

KULLIYAH OF INFORMATION AND COMMUNICATION TECHNOLOGY

BACHELOR OF COMPUTER SCIENCE (HONOURS)

(FOR BATCH 201 AND ABOVE)

GENERAL PROGRAMME STRUCTURE, CREDIT HOUR AND GRADUATION REQUIREMENTS

Program Structure	Credit Hours
University Required Courses	20 +2
Kulliyyah Required Courses	39
Department Required Courses	33
Industrial Attachment	9
Final Year Project (I &II)	8
Electives/Specialization Courses	21
Total Credit Requirements for graduation	130+2

University Required Courses (20 +2 credit hours)

Islamic Fundamental Knowledge (11 credit hours)

Course Code	Course Name (credit hours)	Offering Dept	Pre-requisite
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)	CELPAD	TQTD 1002
LQAD 1003	Introduction to Arabic for Quranic Understanding 1 (0.5)	CELPAD	-
LQAD 2003	Introduction to Arabic for Quranic Understanding 2(0.5)	CELPAD	LQAD 1003
CCUB 1061	Usrah 1 (0.5)	STADD	-
CCUB 1062	Usrah 2 (0.5)	STADD	CCUB 1061

Leadership and Skills (7 credit hours)

LEED 1301	English for Academic Writing (3)	CELPAD	
CCFM 2052	Family Management (0.5)	STADD	
CCLM 2051	Leadership (0.5)	STADD	
CCSS 1020 CCSS 2010 CCSS 30101	Skills 1(0.5) Skills 2 (0.5)	STADD	
LMBD 1131	Bahasa Melayu I* (1)	CELPAD	-
LMBD 1132	Bahasa Melayu II* (1)	CELPAD	LMBD 1131

Sustainable Development (4) credit hours)

UNGS 1201	Sustainable Development Issues , Principles and Practices (2)	IRKHS	-
CCUB 2163	Usrah in Action 1(SD: Community Profiling) (1)	TBD	UNGS 1201
CCUB 3164	Usrah in Action 2 (1)	TBD	CCUB 2163

Kulliyyah required courses (39 credit hours)

No	Course Code	Description (number of credit hours)	Pre-requisite
1	INFO 1302	Business Fundamentals (3)	-
2	CSCI 1300	Elements of Programming (3)	-
3	INFO 1303	Database Systems (3)	-
4	CSCI 1301	Object-Oriented Programming (3)	CSCI 1300
5	CSCI 1302	Introduction to Computer Organization (3)	CSCI 1303
6	CSCI 1303	Mathematics for Computing I (3)	-
7	INFO 2304	System Analysis & Design (3)	CSCI 1300
8	INFO 4304	ICT & Islam (3)	4 th year student
9	CSCI 1304	Probability and Statistics (3)	-
10	CSCI 1305	Introduction to Software Engineering (3)	-
11	INFO 4303	Technopreneurship (3)	4 th year student
12	CSCI 3300	Operating Systems (3)	CSCI 1302
13	INFO 3307	Human Computer Interaction (3)	INFO 2304

TOTAL=39 Credit Hours, 13 courses

Department required courses for BCS (50 credit hours)

No	Course Code	Description (number of credit hours)	Pre-requisite
1	INFO 2302	Web Technologies (3)	-
2	CSCI 2300	Data Structures and Algorithms I (3)	CSCI 1301
3	CSCI 2301	Computer Networking (3)	CSCI 1303
4	CSCI 2302	Digital Systems Fundamentals (3)	CSCI 1302
5	CSCI 2303	Principles of IT Security (3)	CSCI 2301
6	CSCI 2304	Intelligent Systems (3)	CSCI 2706
7	CSCI 2305	Mathematics for Computing II (3)	CSCI 2305
8	CSCI 3301	Computer Architecture and Assembly Language (3)	CSCI 2302
9	CSCI 3302	Data Structures and Algorithms II (3)	CSCI 2300
10	CSCI 3303	Mathematics for Computing III (3)	CSCI 2305
11	CSCI 4300	Computation and Complexity (3)	CSCI 3302
12	CSCI 4401	Final Year Project I (4)	Earned credit hours >=90
13	CSCI 4402	Final Year Project II (4)	CSCI 4401
14	CSCI 4901	Industrial Attachment (9)	Completed all courses

