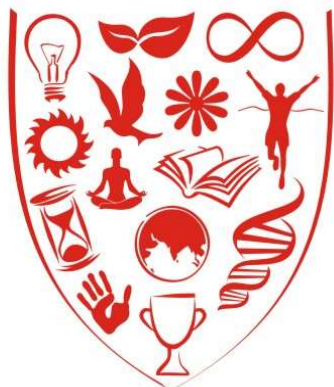




JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Computer Applications
Scheme & Syllabus
of
Bachelor of Computer Applications (BCA)
Specialization-Data Science & Data Analytics
(In Association with Samatrix)
Academic Program
July 2026

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

Data Science & Data Analytics Specializations Subjects (BCA)							
Semest er	Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Cred its	Type
I	BCA220A	Decoding Data: Learn AI, ML, DS & Analytics 3(2-0-1)	2	0	2	3	S
II	BCA221A/ B	Data Analysis using Python	2	0	2	3	S
III		Statistical Modelling and Data Reasoning with Python 3(2-0-1)	2	0	2	3	S
III		Data Visualization 3(2-0-1)	2	0	2	3	S
IV		Machine Learning and Pattern Recognition 3(2-0-1)	2	0	2	3	S
IV		AI Product Development and Deployment 3(2-0-1)	2	0	2	3	S
V		Natural Language Processing & Generative AI 3(2-0- 1)	2	0	2	3	S
V		Deep Learning and Neural Networks with TensorFlow 3(1- 0-1)	1	0	2	2	S
V		Project and Case Studies	0	0	6	3	s
Total			15	0	24	27	

SEMESTER I							
S. No.	Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1	BCA220A	Decoding Data: Learn AI, ML, DS & Analytics 3(2-0-1)	2	0	2	3	S
2	BCA925A	Programming in C	2	0	0	2	CORE
3	BCA926A	Programming in C Lab	0	0	4	2	CORE
4	DCH010A/	Environmental Education	2	0	0	2	VAC
5	BCO570A	Digital Data and AI Literacy	0	0	4	2	SEC
6	DEN001C/D	Communication Skills/ Communication Skills Lab	1	0	2	2	AEC
7	JIC002A	Entrepreneurship Development	0	0	2	1	SEC
8	BCA113B	Operating System	4	0	0	4	CORE
9	BCA106A	Office Automation Tools Lab	0	0	2	1	CORE
Total			11	0	16	19	

SEMESTER II							
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1	BCA114B	Database Management Systems	3	0	0	3	CORE
2	BCA126B	Object Oriented Programming Using C++	2	0	0	2	CORE
3	BCA221A /B	Data Analysis using Python	2	0	2	3	S
4	BCA130B	Project Lab Using C++	0	0	4	2	CORE
5	BCA118B	Database Management Systems Lab	0	0	4	2	CORE
6	IKS001A	Inculcation of Human Values and Professional Ethics in Higher Education Institutions	2	0	0	2	VAC
7	DCO018A	Advance Excel	0	0	4	2	SEC
8	DEN002C /D	Professional Skills / Lab	1	0	2	2	AEC
7		Departmental Elective-1	3	0	0	3	
Total			13	0	16	21	

SEMESTER III							
S.No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1	BCA305A	Data Structures and Algorithms -I	3	0	0	3	CORE
2	BCA307A	Statistical Modelling and Data Reasoning with Python 3(2-0-1)	2	0	2	3	S
3	BCA308A	Data Visualization 3(2-0-1)	2	0	2	3	S
4	BCA133B	Programming in JAVA	3	0	0	3	CORE
5	BCA306A	Data Structures and Algorithms -I Lab	0	0	4	2	CORE
6	BCA136B	Project Lab using JAVA	0	0	4	2	CORE
7		Mathematics in India	2	0	0	2	VAC
8		Leadership and Managemnet Skills	1	0	2	2	AEC
9		Generative Artificial Intelligence Tools	0	0	4	2	SEC
10		Open Elective/MOOC	3	0	0	3	MD
		Total	16	0	18	25	

SEMESTER IV							
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1		Machine Learning and Pattern Recognition 3(2-0-1)	2	0	2	3	S
2		AI Product Development and Deployment 3(2-0-1)	2	0	2	3	S
3		Universal Human Values	2	0	0	2	AEC
4		Health and Yoga	1	0	2	2	VAC
5		Prompt Engineering for coding	0	0	4	2	SEC
6		Departmental Elective – 3	3	0	2	4	DE
7		Open Elective/Mooc/MOOC	3	0	0	3	MD
		Total	13	0	12	19	

SEMESTER V							
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1	BCA135A	Computer Network	3	0	0	3	CORE
2		Natural Language Processing & Generative AI 3(2-0-1)	2	0	2	3	S
3		Deep Learning and Neural Networks with TensorFlow 3(1-0-1)	1	0	2	2	S
4		Project and Case Studies	0	0	6	3	s
5		Open Elective/Mooc	3	0	0	3	MD
6	Departmental Elective- 5		3	0	0	3	DE
7	Departmental Elective- 6		2	0	2	3	DE
		Total	14	0	12	20	

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

SEMESTER VII							
S. No.	Course Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
1		Literature Review	3	0	0	3	CORE
2		Statistical Analysis using R	3	0	4	5	CORE
3		Data Analytics	3	0	4	5	CORE
4		Scientific Paper Writing	3	0	0	3	CORE
5		Research Project-I/ Research Internship Report and viva voce	0	0	8	4	CORE
Total			12	0	16	20	

Semester – VIII					
Course Code	Course Name	L (Hr.)	P (Hr.)	Credits	Type
	Research Project/Capstone Project/ Dissertation (For Research Track)	0	40	20	CORE