DEGREE STRUCTURE BSCS (Spring 2015 onward Batches)

Scheme of Studies (SoS)

Minimum Duration: 04 Years

Minimum No. of Semesters: 08

Course Work	No. of Courses	Credit Hours
i. Core Courses (List attached)		
a. Computer Science courses	19	
b. Allied courses	06	
c. Institutional courses	06	
d. Engineering courses	02	
Total Core Courses	**33**	**115**
ii. Elective Courses (List attached)		
a. Institutional courses	03	
b. Computer Science courses	03-04	
Total Elective Courses	**06-07**	**18-21**
Total No. of Courses:	**39-40**	
Total No. of Minimum Credit Hours:		**133-136**

Allied Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite(s)
1	MTH104	Calculus and Analytic Geometry	3(3, 0)		
2	MTH105	Multivariable Calculus	3(3, 0)		MTH104
3	MTH231	Linear Algebra	3(3, 0)		
4	MTH242	Differential Equations	3(3, 0)		MTH104
5	MTH262	Statistics and Probability Theory	3(3, 0)		
6	MTH375	Numerical Computations	3(3, 0)		MTH231

Core Computer Science Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite (s)
7	CSD100	Fundamentals of Computer Programming	4(3, 1)		
8	CSD101	Discrete Structures	3(3, 0)		

9	CSD102	Introduction to Information and Communication Technologies	4(3, 1)		
10	CSD200	Object Oriented Concepts and Programming	4(3, 1)		CSD100
11	CSD201	Introduction to Software Engineering	3(3, 0)		
12	CSD202	Data Structures and Algorithms	4(3, 1)		CSD100
13	CSD203	Computer Organization and Assembly Language	4(3, 1)		CSD100
14	CSD204	Computer System Architecture	3(3, 0)		CSD203
15	CSD205	Design and Analysis of Algorithms	3(3, 0)		CSD202
16	CSD300	Operating Systems Concepts	3(3, 0)		CSD202
17	CSD301	Computer Communication and Networks	4(3, 1)		
18	CSD302	Database Systems	4(3, 1)		CSD202
19	CSD303	Professional Practices (IT)	3(3, 0)		
20	CSD304	Computer Graphics	4(3, 1)		CSD200 ,MTH231
21	CSD306	Automata Theory	3(3, 0)		CSD101
22	CSD400	Human Computer Interaction	4(3, 1)		
23	CSD402	Artificial Intelligence	4(3, 1)		CSD100
24	CSD458	Compiler Design and Construction	4(3, 1)		CSD306
25	CSD499	Project*	6(0, 6)		

Core Institutional Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite(s)
26	HUM100	English Comprehension and Composition	3(3, 0)		
27	HUM102	Report Writing Skills	3(3, 0)		HUM100
28	HUM103	Communication Skills	3(3, 0)		HUM100
29	HUM110	Islamic Studies	3(3, 0)		
30	HUM111	Pakistan Studies	3(3, 0)		
31	MGT101	Introduction to Management	3(3, 0)		

Elective Computer Science Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite (s)
32	BIO310	Introduction to Bioinformatics	4(3, 1)		
33	BIO312	Bioinformatics Analysis	4(3, 1)		

34	CSD305	Advanced Software Engineering	3(3, 0)		CSD201
35	CSD310	Computer Science Seminars	3(3, 0)		
36	CSD311	Game Development	4(3, 1)		CSD100
37	CSD312	Media Coding and Processing	3(3, 0)		
38	CSD313	Embedded Systems	3(3, 0)		
39	CSD314	IT Security and Risk	3(3, 0)		
40	CSD315	Machine Learning	3(3, 0)		
41	CSD321	Robotics	4(3, 1)		
42	CSD322	Natural Language Processing	4(3, 1)		
43	CSD328	Distributed Computing	4(3, 1)		CSD100
44	CSD331	Digital Image Processing	3(3, 0)		
45	CSD332	Network Security	3(3, 0)		
46	CSD337	Web Technologies	4(3, 1)		CSD100
47	CSD343	Network Design and Implementation	3(3, 0)		
48	CSD344	Wireless and Mobile Computing	3(3, 0)		
49	CSD354	Network Programming	4(3, 1)		CSD100
50	CSD412	Cryptography	3(3, 0)		CSD301
51	CSD421	Systems Programming	4(3, 1)		CSD100
52	CSD440	Pattern Recognition	3(3, 0)		MTH231 ,MTH262
53	CSD442	Principles of Programming Languages	3(3, 0)		CSD200
54	CSD446	Advanced Object Oriented Programming	4(3, 1)		CSD200
55	CSD448	Data Visualization	3(3, 0)		
56	CSD449	Semantic Web	3(3, 0)		
57	CSD451	Multimedia and Hypermedia Systems	3(3, 0)		CSD301
58	CSD452	Virtual Reality	3(3, 0)		CSD304
59	CSD454	Computer Animation	3(3, 0)		CSD304
60	CSD455	Computer Vision	3(3, 0)		CSD304
61	CSD461	Neural Networks	3(3, 0)		CSD402
62	CSD471	Distributed Database Systems	3(3, 0)		CSD302
63	CSD477	Advanced Networking	3(3, 0)		
64	CSD478	Data Warehousing	3(3, 0)		CSD302
65	CSD479	Data Mining	3(3, 0)		CSD302
66	CSD482	Computer Law	3(3, 0)		
67	SED300	Software Requirement Engineering	3(3, 0)		
68	SED320	Software Project Management	3(3, 0)		

Elective Institutional Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite(s)
69	HUM220	Introduction to Psychology	3(3, 0)		
70	HUM430	French	3(3, 0)		
71	HUM431	German	3(3, 0)		
72	HUM432	Arabic	3(3, 0)		

73	HUM433	Persian	3(3, 0)		
74	MGT131	Financial Accounting	3(3, 0)		
75	MGT350	Human Resource Management	3(3, 0)		MGT101
76	MGT403	Entrepreneurship	3(3, 0)		MGT101
77	MGT463	Productivity and Quality Management	3(3, 0)		MGT101
78	MGT513	New Product Development	3(3, 0)		

Engineering Core Courses

S. No.	Course Code	Course Title	Credit Hours	Co-requisite(s)	Prerequisite(s)
79	EEE119	Circuits and Electronics	4(3, 1)		
80	EEE241	Digital Logic Design	4(3, 1)		

Note:

- Project* depicts partial registration and is shown as IP until the project is completed. However, final year project is evaluated upon completion of total 6(0,6) credit hours.
- The list of electives may be revised from time to time and will be offered by the department subject to the availability of faculty.
- 03 credit hours of theory is equivalent to 3 hours of lectures whereas 01 credit hour of lab is equivalent to 03 hours of lab session. All the lab sessions are graded. Students have to pass both theory and lab to earn the course credits.
- Courses with prerequisites can only be allowed if all prerequisite courses have been passed.
- Student must clear all the computer science subjects in the first five semesters to be eligible for Final Year project.