TOTAL=50 Credit Hours, 14 courses (inclusive of Final Year Project and Industrial Attachment)

LIST OF SPECIALIZATIONS

SOFTWARE ENGINEERING (21 CREDIT HOURS) 4 Specialization Core Courses and 3 courses from any specialization

No	Course Code	Course Title (credit hours)	Pre-requisite(s)
1	CSCI 4320	Software Testing (3)	CSCI 1305
2	CSCI 4321	Project Management In Software Engineering (3)	CSCI 1305, INFO 2304
3	CSCI 4322	Software Design And Architecture (3)	CSCI 1305, INFO 2304
4	CSCI 4323	Requirements Engineering (3)	CSCI 1501
5	CSCI 4507	Database Application Development (3)	CSCI 1305, INFO 1303
6	CSCI 4501	Software Quality Assurance (3)	CSCI 1305
7	CSCI 4508	Empirical Methods In Software Engineering (3)	CSCI 1305

NETWORK AND SECURITY (21 CREDIT HOURS) 4 Specialization Core Courses and 3 courses from any specialization

No	Course Code	Course Title (credit hours)	Pre-requisite(s)
1	CSCI 4330	Networking Concepts and Practices (3)	CSCI 1303 CSCI 2301
2	CSCI 4331	Enterprise Network (3)	CSCI 1303 CSCI 2301
3	CSCI 4332	Digital Evidence Forensics (3)	CSCI 2303, CSCI 3300, CSCI 3301
4	CSCI 4333	Cryptography (3)	CSCI 2305
5	CSCI 4334	Network and Systems Administration (3)	CSCI 2301
6	CSCI 4335	Security in Programming (3)	CSCI 2303 CSCI 3300
7	CSCI 4336	Network Security (3)	CSCI 2303, CSCI 4334

DATA SCIENCE AND COMPUTATIONAL INTELLIGENCE (21 CREDIT HOURS) 4 Specialization Core Courses and 3 courses from any specialization

No	Course Code	Course Title (credit hours)	Pre-requisite(s)
1	CSCI 4340	Machine Learning (3)	CSCI 2303
2	CSCI 4341	Big Data Analytics (3)	CSCI 2303
3	CSCI 4342	Natural Language Processing (3)	CSCI 2303
4	CSCI 4343	Data Science (3)	CSCI 2303
5	CSCI 4344	Introduction to Affective Computing (3)	CSCI 2303
6	CSCI 4345	Computational Modelling and Simulation (3)	CSCI 3303
7	CSCI 4346	Bio-inspired Computing (3)	CSCI 3304
	CSCI 4347	Brain Computational Analytics (3)	CSCI 2304
8	INFO 2303	Database Programming (3)	INFO 1303
9	INFO 4313	Data Mining (3)	INFO 2303
10	INFO 4311	Data Warehousing (3)	INFO 2303

FREE OR NO SPECIALIZATION (21 CREDIT HOURS) 7 COURSES FROM ANY SPECIALIZATION

No	Course code	Course Title (Credit hours)	Pre-requisite(s)
1.	CSCI 4310	Introduction To Quantum Computing (3)	CSCI 3303
2.	CSCI 4311	Mobile Application Development (3)	-
3.	CSCI 4312	Blockchain and Application (3)	-

