	Computer Networking	3	BICS 1302	DCS
BICS 2305	Operating Systems	3	BICS 1302	DCS
BIIT 1301	Database Programming	3	-	DIS
BIIT 1303	System Analysis & Design	3	-	DIS
BIIT 3304	ICT & Islam	3	3 rd Year	DIS
	Total Credits	21		

DISCIPLINE COURSE COURSES				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
BICS 1304	Object-Oriented Programming	3	BICS 1301	DCS
BICS 1305	Discrete Structures	3	-	DCS
BICS 1306	Digital & Embedded Systems	3	BICS 1302	DCS
BICS 2301	Enterprise Networks	3	BICS 1303	DCS
BICS 2302	Data Structures and Algorithms	3	BICS 1304, BICS 1305	DCS
BICS 2303	Intelligent Systems	3	BICS 1305	DCS
BICS 2304	Computer Architecture & Assembly Language	3	BICS 1306	DCS
BICS 2306	Software Engineering	3	BIIT 1303	DCS
BICS 3301	Cross-Platform Software Development	3	BICS 2301	DCS
BICS 3302	Computation and Complexity	3	BICS 2302	DCS
BICS 3303	Parallel & Distributed Systems	3	BICS 2301	DCS
BIIT 2301	User Experience Design	3	BIIT 1303	DIS
	Total Credits	36		

FIELD ELECTIVES				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
BICS/BIIT XXXX	Field Elective I	3	Course Specific	DCS/DIS
BICS/BIIT XXXX	Field Elective II	3	Course Specific	DCS/DIS
BICS/BIIT XXXX	Field Elective III	3	Course Specific	DCS/DIS
BICS/BIIT XXXX	Field Elective IV	3	Course Specific	DCS/DIS
BICS/BIIT XXXX	Field Elective V	3	Course Specific	DCS/DIS
BICS/BIIT XXXX	Field Elective VI	3	Course Specific	DCS/DIS
	Total Credits	18		

FINAL YEAR PROJECT				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
BICS 4321	Final Year Project I	3	>=90 Credits	DCS
BICS 4421	Final Year Project II	4	BICS 4321	DCS
	Total Credits	7		

INDUSTRIAL ATTACHMENT				
BICS 4901	Industrial Attachment	9	Complete Courses	DCS
	Total Credits	9		

FREE ELECTIVES				
Course Code	Course Name	Credit Hours	Pre-requisite	Offering Dept
	Free Elective I	3	Course Specific	
	Free Elective II	3	Course Specific	
	Free Elective III	3	Course Specific	
	Free Elective IV	3	Course Specific	
	Total Credits	12		

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LIST OF FIELD ELECTIVES IN CONCENTRATION AREAS

APPLICATION DEVELOPMENT ENGINEERING				
Course Code	Course Name	Core / Non-core	Pre-requisite	Credit Hours
BICS 4330	Project Management in Software Engineering	Core	BICS 2306	3
BICS 4331	Requirements Engineering	Core	BICS 2306	3
BICS 4332	Software Design and Architecture	Core	BICS 2306, BIIT 1303	3
BICS 4333	Software Testing	Core	BICS 2306	3
BICS 4334	Software Quality Assurance & Metrics	Non-core	BICS 2306	3
BICS 4335	Software Maintenance & Configuration Management	Non-core	BICS 2306	3
BICS 4336	Blockchain and Applications	Non-core	None	3

ARTIFICIAL INTELLIGENCE				
Course Code	Course Name	Core / Non-core	Pre-requisite	Credit Hours
BICS 4340	Machine Learning	Core	BICS 2303	3
BICS 4341	Natural Language Processing	Core	BICS 2303	3
BICS 4342	Image Processing and Computer Vision	Core	BICS 4340	3
BICS 4343	Neural Networks and Deep Learning	Core	BICS 4340	3
BICS 4344	Bio-inspired Computing	Non-core	BICS 2303	3
BICS 4345	Generative AI Fundamentals	Non-core	BICS 4340	3

SECURITY IN DIGITAL SYSTEM				
Course Code	Course Name	Core / Non-core	Pre-requisite	Credit Hours
BICS 4350	Privacy Engineering	Core	BICS 2301	3
BICS 4351	Malware Analysis	Core	BICS 2305	3
BICS 4352	Penetration Testing	Core	BICS 2305	3
BICS 4353	Cyber Physical Systems Security	Core	BICS 2301	3
BICS 4354	Digital Forensics and Incident Response	Non-core	BICS 2301	3
BICS 4355	Applied Cryptography	Non-core	BICS 2301	3

DATA ENGINEERING				
Course Code	Course Name	Core / Non-core	Pre-requisite	Credit Hours
BICS 4360	Statistics for Data Science	Core	BICS 2302	3
BICS 4361	Data Science	Core	BICS 4360	3
BICS 4362	Big Data Analytics	Core	BICS 4360	3
BICS 4363	Pattern Mining in Large Datasets	Core	BICS 4360	3
BICS 4364	Brain Computational Analytics	Non-core	BICS 4360	3
BIIT 4363	Data Visualization	Non-core	BICS 2303	3

