Bachelor of Science in Computer Science (BSCS)

Areas	Credit Hours
General Education Requirement	30
Interdisciplinary/Allied Requirement (Mathematics & Supporting Courses)	12
Major (Disciplinary) Computing Core/Domain Core/Domain Elective Requirement	82
Capstone Project/Field Experience (FYP-1 & II)	02+04=06
Totals	**130**

Code	Pre-Reqs	Course Title	Domain	Cr Hrs
		Computing Core Courses		
CSC-101		Programming Fundamentals	Core	4(3-3)
CSC-102	CSC-101	Object Oriented Programming	Core	4(3-3)
CSC-103		Database Systems	Core	4(3-3)
CSC-111		Digital Logic Design	Core	3(2-3)
CSC-201	CSC-101	Data Structures	Core	4(3-3)
CSC-202		Information Security	Core	3(2-3)
CSC-203		Artificial Intelligence	Core	3(2-3)
CSC-204		Computer Networks	Core	3(2-3)
CSC-205		Software Engineering	Core	3(3-0)
CSC-211	CSC-111	Computer Organization & Assembly Language	Core	3(2-3)
CSC-301		Operating Systems	Core	3(2-3)
CSC-401	CSC-201	Analysis of Algorithms	Core	3(3-0)
CSC-498		Final Year Project – I	Core	2(0-6)
CSC-499	CSC-498	Final Year Project – II	Core	4(0-12)
		Domain Core Courses		
CSC-302		Theory of Automata	Domain Core	3(3-0)
CSC-303	CSC-103	Advance Database Management Systems	Domain Core	3(2-3)
CSC-311	CSC-211	Computer Architecture	Domain Core	3(2-3)
CSC-312	CSC-302	Compiler Construction	Domain Core	3(2-3)
CSC-313		HCI & Computer Graphics	Domain Core	3(2-3)
CSC-314	CSC-301	Parallel & Distributed Computing	Domain Core	3(2-3)
		Domain Elective Courses		
CSC-251		Web Technologies	Domain Elective	3(2-3)
CSC-252	CSC-102	Advanced Programming	Domain Elective	3(2-3)
CSC-351	CSC-251	Web Engineering	Domain Elective	3(2-3)
CSC-352		Numerical Analysis	Domain Elective	3(2-3)
CSC-353		Mobile Application Development 1	Domain Elective	3(2-3)
CSC-354	CSC-202	Cyber Security	Domain Elective	3(2-3)
CSE-422		Software Testing & Quality Assurance	Domain Elective	3(2-3)
CSC-355		Cloud Computing	Domain Elective	3(2-3)
CSC-356		Computer Graphics	Domain Elective	3(2-3)
CSE-325		Object Oriented Analysis & Design	Domain Elective	3(2-3)
CSC-451		Mobile Application Development 2	Domain Elective	3(2-3)
		Mathematics & Supporting Courses		
MTH-102	MTH-101	Multivariable Calculus	Maths	3(3-0)
MTH-103	MTH-101	Linear Algebra	Maths	3(3-0)
STT-101		Probability & Statistics	Maths	3(3-0)
ENG-401	ENG-201	Technical & Business Writing	ENG	3(3-0)
		Elective Supporting Courses		
MGT-351		Social Science (Example: Introduction to Marketing)	SS	3(3-0)
MGT-322		Social Science (Example: Financial Accounting)	SS	3(3-0)
		General Education Courses		

Code		Course Title	Domain	Cr Hr
CSC-100		Application of Information & Communication Technologies	GER	3(2-3)
CSC-110		Discrete Structures	GER	3(3-0)
MTH-101		Calculus and Analytic Geometry	GER	3(3-0)
ENG-102		Functional English	GER	3(3-0)
ENG-201	ENG-102	Expository Writing	GER	3(3-0)
IS-201		Islamic Studies	GER	2(2-0)
PHY-201		Applied Physics	GER	3(2-3)
SSH-301		Introduction to Management	GER	2(2-0)
SSH-401		Entrepreneurship	GER	2(2-0)
SSH-402		Professional Practices	GER	2(2-0)
SSH-403		Civics and Community Engagement	GER	2(2-0)
SSH-404		Ideology and Constitution of Pakistan	GER	2(2-0)

