

DEPARTMENT OF COMPUTER APPLICATIONS

MCA STRUCTURED SYLLABUS - FIRST YEAR AND FIRST SEMESTER OF MCA2026 ADMISSION BATCH

Course Code	Course Title	Total No. of Contact Hours				Total No. of Credits
		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
1st Semester (Theory)						
MCA101	Computer Organisation and Architecture	4	1	0	5	3
MCA102	Computer Programming with C	4	1	0	5	4
MCA103	Data Structures with C	4	1	0	5	4
MCA105	Business English and Communication	3	1	0	4	3
MCA106	Computational Mathematics and Statistics	3	1	0	5	4
ESCP101	Essential Studies for Computer Professionals - I	3	0	0	3	2
Total of Theory					27	20
1st Semester (Practical)						
MCA192	C Programming Laboratory	0	0	4	4	3
MCA193	Data Structures Laboratory using C	0	0	3	3	3
Total of Practical					7	6
1st Semester (Sessional)						
MCA171	Research Methodology and IPR	2	1	0	3	2
MCA172	Python Programming Fundamentals	0	0	3	3	2
IFC	Industry and Foreign Certification	0	0	0	0	0
MAR	Mandatory Additional Requirements	0	0	0	0	0
MOOCs	Massive Open Online Course	0	0	0	0	0
SAR	Skill Additional Requirements	0	0	0	0	0
Total of Sessional					6	4
Total of the Semester					40	30

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Course Code	Course Title	Total No. of Contact Hours				Total No. of Credits
		Lecture	Tutorial	Practical	Total Hours	
		(L)	(T)	(P)		
2 nd Semester (Theory)						
MCA201	Database Management System	3	1	0	4	4
MCA202	Object-Oriented Programming with Java	3	1	0	4	4
MCA203	Data Communication & Computer Networks	3	1	0	4	3
MCA204	Advanced-Data Structures and Algorithms with Python	3	1	0	4	4
MCA205	Artificial Intelligence and Machine Learning	3	1	0	4	4
MCA(GS)201	General Studies & Current Affairs-II	3	0	0	3	1
Total of Theory					23	20
2 nd Semester (Practical)						
MCA291	Database Management System Laboratory	0	0	3	3	3
MCA292	Object-Oriented Programming with Java Laboratory	0	0	3	3	3
MCA294	Advanced-Data Structures with Python Laboratory	0	0	3	3	3
MCA295	Artificial Intelligence and Machine Learning Laboratory	0	0	3	3	3
Total of Practical					12	12
2 nd Semester (Sessional)						
IVC272	Economics, Finance and Entrepreneurship Skills - Intermediate	1	0	0	2	0
	PPT - TECHNICAL				3	
IFC	Industry and Foreign Certification	0	0	0	0	0
MAR	Mandatory Additional Requirements	0	0	0	0	0
MOOCs	Massive Open Online Course	0	0	0	0	0
Total of Sessional					5	0
Total of the Semester					40	32

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Course Code	Course Title	Total No. of Contact Hours				Total No. of Credits
		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
3rd Semester (Theory)						
MCA301	Operating Systems and Systems Software	4	1	0	5	3
MCA302	Software Engineering & TQM	4	1	0	5	4
MCA303	Generative and Agentic AI	4	1	0	5	3
MCA304A/B/C/D	Professional Elective - I	4	1	0	5	3
MCA305A/B/C/D	Open Elective - I	2	0	0	2	2
MCAGS301	General Studies & Current Affairs - IV	3	0	0	3	1
Total of Theory					25	16
3rd Semester (Practical)						
MCA392	Software Project Management Laboratory	0	0	2	2	3
MCA393	Generative and Agentic AI Laboratory	0	0	2	2	3
Total of Practical					4	6
3rd Semester (Sessional)						
MCA371	Sustainability, Climate Action and Environmental Sciences	3	0	0	3	2
MCA381	Industrial Training	0	0	0	0	2
MCA382	Minor Project	0	0	8	8	6
MCA383	Seminar	0	0	0	0	1
IFC	Industry and Foreign Certification	0	0	0	0	0
MAR	Mandatory Additional Requirements	0	0	0	0	0
MOOCS	Massive Open Online Courses	0	0	0	0	0
Total of Sessional					11	11
Total of the Semester					40	33

Professional Elective - I		Open Elective - I	
Course Code	Topic	Course Code	Topic
MCA304A	Distributed Database Management	MCA305A	Organizational Behavior and Human Resources
MCA304B	Image Processing	MCA305B	Financial Accounting and Management
MCA304C	Cyber Security	MCA305C	E-Commerce and Digital Marketing
MCA304D	Cloud Computing	MCA305D	Supply Chain Management



Institute of Engineering & Management, Kolkata
Newtown
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		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
4 th Semester (Theory)						
MCA401	Values and Ethics	2	0	0	3	2
MCA402	Professional Elective - II	2	0	0	3	3
MCA(GS)401	General Studies & Current Affairs - IV	2	0	0	2	1
Total of Theory					8	6
4 th Semester (Practical)						
MCA491	Major Project	0	0	32	32	15
Total of Practical					32	15
4 th Semester (Sessional)						
IFC	Industry and Foreign Certification	0	0	0	0	0
MAR	Mandatory Additional Requirements	0	0	0	0	0
MOOCS	Massive Open Online Courses	0	0	0	0	0
Total of Sessional					0	0
Total of the Semester					40	21
Total of Program CREDIT					116	

Professional Elective - II	
Course Code	Topic
MCA402A	Compiler Design
MCA402B	Mobile Computing
MCA402C	Embedded Systems
MCA402D	Natural Language Processing