



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Computer Application

Master of Computer Applications (MCA)

Scheme & Syllabus

Data Science & Data Analytics

(In Association with Samatrix)

Academic Programme

July 2024-26

MCA

Semester wise Credit				Total Credits	Minimum Credits Required for Degree
I	II	III	IV		
19	20	25	16	80	80

- ❖ F- Foundation, ID- Interdisciplinary, S- Specialization (Skill Enhance Courses)
- ❖ L- Lecture, T- Tutorial, P- Practical

Data Science & Data Analytics -SAMATRIX Specializations Subjects (MCA)

Semester	Code	Course Name	L (Hr.)	T (Hr.)	P (Hr.)	Credits	Type
I	MCA220A	Introduction To AI, Data Science, Ethics and Foundation of Data Analysis	3	0	0	3	S
I	MCA221A	Data Analytics using Python (400)	3	0	0	3	S
II	MCA222A	Probabilistic Modeling & Reasoning	3	0	0	3	S
II	MCA223A	R Programming for Data Science and Analysis	4	0	0	4	S
III	MCA224A	Machine Learning and Pattern Recognition	3	0	2	4	S
III	MCA227A	Data Visualization	3	0	2	4	S
III	MCA225A	Capstone Project	0	0	6	3	S
			19	0	10	24	

Semester –I

Course Code	Course name	Lecture Credits (Hrs.)	Tutorial Credits (Hrs.)	Practical Credits (Hrs.)	Total Credits (Hrs.)	Course Category
MCA125B	Competitive Programming (Using C++)	3	0	0	3	CORE
MCA129B	Competitive Programming (Using C++) Lab	0	0	4	2	CORE
MCA220A	Introduction To AI, Data Science, Ethics and Foundation of Data Analysis	3	0	0	3	S
MCA121B	Advance Data Structures and Algorithms	3	0	0	3	CORE
MCA221A	Data Analytics using Python	3	0	0	3	S
MCA203A	Data Structures Lab	0	0	4	2	CORE
MCA131B	Software Engineering	3	0	0	3	CORE
Total Credits		15	0	08	19	

Semester –II

Course Code	Course name	Lecture Credits (Hrs.)	Tutorial Credits (Hrs.)	Practical Credits (Hrs.)	Total Credits (Hrs.)	Course Category
MCA222A	Probabilistic Modeling & Reasoning	3	0	0	3	S
MCA118A	Advance Database Management System	3	0	0	3	CORE
MCA124C	Project Lab in Advance Database Management Systems	0	0	4	2	CORE
MCA130B	Advance Java	3	0	0	3	CORE
MCA202A	Advance Java Lab	0	0	4	2	CORE
	Departmental Elective – I	3	0	0	3	E
MCA223A	R Programming for Data Science and Analysis	4	0	0	4	S
Total Credits		16	0	08	20	

Semester –III

Course Code	Course name	Lecture Credits (Hrs.)	Tutorial Credits (Hrs.)	Practical Credits (Hrs.)	Total Credits (Hrs.)	Course Category
MCA312A	Web Technology	3	0	0	3	CORE
MCA313A	Web Technology Lab	0	0	4	2	CORE
MCA314B/315B	Information Security and Hacking	3	0	2	4	CORE
MCA224A	Machine Learning and Pattern Recognition	2	0	2	3	S
MCA225A	Capstone Project	0	0	6	3	S
MCA600A	Technical Research paper writing	0	0	4	2	CORE
	Departmental Elective – III	4	0	0	4	E
MCA227A	Data Visualization	3	0	2	4	S
Total Credits		15	0	20	25	

Semester -IV						
Course Code	Course name	Lecture Credits (Hrs.)	Tutorial Credits (Hrs.)	Practical Credits (Hrs.)	Total Credits (Hrs.)	Course Category
MCA175A	Industrial Training/Internship/Dissertation Capstone Project Presentation	0	0	0	16	CORE

Departmental Electives

Specialization (Web Development)	
Course Code	Course name
MCA139A	Programming in ASP.Net
MCA162A	Professional Java
MCA188A	Introduction to Fullstack Development
MCA189A	Programming Using Ruby On Rails
MCA143A	Programming in ASP.Net Lab
MCA165A	Professional Java Lab
MCA190A	Introduction to Fullstack Development Lab
MCA191A	Programming Using Ruby On Rails Lab
MCA192A	Software Capstone Project Management
MCA183A	Agile Software Development
MCA243A	Google Cloud Foundation (GCF)
MCA187A	Google Cloud Readiness (GCR)
Specialization (Data Science and Analytics)	
Course Code	Course name
MCA141A	Data Science and Analytics using Python
MCA140A	Programming in R
BCA171A	Big Data Analytics
MCA142A	Programming in R Lab
MCA193A	Big Data Analytics Lab
MCA194A	Data Science and Analytics using Python lab
MCA144B	Programming in Python
MCA147B	Project Labin Python
Specialization (Cyber Security)	
Course Code	Course name
MCA319A	Network Security Analysis
MCA320A	Cyber Security Management
MCA 604A	Ethical Hacking Programming
MCA605A	Cyber Crime Digital Forensic

Specialization (Mathematical Computing & Algorithms)	
Course Code	Course name
MCA158A	Distributed Computing
MCA170A	Compiler Design
MCA123A	Advance Computer Network
MCA601A	Discrete Mathematics
MCA602A	Statistical Analysis and Methods
MCA603A	Applied Mathematics

Specialization (Cloud Computing, Process automation and Blockchain)	
Course Code	Course name
MCA197A	Introduction to AI & Machine Learning
MCA157B	Cloud Computing
MCA159A	Introduction to Salesforce
MCA186A	Robotics Process Automation
MCA126A	Machine Learning Lab
MCA199A	Introduction to Blockchain