Bachelor of Science in Computer Science (BSCS)
Specialization in General Computing - Study Plan

#	Code	Pre-Reqs	Course Title	Domain	Cr Hr
			Semester 1		
1	CSC-100		Application of Information & Communication Technologies	GER	3 (2-3)
2	CSC-101		Programming Fundamentals	Core	4 (3-3)
3	CSC-110		Discrete Structures	GER	3 (3-0)
4	MTH-101		Calculus and Analytic Geometry	GER	3 (3-0)
5	ENG-102		Functional English	GER	3 (3-0)
					16(14-6)
			Semester 2		
6	CSC-102	CSC-101	Object Oriented Programming	Core	4 (3-3)
7	CSC-103		Database Systems	Core	4 (3-3)
8	CSC-111		Digital Logic Design	Core	3 (2-3)
9	MTH-102	MTH-101	Multivariable Calculus	Math	3 (3-0)
10	STT-101		Probability & Statistics	Math	3 (3-0)
					17(14-9)
			Semester 3		
11	CSC-201	CSC-101	Data Structures	Core	4 (3-3)
12	CSC-202		Information Security	Core	3 (2-3)
13	CSC-203		Artificial Intelligence	Core	3 (2-3)
14	CSC-204		Computer Networks	Core	3 (2-3)
15	CSC-205		Software Engineering	Core	3 (3-0)
16	MTH-103	MTH-101	Linear Algebra	Math	3 (3-0)
					19(15-12)
			Semester 4		
17	CSC-211	CSC-111	Computer Organization & Assembly Language	Core	3 (2-3)
18			Domain Elective 1	Domain Elective	3 (2-3)
19			Domain Elective 2	Domain Elective	3 (2-3)
20	PHY-201		Natural Science (Applied Physics)	GER	3 (2-3)
21	ENG-201	ENG-102	Expository Writing	GER	3 (3-0)
22	IS-201		Islamic Studies	GER	2 (2-0)
					17(13-12)
			Semester 5		
23	CSC-301		Operating Systems	Core	3 (2-3)
24	CSC-302		Domain Core 1 (Theory of Automata)	Domain Core	3 (3-0)
25	CSC-303	CSC-103	Domain Core 2 (Advance Database Management Systems)	Domain Core	3 (2-3)
26			Domain Elective 3	Domain Elective	3 (2-3)
27			Domain Elective 4	Domain Elective	3 (2-3)
28	SSH-301		Social Science (Introduction to Management)	SS	2 (2-0)
					17(13-12)

			Semester 6		
29	CSC-311	CSC-211	Domain Core 3 (Computer Architecture)	Domain Core	3 (2-3)
30	CSC-312	CSC-302	Domain Core 4 (Compiler Construction)	Domain Core	3 (2-3)
31	CSC-313		Domain Core 5 (HCI & Computer Graphics)	Domain Core	3 (2-3)
32	CSC-314	CSC-301	Domain Core 6 (Parallel & Distributed Computing)	Domain Core	3 (2-3)
33			Domain Elective 5	Domain Elective	3 (2-3)
34			Domain Elective 6	Domain Elective	3 (2-3)
					18(12-18)
			Semester 7		
35	CSC-498		Final Year Project – I	Core	2 (0-6)
36	CSC-401	CSC-201	Analysis of Algorithms	Core	3 (3-0)
37			Domain Elective 7	Domain Elective	3 (2-3)
38	MGT-351		Elective Supporting Course (Introduction to Marketing)	SS	3 (3-0)
39	ENG-401	ENG-201	Technical & Business Writing	ENG	3 (3-0)
40	SSH-401		Entrepreneurship	GER	2 (2-0)
					16(13-9)
			Semester 8		
41	CSC-499	CSC-498	Final Year Project – II	Core	4 (0-12)
42	SSH-402		Arts & Humanities (Professional Practices)	GER	2 (2-0)
43	SSH-403		Civics and Community Engagement	GER	2 (2-0)
44	SSH-404		Ideology and Constitution of Pakistan	GER	2 (2-0)
					10(6-12)

