

SCHEME OF EXAMINATION

&

DETAILED SYLLABUS

(w. e. f. Academic Year 2020-2021 onwards)

For

**MASTER OF COMPUTER
APPLICATIONS (MCA) DEGREE
(02 Years)**

**Offered at affiliated Institutes of GGSIPU
from A.S. 2020-21 onwards**



**GURU GOBIND SINGH
INDRAPRASTHA UNIVERSITY
SECTOR 16C, DWARKA, NEW DELHI**

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Master of Computer Applications (MCA)

Programme Education Objectives (PEO):

It is envisioned that the graduates passing out MCA degree, will achieve the following objectives and accomplishments, in a span of 05 – 10 years time, after having passed the MCA degree:-

PEO	Detailed Statement of the PEO
PEO1	Exhibit professional competencies and knowledge for being a successful technocrat.
PEO2	Adopt creative and innovative practices to solve real-life complex problems.
PEO3	Be a lifelong learner and contribute effectively to the betterment of the society.
PEO4	Be effective and inspiring leader for fellow professionals and face the challenges of the rapidly changing multi-dimensional, contemporary world.

Programme Outcomes (POs):

It is envisioned that the graduates passing out MCA degree, will be able to possess following Graduate Attributes and demonstrate related competencies:-

PO #	GA Theme	Detailed Statement of the PO
PO1	Computational Knowledge (CK)	Demonstrate competencies in fundamentals of computing, computing specialization, mathematics and domain knowledge suitable for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
PO2	Problem Analysis (PA)	Identify, formulate and analyze complex real-life problems in order to arrive at computationally viable conclusions using fundamentals of mathematics, computer sciences, management and relevant domain disciplines.
PO3	Design / Development of Solutions (DDS)	Design efficient solutions for complex, real-world problems to design systems, components or processes that meet the specifications with suitable consideration to public health, safety, cultural, societal and environmental considerations.
PO4	Conduct Investigations of Complex Computing Problems (CICP)	Ability to research, analyze and investigate complex computing problems through design of experiments, analysis and interpretation of data and synthesis of the information to arrive at valid conclusions.
PO5	Modern Tool Usage (MTU)	Create, select, adapt and apply appropriate technologies and tools to a wide range of computational activities while understanding their limitations

PO #	GA Theme	Detailed Statement of the PO
PO6	Professional Ethics (PE)	Ability to perform professional practices in an ethical way, keeping in the mind cyber regulations & laws, responsibilities and norms of professional computing practices.
PO7	Life-long Learning (LLL)	Ability to engage in independent learning for continuous self-development as a computing professional.
PO8	Project Management and Finance (PMF)	Ability to apply knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.
PO9	Communication Efficacy (CE)	Ability to effectively communicate with the technical community and with the society at large about <i>complex</i> computing activities by being able to understand and write effective reports, design documentation, make effective presentations with the capability of giving and taking clear instructions.
PO10	Societal and Environmental Concern (SEC)	Ability to recognize and assess societal, environmental, health, safety, legal and cultural issues within local and global contexts and the consequential responsibilities applicable to professional computing practices.
PO11	Individual and Team Work (I&T)	Ability to work in multi-disciplinary team collaboration both as a member and leader, as per need.
PO12	Innovation and Entrepreneurship (I&E)	Ability to apply innovation to track a suitable opportunity to create value and wealth for the betterment of the individual and society at large.



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FIRST SEMESTER EXAMINATION

Paper ID	Paper Code	Paper	L	T/P	Credit
	MCA-101	Discrete Structures	3	1	4
	MCA-103	Computer Networks	3	1	4
	MCA-105	Operating Systems with Linux	3	1	4
	MCA-107	Database Management Systems	3	1	4
	MCA-109	Object Oriented Programming and JAVA	3	1	4
Practical & Project					
	MCA-161	Computer Networks Lab.	0	2	1
	MCA-163	Operating Systems with Linux Lab.	0	2	1
	MCA-165	Database Management Systems Lab.	0	2	1
	MCA-167	Object Oriented Programming and JAVA Lab.	0	2	1
	MCA-169	Minor Project – I	0	6	3
NUES*					
	MCA-171	Professional Proficiency – I (It is suggested to have Personality Development and Communication Skills Course)	0	2	1
Total			15	21	28

