

DEPARTMENT OF COMPUTER SCIENCE

Faculty of Sciences, Jamia Millia Islamia (Central University)

MCA Program (NEP-Compliant): 2026-27

MCA Program: Summary & Highlights

Duration	4 Semesters (2 Years)/2 Semesters (1 Year) for 3-Year/4-year UG Entrants - Maximum span period: 2/4 years
Mid-Term Exit	With PGDCA on completion of the 2 Semesters (with 40 valid credits & other university prescribed requirements) & on a written formal request by the candidate
Mode	Regular/Offline (+Online, as per University Norms)
Goal	Upskilling with upfront ICT capabilities to enhance employability, entrepreneurship and R&D.
Context	- Diverse intake with or without a background in computer science, mathematics, etc. - Increasing intake with Computer Science graduates (3⁺ Years). - Accommodation of Core-Courses, while significantly reducing repetition with advanced courses. - Exit after two years for 3-Year UG & after First-Year for 4-Year UG incumbents. - Introducing a blend of Research & Development, as per NEP's spirit. - Choice based credit system extending need-based course options by students.
Objectives	- Build state-of-the-art, strong theoretical and technical skills in computer applications, development, services, operations, maintenance, and R&D. - Develop new problem-solving abilities by enhancing students' analytical and critical thinking skills to solve both computer-related and broader problems. - Ensure higher-order learning and creative applications for coping with the challenges ahead.
Targeted Outcomes	- Proficiency in state-of-the-art problem-solving ability to adapt to the latest developments. - Integrative problem-solving, researching and troubleshooting skills. - Improved evidence-based analytical, technical, communication and teamwork skills.
Courses (Cr) Highlights	Core (Theoretical):10(30 Cr), Elective (Theoretical):03(9 Cr), Labs:07 (14 Credits), Project/Dissertation:03(25 Cr), Term Paper/Seminar:02(07 Cr)
Projects	It is supposed to be a temporary but planned endeavour designed to produce a unique artefact, product, service, or result within defined constraints of time, cost, and scope. Its focus is on integrative problem-solving skills and applications, well beyond just understanding. Key phases generally include the Initiation, Feasibility Study, Planning, Design, Methodical Implementation, Execution, and Closure.
Seminar	It's an individual micro-level study of a chosen emergent topic of relevance under the guidance of an expert teacher. Generic steps to achieving a successful and smooth-running seminar include: (a) Determine the Who, what, When, Where, and Why; (b) Perform a Methodical Literature Review; (c) Develop a Write-Up with Insights; (d) Prepare for the Presentation; (e) Present and Defend.
Term Paper	It involves choosing an emerging topic, conducting substantial research, and writing a structured paper with a strong thesis statement. The process generally includes an introduction, literature review or body paragraphs, analysis, and a conclusion, adhering strictly to academic formatting and citation guidelines

SEM	CODE	COURSE TITLE	L-T-P	CR	SEM-CR
I	CS611	Advanced Computer Architecture	3-0-0	3	19
	CS612	Distributed Systems	3-0-0	3	
	CS613	OOP with Java	3-0-0	3	
	CS614	Non-Linear Data Structures	3-0-0	3	
	CSL615	Lab-I (Java)	0-0-4	2	
	CSL616	Lab-II (Data Structures)	0-0-4	2	
	CSE617	Elective-I	3-0-0	3	
II	CS621	Advanced Algorithmics	3-0-0	3	21
	CS622	Data Mining & Warehousing	3-0-0	3	
	CS623	Modern SE Practices	3-0-0	3	
	CSL624	Lab-III (Algorithmics)	0-0-4	2	
	CSL625	Lab-IV (Data Mining)	0-0-4	2	
	CSP626	Minor Project& Seminar	0-1-8	5	
	CSE627	Elective-II	3-0-0	3	
III	CS631	Network Science	3-0-0	3	22
	CS632	AI & Deep Learning	3-0-0	3	
	CSL633	Lab-III (Deep Learning)	0-0-4	2	
	CSP634	SLR & Term Paper	0-1-4	3	
	CSP635	Mini Project	0-1-8	5	
	CSE636	Elective-III	3-0-0	3	
	CSE637	Elective-IV	3-0-0	3	
IV	CSP641	Project / Dissertation	0-4-20	14	18
	CSP642	Term Paper & Seminar	0-1-6	4	

Total Credits (UGC's Minimum Requirements for the award of the degree: 80)

Note: Note: Course code of specific electives courses shall be assigned during ongoing semesters.

DEPARTMENTAL ELECTIVES

Postgraduate Elective Courses

(To be chosen by students, provided it avoids repetition of previously studied UG/PG courses)

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| <ul style="list-style-type: none"> • Advanced Analytics • Advanced SQL & Optimization • Advanced Web & Graphics Design • Blockchain Technology • Blockchain Technology and Applications • Business Analytics • Business Intelligence • CBSE • Cloud Database Administration • Combinatorial Optimization • Data Warehousing & Analytics • Database Architecture & Internals • Distributed Databases • Embedded Systems, • Formal Methods in SE • Front-End Frameworks • Full-Stack Development • High-Performance Computing • Human-Computer Interaction • Internet of Things • Industrial & Embedded IoT • IT and Security Auditing • Mobile App Development, • Data Ops & MLOps • Modelling & Simulation • Multimedia Technology and Applications • NoSQL & Big Data • Quantum Algorithms • Quantum Computing • RAG and LangChain Framework • Scientific Computing • Scientific Research Methodology • Scientific Research Methodology • Social Informatics • Software Architecture & Design • Software Project Management • Software Testing & Quality Assurance • Statistical Research and Inference • Text Mining • Theoretical Computer Science • Web Analytics & SEO • Web technology and Applications • Website Design and Management | <ul style="list-style-type: none"> • Applied Informatics • Advanced Computer Networks • AR/VR Development • Big Data Analytics • Computer Architecture • Computer Graphics • Computer Forensics • Cyber Forensics • Cyber Security • Cyber Security and Privacy • Data Science with Python • Data Science and AI Tools • Data Security • Data Warehousing and Mining • Database Management System • Deep Learning • Deep Learning for Computer Vision • Demystifying Networking • Design and Analysis of Algorithms • Digital Forensics • E-Business • E-Learning Technologies • Ethical Hacking • Experimental Research Methodology • Graph Algorithms • ICT Infrastructural Security • Information Security Management • Intelligent Agents • Intelligent Systems • Introduction to Industry 4.0 and IIoT • Introduction to Large Language Models • Introduction to Machine Learning • IoT Security & Cloud • Neural Networks • Practical Cyber Security for Practitioners • Programming In Java • Programming with Python/R • Research and Publication Ethics • Responsible and Safe AI Systems • Social Network Analysis • Unix & Shell Programming • Web Security and Services • Windows Programming |
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NOTES

1. Detailed syllabi of these courses shall be framed and added to the curricula, as and when offered and executed, on the approval of BoS.
2. Elective courses may be offered beyond this list, on due approval of the BoS, from time to time.