**PROPOSED STUDY PLAN FOR BACHELOR OF COMPUTER SCIENCE (HONOURS)
(BATCH 201 AND ABOVE)**

YEAR 1 SEMESTER 1 (TOTAL CH 16.5)			YEAR 1 SEMESTER 2 (TOTAL CH 17)		
COURSE CODE	DESCRIPTION	CREDIT HOURS	COURSE CODE	DESCRIPTION	CREDIT HOURS
CSCI 1300	Elements of Programming	3	CSCI 1304	Probability & Statistics	3
INFO 1303	Database Systems	3	CSCI 1305	Introduction to Software Engineering	3
CSCI 1303	Mathematics for Computing I	3	CSCI 1301	Object Oriented Programming	3
INFO 1302	Business Fundamental	3	CSCI 1302	Introduction to Computer Organization	3
UNGS 1201	Sustainable Development Issues , Principles and Practices	2	LMBD 1132	Bahasa Melayu 2	1
TQTD 1002	Tilawah Al-Quran I	0.5	UNGS 1301	Basic Philosophy and Islamic Worldview	3
CCUB 1061	Usrah 1	0.5	TQTD 2002	Tilawah Al-Quran 2	0.5
CCSS 1010, CCSS 2010, CCSS 3010	Skills 1	0.5	CCUB 1062	Usrah 2	0.5
LMBD 1131	Bahasa Melayu 1 * (International)	1			
YEAR 2 SEMESTER 1 (TOTAL CH 18.5)			YEAR 2 SEMESTER 2 (TOTAL CH 19)		
COURSE CODE	DESCRIPTION	CREDIT HOURS	COURSE CODE	DESCRIPTION	CREDIT HOURS
INFO 2302	Web Technologies	3	CSCI 2303	Principles of IT Security	3
CSCI 2301	Computer Networking	3	CSCI 2304	Intelligent Systems	3
CSCI 2305	Mathematics for Computing II	3	CSCI 2302	Digital Systems Fundamentals	3
INFO 2304	System Analysis and Design	3	INFO 3307	Human Computer Interaction	3
CSCI 2300	Data Structures and Algorithms I	3	CSCI 3300	Operating System	3
LQAD 1003	Introduction to Arabic for Quranic Understanding 1	0.5	LEED 1301	English for Academic Writing	3
UNGS 2380	Ethics and Fiqh Of Contemporary Issues	3	LQAD 2003	Introduction to Arabic for Quranic Understanding 2	0.5
			CCSS 1010, CCSS 2010, CCSS 3010	Skills 2	0.5
YEAR 3 SEMESTER 1 (TOTAL CH 18.5)			YEAR 3 SEMESTER 2 (TOTAL CH 19.5)		
COURSE CODE	DESCRIPTION	CREDIT HOURS	COURSE CODE	DESCRIPTION	CREDIT HOURS
CSCI 3302	Data Structures and Algorithms II	3	INFO 4303	Technopreneurship	3
CSCI 3301	Computer Architecture and Assembly Language	3	INFO 4304	ICT & Islam	3
CSCI 3303	Mathematics for Computing III	3	CSCI XXXX	Specialization III	3
UNGS 2290	Knowledge and Civilization in Islam	2	CSCI XXXX	Specialization IV	3
CSCI XXXX	Specialization I	3	CSCI XXXX	Specialization V	3
CSCI XXXX	Specialization II	3	CSCI 4401	FYP I	4
CCLM 2051	Leadership	0.5	CCFM 2052	Family Management	0.5
CCUB 2163	Usrah in Action 1(SD : Community Profiling	1			
YEAR 4 SEMESTER 1 (TOTAL CH 14)			YEAR 4 SEMESTER 2 (TOTAL CH 9)		
COURSE CODE	DESCRIPTION	CREDIT HOURS	COURSE CODE	DESCRIPTION	CREDIT HOURS
CSCI 4300	Computation and Complexity	3	CSCI 4901	Industrial Attachment	9
CSCI 4402	FYP II	4			
CSCI XXXX	Specialization VI	3			
CSCI XXXX	Specialization VII	3			
CCUB 3164	Usrah in Action 2	1			

