



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Computer Applications
Scheme & Syllabus
of
Bachelor of Computer Applications (BCA)
Specialization-Data Science & Data Analytics
(In Association with Samatrix)
Academic Program
July 2024-27

JECRC University, Jaipur
Plot No. IS-2036 to IS-2039 Ramchandrapura Industrial Area Jaipur, Sitapura, Vidhani, Rajasthan
303905

Total Credits for the Batch 2024-27 = 120 Credits

Semester wise credit						Credits
I	II	III	IV	V	VI	Total
17	25	21	22	19	16	120

Data Science & Data Analytics Specializations Subjects (BCA)							
Semester	Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
I	BCA220A	Introduction To AI, Data Science, Ethics and Foundation of Data Analysis	4	0	0	4	S
II	BCA221A	Data Analysis using Python	3	0	0	3	S
II	BCA222A	Probabilistic Modeling & Reasoning	3	0	0	3	S
III	BCA223A	R Programming for Data Science & Analysis	4	0	0	4	S
III	BCA224A	Foundation of Machine Learning & Pattern Recognition	3	0	0	3	S
IV	BCA225A	Data Science- Tools & Techniques	4	0	0	4	S
IV	BCA226A	Project	0	0	4	2	S
V	BCA227A	Big Data Analytics with Spark	4	0	0	4	S
V	BCA228A	Data Visualization -Tools & Techniques	3	0	2	4	S
Total			27	0	6	30	

Semester – I								
S. No.	Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Contact Hours	Type
1	BCA220A	Introduction To AI, Data Science, Ethics and Foundation of Data Analysis	4	0	0	4	4	S
2	BCA302A	Fundamental of Computers & Programming in C	3	0	0	3	3	CORE
3	BCA303A	Fundamental of Computers & Programming in C Lab	0	0	4	2	4	CORE
4	DCH001A/ BCA113B	Environmental Studies/ Operating System (300)	2	0	2	3	3	AEC/ CORE
5	DEN001A/ DEN001B	Communication Skills/ Communication Skills Lab	2	0	2	3	3	SEC
6	DIN001A	Culture Education-I	2	0	0	2	2	AEC
Total			13	0	8	17	19	

Semester – II								
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Contact Hours	Type
1	BCA221A	Data Analysis using Python	3	0	0	3	3	S
2	BCA126B	Object Oriented Programming Using C++	3	0	0	3	3	CORE
3	BCA113B/ DCH001A	Operating System/Environmental Studies	2	0	2	3	3	CORE/ AEC
4	BCA300A	Python Programming	3	0	0	3	3	CORE
5	BCA130B	Project Lab Using C++	0	0	4	2	4	CORE
6	BCA301A	Python Programming Lab	0	0	4	2	4	CORE
7	BCA222A	Probabilistic Modeling & Reasoning	3	0	0	3	2	S
8	DIN002A	Culture Education-II	2	0	0	2	2	AEC
9	DEN002A/ DEN002B	Professional Skills/Professional Skills Lab	2	0	2	3	5	SEC
10	JIC002A	Entrepreneurship Development	0	0	2	1	2	SEC
Total			18	0	14	25	31	

Semester – III								
S.No	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Course Hours	Type
1	BCA305A	Data Structures and Algorithms -I	3	0	0	3	3	CORE
2	BCA223A	R Programming for Data Science & Analysis	4	0	0	4	4	S
3	BCA133B	Programming in JAVA	3	0	0	3	3	CORE
4	BCA224A	Foundation of Machine Learning & Pattern Recognition	3	0	0	3	3	S
5	BCA306A	Data Structures and Algorithms -I Lab	0	0	4	2	4	CORE
6	BCA136B	Project Lab using JAVA	0	0	4	2	4	CORE
8	DEN003A	Life Skills - 1 (Personality Development)	1	0	2	2	4	SEC
9	DIN003A	Value Education and Ethics -1	1	0	2	2	2	AEC
		Total	15	0	12	21	27	

Semester – IV								
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Contact Hours	Type
1	BCA135 A	Computer Network	4	0	0	4	4	CORE
2	BCA127 A	Software Engineering	3	0	0	3	3	CORE
3	BCA225 A	Data Science- Tools & Techniques	4	0	0	4	4	S
4	BCA226 A	Project	0	0	4	2	4	S
5	DMA003 A	Life Skills - 2 (Aptitude)	1	0	2	2	4	ID
6	DIN004 A	Value Education and Ethics -2	1	0	0	1	2	AEC
7	Departmental Elective – I		3	0	0	3	3	E
8	Open Elective		3	0	0	3	3	GE
		Total	19	0	6	22	27	

Semester – V								
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Contact Hours	Type
1	BCA317A	Information Security Essentials	4	0	0	4	4	CORE
2	BCA147B	Major Project	0	0	4	2	4	CORE
3	BCA227A	Big Data Analytics with Spark	4	0	0	4	4	S
4	BCA228A	Data Visualization -Tools & Techniques	3	0	2	4	4	S
5	Open Elective		3	0	0	3	3	GE
6	Technical Research Paper Writing (BCA600A)		0	0	4	2	2	CORE
		Total	14	0	10	19	21	

Semester – VI					
Course Code	Course Name	L (Hr.)	P (Hr.)	Credits	Type
BCA165A	Industrial Training/Internship	0	0	16	CORE

List of courses for Electives

Course Code	Course Name	Credit	Course Code	Course Name	Credit
Specialization (Software Development)			Specialization (Data Science and Analytics)		
BCA309A	Programming in ASP.Net	3	BCA193A	Programming in R	3
BCA181A	Professional Java	3	BCA194A	Data Science and Analytics	3
BCA141A	Android Application Development	3	BCA161A	Big Data Analytics	3
BCA183A	Programming in ASP.Net Lab	1	BCA195A	Data warehousing and Data Mining	3
BCA145A	Android Application Development Lab	1	BCA196A	Programming in R Lab	1
BCA184A	Professional Java Lab	1	BCA197A	Data warehousing and Data Mining lab	1
BCA176A	Software Testing	3	BCA121B	Software Testing Lab	1
Specialization (System & Network Administration)			Specialization (Cloud, process automation and blockchain)		
BCA185A	Introduction to Linux System Administration	3	BCA164A	Introduction to Salesforce	3
BCA186A	Linux Server Administration and Automation	3	BCA172A	Robotics Process Automation	3
BCA187A	Software Development Using OpenShift Architecture	3	BCA198A	Artificial Intelligence and Machine Learning	3
BCA188A	Network Virtualization Using OpenStack	3	BCA199A	Introduction to Salesforce lab	1
DMA051A	Mathematical Foundation	3	BCA200A	Artificial Intelligence and Machine Learning Lab	1
BCA601A	Discrete Mathematics	3	BCA201A	Robotics Process Automation Lab	1
BCA602A	Statistical Analysis and Methods	3	BCA251A	Google Cloud Readiness	3