

## BCA Semester wise Study Scheme with contact hours, assigned credits & distribution of marks

SEMESTER- I													
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Continuous Assessment	End Semester Exam	Total		
<b>Compulsory Courses</b>													
Fundamentals	BCA-DS-101	Elements of Mathematics	NA	NA	3	1		4	100	100	200	3	4
Core	BCA-DS-102	Hardware Interfaces	NA	NA	3			3	100	100	200	3	3
Core	BCA-DS-104	Introduction to IT & Programming in C	NA	NA	3			3	100	100	200	3	3
Core	BCA-DS-105	Database Management System	NA	NA	3			3	100	100	200	3	3
Core	CDC-111	Placement Competency Enhancement - I	NA	NA		4		4	50	50	100	3	2
Core	BCA-DS-154	C Programming Lab	NA	NA			4	4	50	50	100	3	2
Core	BCA-DS-155 A	Database Management System Lab	NA	NA			4	4	50	50	100	3	2
<b>Total</b>													<b>19</b>
<p><b>* Under Elective Courses, beside the mentioned Domain Specific Elective Courses, other Inter-disciplinary, Generic, on-line Courses (MOOCs etc) and other approved courses shall be offered, which shall be notified well before start of the semester. The student shall be required and allowed to opt the courses out of offered courses as per maximum limit for maximum credits and for the category of Elective Courses under University Rules.</b></p>													

SEMESTER- II														
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits	
			Title	Code	L	T	P	Total	Int	Ext	Total			
<b>Compulsory Courses</b>														
Core	BCA-DS-201	Data Structures using C	NA	NA	3				3	100	100	200	3	3
Core	BCA-DS-202	Internet Technologies	NA	NA	3				3	100	100	200	3	3
Core	BCA-DS-203	Software Engineering	NA	NA	3				3	100	100	200	3	3
Fundamentals	CDC-112	Placement Competency Enhancement-II	NA	NA	0	4		0	4	50	50	100	3	2
Core	BCA-DS-251	Data Structures Lab	NA	NA				2	2	50	50	100	3	1
Core	BCA-DS-252A	Internet Technology Lab	NA	NA				2	2	50	50	100	3	1
Fundamentals	CH-202B	Environmental Studies	NA	NA	3				3	100	100	200	3	3+1*
<b>Total Credits</b>													<b>17</b>	
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SEMESTER- III													
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Continuous Assessment	End Sem Exam	Total		
<b>Compulsory Courses</b>													
Core	BCA-DS-301	Object Oriented Programming using C++	Introduction to IT & Programming in C	BCA-DS-104	3			3	100	100	200	3	3
Core	BCA-DS-302	Introduction to Operating System	NA	NA	3			3	100	100	200	3	3
Fundamentals	BCA-DS-303	Mathematics for Computer Science	Elements of Mathematics	BCA-DS-101	3	1		3	100	100	200	3	4
Core	BCA-DS-351	C++ Lab	C Programming Lab	BCA-DS-154			4	4	50	50	100	3	2
	BCA-RIC-I	Research Innovation Catalyst-I	NA	NA		1		1	50		50		0.5
Fundamentals	CDC-211	Placement Competency Enhancement-I II	NA	NA		4		4	50	50	100	3	2
Domain Specific Elective	BCA-DS-304	Web Applications Development	NA	NA	3			3	100	100	200	3	3
	BCA-DS-306	Shell Programming	NA	NA									
Domain Specific Elective	BCA-DS-354	Web Applications Development Lab	NA	NA			2	2	50	50	100	3	1
	BCA-DS-356	Shell Programming Lab	NA	NA									
<b>Total Credits (BCA )</b>													<b>18.5</b>
<b>BCA Specialization: Data Science and Big Data Analytics (In Association with Microsoft)</b>													
Domain Specific	BCA-ED-351	Azure Fundamentals	NA	NA			4	4	50	50	100	4	2
Domain Specific	BCS-DS-376	Azure Data Fundamentals	NA	NA			4	4	50	50	100	4	2
<b>BCA Specialization: Cyber Security In Association with Microsoft)</b>													
Domain Specific	BCA-ED-351	Azure Fundamentals	NA	NA			4	4	50	50	100	4	2
Domain Specific	BCS-DS-376	Azure Data Fundamentals	NA	NA			4	4	50	50	100	4	2
<b>BCA Specialization: Artificial Intelligence and Machine Learning In Association with Microsoft)</b>													
Domain Specific	BCS-DS-375	Azure AI Fundamentals	NA	NA			4	4	50	50	100	4	2