* Non-University Examination System (NUES)

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SECOND SEMESTER EXAMINATION

Paper ID	Paper Code	Paper	L	T/P	Credit
	MCA-102	Data and File Structures	3	1	4
	MCA-104	Object Oriented Software Engineering	3	1	4
	MCA-106	Python Programming	3	1	4
Core Elective - I (Choose any One)					
	MCA-108	Advanced Database Management Systems	3	1	4
	MCA-110	Data Warehousing and Data Mining			
	MCA-112	Mobile Applications Design and Development			
	MCA-114	Full Stack Development			
	MCA-116	Web Technologies			
	MCA-118	Theory of Computations			
	MCA-120	Software Testing			
	MCA-122	Microprocessors			
	MCA-124	Embedded System			
	MCA-126	Information Security			
Open Elective - I (Choose any One)					
	MCA-128	Digital Marketing	3	1	4
	MCA-130	Management Information System			
	MCA-132	Management Principles and Organizational Behavior			
	MCA-134	Finance and Accounting			
Practical & Project					
	MCA-162	Data and File Structures Lab.	0	2	1
	MCA-164	Object Oriented Software Engineering Lab.	0	2	1
	MCA-166	Python Programming Lab.	0	2	1
	MCA-168	Lab. based on Core Elective - I	0	2	1
	MCA-170	Minor Project – II	0	6	3
NUES*					
	MCA-172	Environment Science (NUES)	3	0	3
	MCA-174	Professional Proficiency – II (It is suggested to have Technical Paper Writing Course)	0	2	1
Total			18	21	31

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THIRD SEMESTER EXAMINATION

Paper ID	Paper Code	Paper	L	T/P	Credit
	MCA-201	Design and Analysis of Algorithms	3	1	4
	MCA-203	Artificial Intelligence and Machine Learning	3	1	4
Core Elective - II (Choose any One)					
	MCA-205	Statistics and Data Analytics	3	1	4
	MCA-207	Enterprise Computing with JAVA			
	MCA-209	Natural Language Processing			
	MCA-211	Computer Graphics			
	MCA-213	Wireless Sensor Networks			
	MCA-215	Software Project Management			
	MCA-217	Advanced Computer Architecture			
	MCA-219	Distributed Systems			
	MCA-221	Applied Cryptography			
	MCA-223	Cloud Computing			
	MCA-225	e-Business Systems			
Core Elective - III (Choose any One)					
	MCA-227	Web Intelligence and Big Data	3	1	4
	MCA-229	Flutter and Dart			
	MCA-231	Service Oriented Architecture			
	MCA-233	Multimedia Technologies			
	MCA-235	Internet of Things			
	MCA-237	Soft Computing			
	MCA-239	Software Quality Management			
	MCA-241	Digital Image Processing			
	MCA-243	Compiler Design			
	MCA-245	Parallel Computing			
	MCA-247	Numerical and Scientific Computing			
Open Elective - II (Choose any One)					
	MCA-249	Research Methodology	3	1	4
	MCA-251	Operational Research			
	MCA-253	Cyber Security and Cyber Laws			
	MCA-255	e-Content Development			
Practical & Project					
	MCA-261	Design and Analysis of Algorithms Lab.	0	2	1
	MCA-263	Artificial Intelligence and Machine Learning Lab.	0	2	1
	MCA-265	Lab. based on Core Elective - II	0	2	1
	MCA-267	Lab. based on Core Elective - III	0	2	1

	MCA-269	Minor Project – III	0	6	3
NUES*					
	MCA-271	Entrepreneurship Mindset (NUES)	3	0	3
	MCA-273	Professional Proficiency – III (It is suggested to have IPR, Human Values and Professional Ethics Course)	0	2	1
Total			18	21	31

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