NETWORK AND DATA COMMUNICATIONS				
Course Code	Course Name	Core / Non-core	Pre-requisite	Credit Hours
BICS 4370	Network and Systems Administration	Core	BICS 2301	3
BICS 4371	Advance Routing and Switching	Core	BICS 2301	3
BICS 4372	Cloud Infrastructure	Core	BICS 1303, BICS 2305	3
BICS 4373	Network Security	Core	BICS 2301	3
BICS 4374	Internet-of-Things Applications	Non-core	BICS 1302	3
BICS 4375	Wireless Networks	Non-core	BICS 1303, BICS 2305	3

**PROPOSED STUDY PLAN FOR BACHELOR OF COMPUTER SCIENCE (HONOURS)
(BATCH 241 AND ABOVE)**

YEAR 1 SEMESTER 1			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 1301	Elements of Programming	3	-
BICS 1302	Introduction to Computer Organization	3	-
BIIT 1301	Database Programming	3	-
BIIT 1303	System Analysis & Design	3	-
UNGS 1301	Basic Philosophy and Islamic Worldview	3	-
TQTD 1002	Tilawah Al-Quran 1	0.5	-
CCUB 1061	Usrah 1	0.5	-
SCSH 1201	Sustainable Development Issues, Principles and Practices	2	-
CCSS 1020, CCSS 2010, CCSS 3010	Skills 1	0.5	-
LMBD 1131	Bahasa Melayu I* (International Only)	1	-
Total Credits (Local Students)		18.5	
Total Credits (International Students)		19.5	

YEAR 1 SEMESTER 2			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 1303	Computer Networking	3	BICS 1302
BICS 1304	Object-Oriented Programming	3	BICS 1301
BICS 1305	Discrete Structures	3	-
BICS 1306	Digital & Embedded Systems	3	BICS 1302
UNGS 2380	Ethics and Fiqh of Contemporary Issues	3	-
TQTD 2002	Tilawah Al-Quran 2	0.5	TQTD 1002
CCUB 1062	Usrah 2	0.5	CCUB 1061
LMBD1132	Bahasa Melayu II* (International Only)	1	LMBD 1131
LM 2026	Bahasa Melayu Kerjaya (Malaysian Only)	2	-
Total Credits (Local Students)		18	
Total Credits (International Students)		17	

YEAR 2 SEMESTER 1			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 2301	Enterprise Networks	3	BICS 1303
BICS 2302	Data Structures and Algorithms	3	BICS 1304, BICS 1305
BICS 2303	Intelligent Systems	3	BICS 1305
BICS 2306	Software Engineering	3	BIIT 1303
BIIT 2301	User Experience Design	3	BIIT 1303
	Free Elective I	3	Course Specific
SCSH 2163	Usrah in Action 1(SD: Community Profiling	1	SCSH 1201
LQAD 2003	Arabic for Ibadah 1	0.5	-
CCLM 2051	Leadership	0.5	-
Total Credits (Local/International)		20	

YEAR 2 SEMESTER 2			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 2304	Computer Architecture & Assembly Language	3	BICS 1306
BICS 2305	Operating Systems	3	BICS 1302
BICS/BIIT XXXX	Field Elective I	3	Course Specific
BICS/BIIT XXXX	Field Elective II	3	Course Specific
	Free Elective II	3	Course Specific
SCSH 3164	Usrah in Action 2	1	SCSH 2163
LEED 1301	English for Academic Writing	3	-
LQAD 2003	Arabic for Ibadah 2	0.5	LQAD 1003
CCSS 1020, CCSS 2010, CCSS 3010	Skills 2	0.5	-
Total Credits (Local/International)		20	

YEAR 3 SEMESTER 1			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 3301	Cross-Platform Software Development	3	BICS 2301
BICS 3302	Computation and Complexity	3	BICS 2302
BICS/BIIT XXXX	Field Elective III	3	Course Specific
BICS/BIIT XXXX	Field Elective IV	3	Course Specific
	Free Elective III	3	Course Specific
BICS 4321	Final Year Project I	3	>=90 Credits
UNGS 2290	Knowledge & Civilization in Islam	2	-
Total Credits (Local/International)		20	

YEAR 3 SEMESTER 2			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 3303	Parallel & Distributed Systems	3	BICS 2301
BIIT 3304	ICT & Islam	3	3 rd Year
BICS/BIIT XXXX	Field Elective V	3	Course Specific
BICS/BIIT XXXX	Field Elective VI	3	Course Specific
	Free Elective IV	3	Course Specific
BICS 4421	Final Year Project II	4	BICS 4321
CCFM 2061	Family Management	0.5	-
Total Credits (Local/International)		19.5	

YEAR 4 SEMESTER 1			
Course Code	Course Name	Credit Hours	Pre-requisite
BICS 4901	Industrial Attachment	9	Finish Courses
Total Credits (Local/International)		9	

Total Graduating Credits	
Total Credits (Local Students)	125
Total Credits (International Students)	125