

MCA SCHEME JULY 23

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
MCA	23OMC100A	Fundamentals of Computers	0	1	Theory	30	70
MCA	23OMC100B	Introduction to Operating Systems	0	1	Theory	30	70
MCA	23OMC100C	Mathematical Foundation of Computer Science	0	1	Theory	30	70
MCA	23OMC101	Full Stack Development	3	1	Theory	30	70
MCA	23OMC102	Computer Networks	3	1	Theory	30	70
MCA	23OMC103	Programming and Problem-Solving	3	1	Theory	30	70
MCA	23OMC104	Advanced Operating Systems	3	1	Theory	30	70
		Discipline-Specific Elective - 1					
MCA	23OMC105A	Advanced Computer Organization	3	1	Theory	30	70
MCA	23OMC105B	Green Computing	3	1	Theory	30	70
MCA	23OMC105C	Discrete Structures and Combinatorics	3	1	Theory	30	70
MCA	23OMC105D	Cloud Computing	3	1	Theory	30	70
MCA	23OMC106	Career Skills	1	1	Theory	30	70
MCA	23OMC107	General Proficiency/NCC/Seminar/Research/Yoga*	1	1			100
MCA	23OMC108	Full Stack Development Laboratory	2	1	Practical	30	70
MCA	23OMC109	Operating Systems and Computer Networks Laboratory	2	1	Practical	30	70
MCA	23OMC110	Programming and Problem-Solving Laboratory	2	1	Practical	30	70
Total Credit			23				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
MCA	23OMC200A	Introduction to Database Management Systems	0	2	Theory	30	70
MCA	23OMC200B	Introduction to Object-Oriented Programming	0	2	Theory	30	70
MCA	23OMC201	Advanced Database Management Systems	3	2	Theory	30	70
MCA	23OMC202	Advanced Java Programming	3	2	Theory	30	70
MCA	23OMC203	Advanced Data Structures	3	2	Theory	30	70
		Discipline-Specific Elective - 2					
MCA	23OMC204A	Data Mining and Warehousing	3	2	Theory	30	70
MCA	23OMC204B	Python Programming	3	2	Theory	30	70
MCA	23OMC204C	Software Project Management	3	2	Theory	30	70
MCA	23OMC204D	Probability and Statistics	3	2	Theory	30	70
		General Elective - 1					
MCA	23OMC205A	Research Methodology	2	2	Theory	30	70
MCA	23OMC205B	Entrepreneurship	2	2	Theory	30	70
MCA	23OMC206	Career Skills	2	2	Theory	30	70
MCA	23OMC207	Mini Project/Research Publication	1	2			100
MCA	23OMC208	Advanced Database Management Systems Laboratory	2	2	Practical	30	70
MCA	23OMC209	Advanced Java Programming Laboratory	2	2	Practical	30	70
MCA	23OMC210	Advanced Data Structures Laboratory	2	2	Practical	30	70
Total Credit			23				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
MCA	23OMC300A	Competitive Programming	0	3	Theory	30	70
MCA	23OMC300B	Introduction to Software Engineering	0	3	Theory	30	70
MCA	23OMC301	Design and Analysis of Algorithms	3	3	Theory	30	70
MCA	23OMC302	Mobile Application Development	3	3	Theory	30	70
MCA	23OMC303	Artificial Intelligence and Machine Learning	3	3	Theory	30	70
		Discipline-Specific Elective - 3					
MCA	23OMC304A	Software Testing and Quality Assurance	3	3	Theory	30	70
MCA	23OMC304B	Human-Computer Interaction	3	3	Theory	30	70
MCA	23OMC304C	Theory of Computation and Compiler Construction	3	3	Theory	30	70
MCA	23OMC304D	Operations Research	3	3	Theory	30	70
MCA	23OMC305	Career Skills	2	3	Theory	30	70
MCA	23OMC306	Mini Project/Research Seminar	2	3			100
MCA	23OMC307	Design and Analysis of Algorithms Laboratory	2	3	Practical	30	70
MCA	23OMC308	Mobile Application Development Laboratory	2	3	Practical	30	70
MCA	23OMC309	Artificial Intelligence and Machine Learning Laboratory	2	3	Practical	30	70
Total Credit			22				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
MCA	23OMC401	Data Science using R	3	4	Theory	30	70
		Discipline-Specific Elective - 4					
MCA	23OMC402A	Cryptography	3	4	Theory	30	70
MCA	23OMC402B	Cybersecurity/Information Security	3	4	Theory	30	70
MCA	23OMC402C	University-Approved MOOC or Certification	3	4	Theory		
MCA	23OMC402D	Computer-Aided Simulation and Modelling	3	4	Theory	30	70
		Discipline-Specific Elective - 5					
MCA	23OMC403A	C# and .NET	3	4	Theory	30	70
MCA	23OMC403B	Advanced Graphics and Visual Computing	3	4	Theory	30	70
MCA	23OMC403C	Soft Computing	3	4	Theory	30	70
MCA	23OMC403D	Internet of Things	3	4	Theory	30	70
		General Elective - 2					
MCA	23OMC404A	Personal Finance	3	4	Theory	30	70
MCA	23OMC404B	Digital Marketing	3		Theory	30	70
MCA	23OMC405	Internship/Dissertation/Capstone Project	8	4			100
MCA	23OMC406	Data Science Laboratory	2	4	Practical	30	70
Total Credit			22				

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Centre for Distance and Online Education

Master of Computer Applications

Semester - I Summary

The first semester of the Master of Computer Applications (MCA) program introduces the core principles of computing, starting with the architecture and components that make computers function. Courses explore how systems manage processes, memory, and files, providing a deeper understanding of the "brain" behind the machine. Logical thinking and problem-solving skills are developed through mathematical concepts like sets, logic, and combinatorics, which are essential for designing efficient algorithms. The semester also begins with coding, covering programming paradigms and techniques to solve real-world problems using popular languages.

