

# Common MCA (Master of Computer Applications) General Syllabus

## SEMESTER 1

1. Computer Organization and Architecture
2. Problem Solving and Programming in C
3. Discrete Mathematics
4. Database Management Systems (DBMS)
5. Communication and Soft Skills
6. DBMS Lab / C Programming Lab

## SEMESTER 2

1. Data Structures and Algorithms
2. Object-Oriented Programming using C++ / Java
3. Operating Systems
4. Computer Networks
5. Numerical and Statistical Computing
6. Data Structures Lab / OOP Lab

## SEMESTER 3

1. Design and Analysis of Algorithms
2. Software Engineering and Project Management
3. Web Technologies (HTML, CSS, JavaScript, PHP)
4. Data Science and Machine Learning (Introductory)
5. Elective - I (Artificial Intelligence / Cloud Computing / Data Mining)
6. Mini Project / Lab Work

## SEMESTER 4

1. Advanced Java and Frameworks (Spring / Hibernate)
2. Mobile Application Development (Android / iOS)
3. Data Analytics and Big Data
4. Elective - II (Cyber Security / Blockchain / IoT)
5. Seminar / Internship / Project Work Phase I

## SEMESTER 5

1. Artificial Intelligence and Neural Networks
2. Cloud Computing and Virtualization
3. Advanced Database Technologies (NoSQL, MongoDB)
4. Elective - III (AR/VR / Advanced Python / DevOps)
5. Project Work Phase II / Dissertation / Viva Voce

## ELECTIVE SUBJECTS (Depending on University)

- Cyber Security and Ethical Hacking
- Internet of Things (IoT)
- Blockchain and FinTech Applications
- Business Analytics and Intelligence
- Natural Language Processing (NLP)
- Advanced Web Technologies

Note: This syllabus provides a general framework based on the common structure followed by AICTE/UGC-approved universities for the MCA (General) program. The course titles, lab structure, and electives may vary slightly across institutions.