Domain Specific	BCS-DS-376	Azure Data Fundamentals	NA	NA			4	4	50	50	100	4	2
<b>Total Credits (BCA Specialization)</b>													<b>22..5</b>

<b>SEMESTER- IV</b>													
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	
			Title	Code	L	T	P	Total	Continuous Assessment	End Semester Exam	Total		
<b>Compulsory Courses</b>													
Fundamentals	BCA-DS-401	Numerical Analysis and Statistical Techniques	Elements of Mathematics	BCA-DS-101	3	1		3	100	100	200	3	
Core	BCA-DS-402	Programming in Java	Object Oriented Programming using C++	BCA-DS-301	3			3	100	100	200	3	
Core	BCA-DS-406	Computer System Architecture	NA	NA	3			3	100	100	200	3	
Core	BCA-DS-452	Java Lab	C++ Lab	BCA-DS-351			4	4	50	50	100	3	
Fundamentals	CDC-212	Placement Competency Enhancement-IV	NA	NA		4		4	50	50	100	3	
Core	BCA-RIC-II	Research Innovation Catalyst –II	Research Innovation Catalyst-	BCA-RIC-I		1		1	50		50		
Core	BCA-DS-454	Vocational Training	NA	NA	4 Week				100		100	3	
Domain Specific Elective	BCA-DS-404	System Programming	NA	NA	3			3	100	100	200	3	
	BCA-DS-405	Fundamentals of Artificial Intelligence	NA	NA									
<b>Total Credits (BCA General)</b>													
<b>BCA Specialization: Data Science and Big Data Analytics (In Association with Microsoft)</b>													
Domain Specific	BCS-DS-490	Azure Database Administrator Associate					4	4	50	50	100	4	
Domain Specific	BCA-ED-451	Azure Cosmos DB developer specialty					4	4	50	50	100	4	
<b>BCA Specialization: Cyber Security (In Association with Microsoft)</b>													
Domain Specific	BCA-EC-451	Security Operations Analyst Associate					4	4	50	50	100	4	
Domain Specific	BCA-EC-452	Security, Compliance and Identity Fundamentals					4	4	50	50	100	4	
<b>BCA Specialization: Artificial Intelligence and Machine Learning (In Association with Microsoft)</b>													

