EXAMINATION SCHEME

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

For

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

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

Master of Computer Applications

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	Principles and Practices of Management & Organizational Behavior			
	MCA-134	Financial 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	Professional Proficiency – II (It is suggested to have Technical Paper Writing Course)	0	2	1
		Total	**15**	**21**	**28**

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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, Cyber Warfare, IT Act 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	Professional Proficiency – III (It is suggested to have IPR, Human Values and Professional Ethics Course)	0	2	1
Total			**15**	**21**	**28**

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FOURTH SEMESTER EXAMINATION

Paper ID	Paper Code	Paper	L	T/P	Credit
	MCA-202	Dissertation	-	-	26
NUES*					
	MCA-272	One MOOC Course (from SWAYAM Platform)	-	-	2
	MCA-274	Professional Proficiency – IV (Seminar and Progress Report)	-	-	4
		Total	**-**	**-**	**32**

* Non-University Examination System (NUES)

Important Notes:
1. As mandated by the statutory bodies, every student shall be given 03 weeks induction training in the beginning of the first semester. Detailed guidelines for the same shall be finalized through Programme Co-ordination Committee.
2. Institutions shall also be required to facilitate the non-computer science students for successfully completing the Bridge Courses from MOOC platform. If required, Institution may also conduct make-up classes or tutorial sessions for such students.
3. In order to conduct classes for Electives (Core or Open), there must be a minimum of 20 students in that Elective. However, if the numbers of students are less than 20 in any of the Electives (Core or Open), the elective course may still be offered but no classes will be held and the students shall be required to successfully complete that course from the MOOC using SAWAYAM or other similar platforms. In that case, students shall be required to obtain prior approval of the Programme Co-ordination Committee for undertaking any course(s) from the MOOC platforms. Requirement of attendance, to such students, shall be waived off based upon the document of having completed the course from MOOC platforms. However, students shall be required to appear for the examinations conducted by the Institution / University to earn these credits. No direct credit transfer shall be allowed based upon the Certificate of having completed these electives courses from the MOOC platforms.
4. Detailed modalities of all the NUES Papers and MCA-202 (Dissertation) related guidelines for assessment and evaluation shall be followed as approved by the Programme Co-ordination Committee.
5. The total number of the credits of the MCA programme = **116**.
6. Each student shall be required to appear for examinations in all courses. However, for the award of the degree a student shall be required to earn the minimum of **110** credits.
7. Evaluation of Bridge Courses shall be based upon NUES mechanism. Institutions shall send these marks to the University as NUES Course, based upon the final MOOC Certificate. Detailed guidelines shall be approved by the Programme Co-ordination Committee.

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BRIDGE COURSE DETAILS
FOR
NON-COMPUTER SCIENCE STUDENTS
JOINING THE MCA PROGRAMME

Students from the non-computer Science background joining the MCA Programme will have to pass the following 05 papers from the MOOC using SWAYAM platform, in semester-wise order, as defined by the Programme Co-ordination Committee (considering the pre-requisites of different courses in different semesters) but, not later than the end of the 04th Semester. Final Degree shall be awarded only after completion of the following 05 papers:-

Paper Code	Paper Name	Reference of MOOC (on SAWAYAM) Course
BCMCA-001	Fundamentals of Computer Systems	**Course Title:** CIT-001: Fundamentals of Computer Systems **By:** Shri. Mangala Prasad Mishra **Coordinated By:** IGNOU **Course Duration:** 08 Weeks **Link:** https://swayam.gov.in/nd2_nou20_cs03/preview
BCMCA-002	Computer Architecture and Organization	**Course Title:** Computer Architecture and Organization **By:** Prof. Indranil Sengupta, Prof. Kamalika Datta **Coordinated By:** IIT, Kharagpur **Course Duration:** 12 Weeks **Link:** https://swayam.gov.in/nd1_noc20_cs64/preview
BCMCA-003	Introduction to Programming in C	**Course Title:** Introduction to Programming in C (106104128) **By:** Prof. Satyadev Nandakumar **Coordinated By:** IIT, Kanpur **Course Duration:** 08 Weeks **Link:** https://swayam.gov.in/nd1_noc20_cs91/preview
BCMCA-004	An Introduction to Programming through C++	**Course Title:** An Introduction to Programming through C++ (106101208) **By:** Prof. Abhiram Ranade **Coordinated By:** IIT, Bombay **Course Duration:** 12 Weeks **Link:** https://nptel.ac.in/content/syllabus_pdf/106101208.pdf
BCMCA-005	Software Engineering	**Course Title:** Software Engineering **By:** Prof. Rajib Mall **Coordinated By:** IIT, Kharagpur **Course Duration:** 12 Weeks **Link:** https://swayam.gov.in/nd1_noc20_cs68/preview

Note: In case of un-availability of any of the above mentioned courses from the MOOC (on SWAYAM platform), the same course(s) may be completed from any other Govt. approved platform, with prior approval from the Programme Co-ordination Committee.