FACULTY OF COMPUTING AND ENGINEERING SCIENCES

BS Computer Science

The program is offered through a well-trained and qualified faculty. It consists of 40 courses (five courses per semester) with a total of 130 credit hours. BSCS Program is accredited by NCEAC. The maximum time to complete the degree is six years.

BS (Computer Science) COURSE PLAN (ROADMAP)

Sem.	Codes	Course Title	Cr.Hrs.		Pre-Req.
		Fall Semester			
	CSC 1101	Calculus and Analytical Geometry	3, 0	3	
	CSC 1102	English Composition and Comprehension	3, 0	3	
	CSC 1103	Fundamentals of Programming	3, 0	3	
	CSCL 1103	Lab : Fundamentals of Programming	0, 1	1	
	CSC 1107	Applied Physics	2, 0	2	
	CSCL 1107	Lab : Applied Physics	0, 1	1	
	CSC 1108	Introduction to Computer Science	2, 0	2	
	CSCL 1108	Lab : Introduction to Computer Science	0, 1	1	
	CSC 1109	Pakistan Studies	2, 0	2	
			18		
		Spring Semester			
	CSC 1208	Object Oriented Programming Techniques	3, 0	3	CSC 1103
	CSCL 1208	Lab: Object Oriented Programming Techniques	0, 1	1	CSCL 1103
	CSC 2101	Communication and Presentation Skills	3, 0	3	CSC 1102
	CSC 2103	Digital Logic Design	3, 0	3	CSC 1107
	CSCL 2103	Lab: Digital Logic Design	0, 1	1	CSCL 1107
	CSC 2106	Probability and Statistics	3, 0	3	
	CSC 1209	Islamic Studies/Humanities	2, 0	2	
			16		
		Second Year			
		Fall Semester			
	CSC 1201	Discrete Mathematical Structures	3, 0	3	
	CSC 2102	Data Structures and Algorithms	3, 0	3	CSC 1208
	CSCL 2102	Lab: Data Structures and Algorithms	0, 1	1	CSCL 1208
	CSC 2201	Computer Organization and Assembly Language	3, 0	3	
	CSCL 2201	Lab: Computer Organization and Assembly Language	0, 1	1	
	CSC xxxx	University Elective - 1	3, 0	3	
	CSC xxxx	CS Supporting-1	3, 0	3	
			17		
		Spring Semester			
	CSC 2203	Database Systems	3, 0	3	CSC 2102
	CSCL 2203	Lab: Database Systems	0, 1	1	CSCL 2102
	CSC 2204	Finite Automata Theory and Formal Languages	3, 0	3	
	CSC 2206	Linear Algebra	3, 0	3	
	CSC 3202	Design and Analysis of Algorithms	3, 0	3	CSC 2102
	CSC xxxx	University Elective-2	3, 0	3	
			16		

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Third Year					
Fall Semester					
	CSC 3201	Compiler Construction	3, 0	3	CSC 2204
	CSC xxxx	CS Supporting-2	3, 0	3	
	CSC 2205	Operating Systems	3, 0	3	CSC 2102
	CSCL 2205	Lab: Operating Systems	0, 1	1	
	CSC 3109	Software Engineering	3, 0	3	
	CSC xxxx	CS Supporting-3	3, 0	3	
			16		
Spring Semester					
	CSC 4101	Artificial Intelligence	3, 0	3	CSC 1201
	CSCL 4101	Lab: Artificial Intelligence	0, 1	1	
	CSC 3205	Computer Networks and Data Communications	3, 0	3	
	CSCL 3205	Lab: Computer Networks and Data Communications	0, 1	1	
	CSC 4xxx	CS Elective-1	3, 0	3	
	CSC 4xxx	CS Elective-2	3, 0	3	
	CSC 1205	Technical and Business Writing	3, 0	3	
			17		
Fourth Year					
Fall Semester					
	CSC 4105	Final Year Project-I	3, 0	3	
	CSC 4xxx	Parallel and Distributed Computing	2, 0	2	CSC 2205
	CSCL 4xxx	Lab: Parallel and Distributed Computing	0, 1	1	
	CSC 4xxx	CS Elective-3	3, 0	3	
	CSC 4102	Professional Practices	3, 0	3	
	CSC xxxx	University Elective-3	3, 0	3	
			15		
Spring Semester					
	CSC 4201	Information Security	3, 0	3	
	CSC 4205	Final Year Project-II	3, 0	3	
	CSC 4xxx	CS Elective-4	0, 3	3	
	CSC 4xxx	CS Elective-5	3, 0	3	
	CSC xxxx	University Elective-4	3, 0	3	
			15		
			130		

**A CSC xxxx Mathematics deficiency course will be offered to those students who have limited mathematical background (if deemed necessary by relevant PM/HOD).

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CS ELECTIVES

CSC 4802 Android Application Development
CSC 4703 Applied Data Mining
CSC 4803 Auditing Information Systems
CSC 4804 Business Process Re-engineering
CSC 4705 Control Systems
CSC 4805 Data and Network Security
CSC 4504 Organizational Behavior
CSC 4604 Research Report
CSC 4505 Systems Administration
CSC 4807 Embedded Programming
CSC 4708 Enterprise Resource Planning
CSC 4808 Ethical Hacking
CSC 4709 Internet Business Models
CSC 4809 iOS Development
CSC 4712 IT Innovations
CSC 4713 Managing Data-Center Projects
CSC 4812 Mechatronics
CSC 4813 Modeling and Simulation
CSC 4714 Network Security and Encryption
CSC 4815 Software Engineering-II
CSC 4814 Software Project Management
CSC 4716 Switching and Routing
CSC 4816 Technopreneurship
CSC 4717 Web Technologies-I
CSC 4817 Web Technologies-II
CSC 4718 Wireless and Mobile Technologies
CSC 4823 Interaction Design
CSC 4719 Game Development
CSC 4721 Introduction to Cloud Computing
CSC 4822 Software Engineering Economics
CSC 4818 Data Sciences
CSC 4824 Embedded Systems
CSC 4825 Computer Graphics

UNIVERSITY ELECTIVES

Each campus may offer university electives as per convenience and availability of resources. The Electives being offered at Dubai Campus as are as follows:

CSC 4501 Business and Technology Ethics
CSC 4606 Psychology
CSC 4605 Sociology
CSC 4601 Foreign Languages
CSC 4502 Design and Creativity
CSC 4602 History of Scientific Ideas
CSC 4503 Introduction to Accounting
CSC 4603 Management Principles
CSC 4504 Organizational Behavior
CSC 4604 Research Report
CSC 4505 Systems Administration

COMPUTER SCIENCE SUPPORTING COURSES

Coverage of relevant pre-requisite will be ensured while allowing any of the following courses from this category:

CSC 2122 Differential Equations
CSC 2124 Multi-variate Calculus
CSC 2123 Graph Theory
CSC 2121 Theory of Programming Languages
CSC 2125 Numerical Computing

DISTRIBUTION OF CREDIT HOURS

Course Group		Cr. Hrs.	%
Computing	Core Courses	39	30%
	Supporting Areas	12	9%
	General Education	19	15%
Computer Science	Core Courses	24	18%
	Electives	15	12%
	Supporting Courses	9	7%
University Electives		12	9%
	Total	130	100%

Internship

The internship is scheduled for summer at the end of third year. After completion of the six-week internship, all students are required to submit a comprehensive report giving details of their experience and learning.