Domain Specific	BCS-DS-489	Azure Developer Associate					4	4	50	50	100	4	
Domain Specific	BCS-DS-490	Azure Database Administrator Associate					4	4	50	50	100	4	
<b>Total Credits (BCA Specialization)</b>													
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<b>SEMESTER- V</b>													
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	
			Title	Code	L	T	P	Total	Continuous Assessment	End Semester Exam	Total		
<b>Compulsory Courses</b>													
Core	BCA-DS-501	Data Communication & Networking	NA	NA	3				3	100	100	200	3
Core	BCA-DS-502	RDBMS	Database Management System	BCA-DS-105	3				3	100	100	200	3
Core	BCA-DS-503	Python Programming	Introduction to IT & Programming in C	BCA-DS-104	3				3	100	100	200	3
Core	BCA-DS-502	RDBMS Lab	Database Management System	BCA-DS-155				4	4	50	50	100	3
Core	BCA-DS-503	Python Programming Lab	NA	NA				4	4	50	50	100	3
Core	BCA-RIC-II	Research Innovation Catalyst-III	Research Innovation Catalyst-II	BCA-RIC-II				2	2	100		100	
Domain Specific Elective	BCA-DS-504	Fundamentals of Object-Oriented Analysis & Design	Object Oriented Programming using C++	BCA-DS-301	3				3	100	100	200	3
	BCA-DS-505	Introduction to Cloud Computing	Data Communication & Networking	BCA-DS-501									
<b>Total</b>													
<b>BCA Specialization: Data Science and Big Data Analytics (In Association with Microsoft)</b>													
Domain Specific	BCS-DS-593	Azure Data Engineer Associate					4	4	50	50	100	4	
Domain Specific	BCA-ED-551	Customer Data platform specialty					4	4	50	50	100	4	
<b>BCA Specialization: Cyber Security (In Association with Microsoft)</b>													
Domain Specific	BCA-EC-551	Azure Security Engineer Associate					4	4	50	50	100	4	
Domain Specific	BCA-EC-552	Identity and access					4	4	50	50	100	4	

		Administrator Associate											
<b>BCA Specialization: Artificial Intelligence and Machine Learning (In Association with Microsoft)</b>													
Domain Specific	BCS-DS-592	Azure AI Engineer Associate					4	4	50	50	100	4	
Domain Specific	BCS-DS-593	Azure Data Engineer Associate					4	4	50	50	100	4	
<b>Total Credits (BCA Specialization)</b>													
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<b>SEMESTER-VI</b>														
Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits	
			Title	Code	L	T	P	Total	Continuous Assessment	End Semester Exam	Total			
Core	BCA-DS-601	Programming in .NET using C#	Object Oriented Programming using C++	BCA-DS-301	3				3	100	100	200	3	3
Core	BCA-DS-651	Programming in .NET using C# Lab	NA	NA			4		4	50	50	100	3	2
Core	BCA-DS-652	Project	NA	NA			8		8	200	100	300	-	4
Domain Specific Electives	BCA-DS-603	Security of Information System	Data Communication & Networking	BCA-DS-501	3				3	100	100	200	3	3
	BCA-DS-606	Machine Learning	NA	NA										
Domain Specific Electives	BCA-DS-604	Multimedia & Animation	Elements of Computer Graphics	BCA-DS-403	3				3	100	100	200	3	3
	BCA-DS-605	Basics of MIS & ERP	Principles of Management	BCA-DS-307										
<b>Total Credits (BCA General)</b>													<b>15</b>	
<b>BCA Specialization: Data Science and Big Data Analytics (In Association with Microsoft)</b>														
Domain Specific	BCS-DS-692	Azure Data Scientist Associate					4	4	50	50	100	4	2	
Domain Specific	BCS-DS-693	Azure Enterprise Data Analyst Associate					4	4	50	50	100	4	2	
<b>BCA Specialization: Cyber Security (In Association with Microsoft)</b>														
Domain Specific	BCA-EC-651	Information protection Administrator Associate					4	4	50	50	100	4	2	
Domain Specific	BCA-EC-652	Cyber Security Architect Expert					4	4	50	50	100	4	2	

<b>BCA Specialization: Artificial Intelligence and Machine Learning (In Association with Microsoft)</b>													
Domain Specific	BCS-DS-692	Azure Data Scientist Associate					4	4	50	50	100	4	2
Domain Specific	BCS-DS-693	Azure Enterprise Data Analyst Associate					4	4	50	50	100	4	2
<b>Total Credits (BCA General / Specialization)</b>													<b>19</b>
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<p><b>**For Successful completion of the degree, the students need to earn 106 credits of compulsory courses &amp; electives and at least 14 of Open Elective/MOOC/Coursera Courses</b></p>													
<b>Total Credit (BCA General)</b>													<b>120</b>
<b>Total credit (BCA with Specialization) (16 Extra Credits)</b>													<b>136</b>