Bachelor of Science in Computer Science (BSCS)
Specialization in Artificial Intelligence

Code	Pre-Reqs	Course Title	Domain	Cr Hr
		Computing Core Courses		
CSC-101		Programming Fundamentals	Core	4 (3-3)
CSC-102	CSC-101	Object Oriented Programming	Core	4 (3-3)
CSC-103		Database Systems	Core	4 (3-3)
CSC-111		Digital Logic Design	Core	3 (2-3)
CSC-201	CSC-101	Data Structures	Core	4 (3-3)
CSC-202		Information Security	Core	3 (2-3)
CSC-203		Artificial Intelligence	Core	3 (2-3)
CSC-204		Computer Networks	Core	3 (2-3)
CSC-205		Software Engineering	Core	3 (3-0)
CSC-211	CSC-111	Computer Organization & Assembly Language	Core	3 (2-3)
CSC-301		Operating Systems	Core	3 (2-3)
CSC-401	CSC-201	Analysis of Algorithms	Core	3 (3-0)
CSC-498		Final Year Project – I	Core	2 (0-6)
CSC-499	CSC-498	Final Year Project – II	Core	4 (0-12)
		Domain Core Courses		
CSC-302		Theory of Automata	Domain Core	3 (3-0)
CSC-303	CSC-103	Advance Database Management Systems	Domain Core	3 (2-3)
CSC-311	CSC-211	Computer Architecture	Domain Core	3 (2-3)
CSC-312	CSC-302	Compiler Construction	Domain Core	3 (2-3)
CSC-313		HCI & Computer Graphics	Domain Core	3 (2-3)
CSC-314	CSC-301	Parallel & Distributed Computing	Domain Core	3 (2-3)
		Domain Elective Courses		
CAI-261		Programming for AI	Domain Elective	3 (2-3)
CAI-262	CSC-203	Machine Learning	Domain Elective	3 (2-3)
CAI-361	CAI-261	Artificial Neural Networks & Deep Learning	Domain Elective	3 (2-3)
CAI-362		Knowledge Representation & Reasoning	Domain Elective	3 (2-3)
CAI-363	CAI-361	Computer Vision	Domain Elective	3 (2-3)

Code	Pre-Reqs	Course Title	Domain	Cr Hr
CAI-364	CAI-361	Natural Language Processing	Domain Elective	3 (2-3)
CAI-461	CAI-262	Reinforcement Learning	Domain Elective	3 (2-3)
CAI-365		Fuzzy Systems	Domain Elective	3 (2-3)
CAI-366		Swarm Intelligence	Domain Elective	3 (2-3)
CAI-367		Agent Based Modeling	Domain Elective	3 (2-3)
CAI-462		Speech Processing	Domain Elective	3 (2-3)
		Mathematics & Supporting Courses		
MTH-102	MTH-101	Multivariable Calculus	Maths	3 (3-0)
MTH-103	MTH-101	Linear Algebra	Maths	3 (3-0)
STT-101		Probability & Statistics	Maths	3 (3-0)
ENG-401	ENG-201	Technical & Business Writing	ENG	3 (3-0)
		Elective Supporting Courses		
MGT-351		Social Science (Example: Introduction to Marketing)	SS	3 (3-0)
MGT-322		Social Science (Example: Financial Accounting)	SS	3 (3-0)
		General Education Courses		
CSC-100		Application of Information & Communication Technologies	GER	3 (2-3)
CSC-110		Discrete Structures	GER	3 (3-0)
MTH-101		Calculus and Analytic Geometry	GER	3 (3-0)
ENG-102		Functional English	GER	3 (3-0)
ENG-201	ENG-102	Expository Writing	GER	3 (3-0)
IS-201		Islamic Studies	GER	2 (2-0)
PHY-201		Applied Physics	GER	3 (2-3)
SSH-301		Introduction to Management	GER	2 (2-0)
SSH-401		Entrepreneurship	GER	2 (2-0)
SSH-402		Professional Practices	GER	2 (2-0)
SSH-403		Civics and Community Engagement	GER	2 (2-0)
SSH-404		Ideology and Constitution of Pakistan	GER	2 (2-0)