On the practical side, dynamic web applications are built by mastering both front-end design and back-end development, including databases and server-side scripting. Networking concepts explain how data travels across the internet, covering protocols, IP addressing, and network layers. Advanced topics delve into system optimization, CPU architecture, energy-efficient technologies, and cloud-based services, introducing virtualization and scalable storage solutions.

The semester is a blend of excitement and challenge. Writing code, debugging, and completing projects create a sense of achievement, almost like stepping into the role of a tech wizard. Hands-on lab sessions provide opportunities to apply theoretical knowledge, turning concepts into practical solutions. Alongside technical growth, professionalism and wellness are nurtured through career-focused training and activities such as yoga. It's a well-rounded experience that combines learning, creativity, and enjoyment—marking the first step toward a successful career in technology.

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Master of Computer Applications

Semester -II Summary

The second semester of the Master of Computer Applications program is a transformative phase that goes beyond academics, shaping students into future-ready professionals. It delves into advanced topics like data management, programming, and problem-solving, equipping learners with the tools to thrive in a technology-driven world. These skills empower them to design efficient systems, analyze complex data, and create innovative solutions that can revolutionize industries.

In addition to technical expertise, the program emphasizes critical thinking, analytical reasoning, and research capabilities, which are vital for addressing real-world challenges. Courses on creativity, entrepreneurship, and career development foster a mindset of innovation and professionalism, preparing students to stand out in a competitive global landscape.

Hands-on projects and laboratory sessions play a crucial role in bridging the gap between theory and practice. These experiences allow students to apply their knowledge in meaningful ways, boosting their confidence and technical proficiency. Moreover, collaborative projects enhance teamwork, leadership, and adaptability—skills that are invaluable in any career.

By combining technical depth with practical exposure and soft skills development, the second semester prepares students to excel as well-rounded professionals, ready to make a significant impact in the ever-evolving tech industry. This phase is not just about learning—it's about transforming into industry leaders.

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Master of Computer Applications

Semester -III Summary

The third semester of the postgraduate program in Computer Applications begins with a semester focused on equipping students with advanced skills and practical experience to excel in the tech industry. Combining theory and hands-on learning, the program ensures students are prepared to solve real-world challenges.

Students will enhance their coding and problem-solving abilities through Competitive Programming, which boosts quick thinking and logical reasoning. Introduction to Software Engineering guides them in building strong software systems, step by step. The Design and Analysis of Algorithms course turns students into efficient problem-solvers, empowering them to tackle complex coding tasks. Mobile Application Development encourages innovation, allowing students to create apps that could transform industries—imagine designing the next app used by millions.

For those intrigued by futuristic tech, Artificial Intelligence and Machine Learning explore smart systems, teaching how machines can think and learn. Software Testing and Quality Assurance ensure every product is flawless, highlighting the importance of precision. The program also covers Human-Computer Interaction for designing user-friendly tech, Theory of Computation to understand programming fundamentals, and Operations Research to optimize real-world problems. Additionally, Career Skills sharpens professional abilities, while the Mini Project/Research Seminar offers a platform to showcase creativity and innovation.

With a strong emphasis on hands-on learning, problem-solving, and career readiness, this program prepares students to become tech leaders, ready to innovate and thrive in the ever-changing world of computer applications.

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Master of Computer Applications
Semester - IV Summary

The fourth semester postgraduate courses in Computer Applications are designed to equip students with cutting-edge skills and hands-on experience to tackle real-world challenges in the tech industry. These courses blend theoretical knowledge with practical applications, ensuring students are career ready.

Data Science using R focuses on data analysis, visualization, and predictive modeling, enabling students to extract meaningful insights from complex datasets. Cryptography and Cybersecurity/Information Security teach students to secure digital systems, emphasizing encryption techniques and threat mitigation strategies. These skills are critical in today's data-driven and security-conscious world.

Computer-Aided Simulation and Modeling introduces students to tools for simulating real-world systems, enhancing their problem-solving and decision-making abilities. C# and .NET provides expertise in building robust applications, while Advanced Graphics and Visual Computing explores rendering techniques and visual data representation, essential for gaming, VR, and multimedia industries.

Soft Computing introduces AI techniques like neural networks and fuzzy logic, preparing students for intelligent system design. Internet of Things (IoT) covers smart device integration and data communication, a growing field in automation and smart technologies.

Students also choose from General Electives like Digital Marketing and Personal Finance, which add versatility to their skill set. The Data Science Laboratory offers hands-on practice with real datasets, reinforcing analytical skills.

The program culminates with an Internship/Dissertation/Capstone Project, where students apply their knowledge to solve industry-specific problems, bridging the gap between academia and the professional world.

These courses emphasize hands-on learning, problem-solving, and career-oriented skills, preparing students to excel in diverse roles such as data scientists, cybersecurity experts, software developers, and IoT specialists. With a focus on practical applications and emerging technologies, this program ensures students are well-equipped to thrive in the dynamic field of computer applications.