

BS (Computer Science) (NEW)

Total Credit Hours: 138

4 Years, 8 Semesters Program

SEMESTER I

Pre-Req	Course Code	Course Title	Credit Hrs
---	CS-111	Programming Fundamentals	3
---	CS-111A	Programming Fundamentals (Lab)	1
---	CSC-111	Calculus and Analytical Geometry	3
---	GE(CS)-111	Introduction to Information and Communication Technologies	3
---	GE(CS)-111A	Introduction to Information and Communication Technologies (Lab)	1
---	GE(CS)-112	English Composition and Comprehension	3
---	GE(CS)-113	Islamiat / Ethics-I	2
---	CSC-112	Basic Electronics	2
---	CSC-112A	Basic Electronics (Lab)	1
Total Credit Hrs			19

SEMESTER II

Pre-Req	Course Code	Course Title	Credit Hrs
CS-111,CS-111A	CS-121	Object Oriented Programming	3
CS-111,CS-111A	CS-121A	Object Oriented Programming (Lab)	1
	CS-122	Digital Logic Design	2
	CS-122A	Digital Logic Design	1
	GE(CS)-121	Technical and Business Writing	3
	GE(C5)-122	Pakistan Studies	2
	CSC-121	Linear Algebra	3
	UE(CS)-121	Introduction To Economics	3
Total Credit Hrs			18

SEMESTER III			
Pre-Req	Course Code	Course Title	Credit Hrs
CS-111,CS-111A	CS-211	Data Structure and Algorithms	2
CS-111,CS-111A	CS-211A	Data Structure and Algorithms (Lab)	1
	CS-212	Discrete Structure	3
	CSC-211	Probability and Statistics	3
	GE(CS)-211	Communication Skills	3
	UE(CS)-211	Financial Accounting	3
	CSE-211	CS- Elective I	3
Total Credit Hrs			18

SEMESTER IV			
Pre-Req	Course Code	Course Title	Credit Hrs
CS-122,CS-122A	CS-221	Microprocessor and Assembly Language	2
CS-122,CS-122A	CS-221A	Microprocessor and Assembly Language (Lab)	1
CS15-212	CS-222	Computer Architecture and Organization	3

	UE(CS)-221	Marketing	3
CSC-111	CSS-221	Multivariable Calculus	3
	CSE-221	CS- Elective II	3
	CSE-222	CS- Elective III	3
Total Credit Hrs			18

SEMESTER V			
Pre-Req	Course Code	Course Title	Credit Hrs
	CS-311	Database Systems	3
	CS-311A	Database Systems (Lab)	1
CS-211,CS-211A	CS-312	Operating systems	3
CS-211,CS-211A	CS-312A	Operating systems (Lab)	1
	CS-313	Theory of Automata	3
CS-211,CS-211A	CS-314	Design and Analysis of Algorithms	3

CSC-111	CSS-311	Differential Equations	3
	UE(CS)-311	Human Resource Management	3
Total Credit Hrs			20

SEMESTER VI			
Pre-Req	Course Code	Course Title	Credit Hrs
CS-121 CS-121A	CS-321	Introduction To Software Engineering	3
	CS-322	Data Communications and Computer Networks	2
	CS-322A	Data Communications and Computer Networks (Lab)	1
CS-313	CS-323	Compiler Construction	2
CS-313	CS-323A	Compiler Construction (Lab)	1
	CSE-321	CS Elective-IV	3
	CSE-322	CS Elective-V	3
	CSE-323	CS Elective-VI	3
Total Credit Hrs			18

SEMESTER VII

Pre-Req	Course Code	Course Title	Credit Hrs
CS-211 CS-211A	CS-411	Artificial Intelligence	2
CS-211 CS-211A	CS-411A	Artificial Intelligence (Lab)	1
	CS-412	Final Year Project Part-I	3
CS-322 CS-322A	CS-413	Information Security	3
	GE(CS)-411	Professional Practices	3
	CS-414	Human Computer Interaction	2
	CS-414A	Human Computer Interaction (Lab)	1
Total Credit Hrs			15