Bachelor of Science in Computer Science (BSCS)
Specialization in Artificial Intelligence - Study Plan

#	Code	Pre-Reqs	Course Title	Domain	Cr Hr
			Semester 1		
1	CSC-100		Application of Information & Communication Technologies	GER	3 (2-3)
2	CSC-101		Programming Fundamentals	Core	4 (3-3)
3	CSC-110		Discrete Structures	GER	3 (3-0)
4	MTH-101		Calculus and Analytic Geometry	GER	3 (3-0)
5	ENG-102		Functional English	GER	3 (3-0)
					16(14-6)
			Semester 2		
6	CSC-102	CSC-101	Object Oriented Programming	Core	4 (3-3)
7	CSC-103		Database Systems	Core	4 (3-3)
8	CSC-111		Digital Logic Design	Core	3 (2-3)
9	MTH-102	MTH-101	Multivariable Calculus	Maths	3 (3-0)
10	STT-101		Probability & Statistics	Maths	3 (3-0)
					17(14-9)
			Semester 3		
11	CSC-201	CSC-101	Data Structures	Core	4 (3-3)
12	CSC-202		Information Security	Core	3 (2-3)
13	CSC-203		Artificial Intelligence	Core	3 (2-3)
14	CSC-204		Computer Networks	Core	3 (2-3)
15	CSC-205		Software Engineering	Core	3 (3-0)
16	MTH-103	MTH-101	Linear Algebra	Maths	3 (3-0)
					19(15-12)
			Semester 4		
17	CSC-211	CSC-111	Computer Organization & Assembly Language	Core	3 (2-3)

18			Domain Elective 1	Domain Elective	3 (2-3)
19			Domain Elective 2	Domain Elective	3 (2-3)
20	PHY-201		Natural Science (Applied Physics)	GER	3 (2-3)
21	ENG-201	ENG-102	Expository Writing	GER	3 (3-0)
22	IS-201		Islamic Studies	GER	2 (2-0)
					17(13-12)
			Semester 5		
23	CSC-301		Operating Systems	Core	3 (2-3)
24	CSC-302		Domain Core 1 (Theory of Automata)	Domain Core	3 (3-0)
25	CSC-303	CSC-103	Domain Core 2 (Advance Database Management Systems)	Domain Core	3 (2-3)
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31	CSC-313		Domain Core 5 (HCI & Computer Graphics)	Domain Core	3 (2-3)
32	CSC-314	CSC-301	Domain Core 6 (Parallel & Distributed Computing)	Domain Core	3 (2-3)
33			Domain Elective 5	Domain Elective	3 (2-3)
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			Semester 7		
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39	ENG-401	ENG-201	Technical & Business Writing	ENG	3 (3-0)
40	SSH-401		Entrepreneurship	GER	2 (2-0)
					16(13-9)
			Semester 8		
41	CSC-499	CSC-498	Final Year Project - II	Core	4 (0-12)
42	SSH-402		Arts & Humanities (Professional Practices)	GER	2 (2-0)
43	SSH-403		Civics and Community Engagement	GER	2 (2-0)
44	SSH-404		Ideology and Constitution of Pakistan	GER	2 (2-0)
					10(6-12)