SEMESTER VIII

Pre-Req	Course Code	Course Title	Credit Hrs
CS-412	CS-412	Final Year Project Part-II	3
CSC-111	CSS-421	Numerical Computing	2

CSC-111	CSS-421A	Numerical Computing (Lab)	1
	CSE-421	CS Elective-VII	3
	CSE-422	CS Elective-VIII	3
Total Credit Hrs			12

Course Code Keys Used in Scheme	
CS	Computing Core Subject / Computer Science Core
CSC	Computing Supporting Courses
GE (CS)	General Education (Computer Science)
CSS	Computer Science Supporting
CSE	Computer Science Elective
UE (CS)	University Elective (Computer Science)

BS (Software Engineering)

Total Credit Hours: 136

4 Years, 8 Semesters Program

SEMESTER I

Course Code	Course Title	Credit Hrs
SE-111	Introduction to Computing	3+1
SE-112	Programming Fundamentals	3+1
MT(SE)-111	Calculus and Analytical Geometry	3+0
Sc(SE)-111	Basic Electronics	2+1
EG(SE)-111	English-I (Functional English)	3+0
PK(SE)-111	Islamic and Pakistan Studies	3+0
Total Credit Hrs		20

SEMESTER II		
Course Code	Course Title	Credit Hrs
SE-122	Object Oriented Programming	2+1
MT(SE)-121	Linear Algebra	3+0
EG(SE)-121	English-II Technical Report Writing	3+0
SE-121	Digital Logic Design	2+1
MG(SE)-120X	GE Elective-I	3+0
Total Credit Hrs		15

SEMESTER III		
Course Code	Course Title	Credit Hrs
MT(SE)-212	Probability & Statistics	3+0
SE-211	Data Structure and Algorithms	2+1
MT(SE)-211	Differential Equations	3+0
EG(SE)-211	English-III (Communication Skills)	3+0
SS(SE)-210X	GE Elective-II	3+0

SE-212	Introduction to Software Development	3+0
Total Credit Hrs		18

SEMESTER IV		
Course Code	Course Title	Credit Hrs
SE-220X	SWE Elective-I	2+1
MG(SE)-220X	GE Elective-III	3+0
SE-221X	SWE Elective-II	3+0
SE-211	Discrete Structures	3+0
MT(SE)-221	Multivariable Calculus	3+0
Total Credit Hrs		15

SEMESTER V		
Course Code	Course Title	Credit Hrs
SE-311	Operating Systems	3+1
SE-313	Computer Communication & Networking	2+1

SE-312	Database Systems	3+1
SE-310X	SWE Elective-III	3+0
MT (SE)-311	Operation Research	2+1
MG(SE)-310X	GE Elective-IV	3+0
Total Credit Hrs		20

SEMESTER VI		
Course Code	Course Title	Credit Hrs
SE-321	Human Computer Interaction	3+0
SE(AD)-320X	Artificial Intelligence	2+1
SE-322	Software Requirement Engineering	3+0
SE-323	Formal Methods in Software Engineering	3+0
SE-320X	SWE Elective-IV	3+0
SE(AD)-321X	Theory of Automata	2+1
Total Credit Hrs		18

SEMESTER VII		
Course Code	Course Title	Credit Hrs
SE-411	Senior Capstone Project I	0+3
SE-412	Software Project Management	3+0
MG(SE)-410	Professional Practice	3+0
SE-413	Software Design & Architecture	2+1
SE-414	Software Quality Engineering	2+1
Total Credit Hrs		15

SEMESTER VIII		
Course Code	Course Title	Credit Hrs
SE-421	Senior Capstone Project II	0+3
SE-420X	SWE Elective-V	2+1
SE-421X	SWE Elective-VI	3+0
SE-422X	SWE Elective-VII	2+1
SE-422	Software Construction	2+1

Total Credit Hrs		15
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