

PROGRAMME PROJECT REPORT

MASTER OF COMPUTER APPLICATIONS (MCA)

Programme Name :- Master of Computer Applications (MCA)

Eligibility :- Candidate should have passed Bachelor's degree (or equivalent) examination (any stream) with English as a subject/medium of instruction is eligible for admission to the MCA Programme and according to the regulations for admission decided by regulatory authorities and CHARUSAT from time to time.

Duration :- 2 years (4 Semesters)

A. Programme's Mission and Objective:-

Mission

The mission of online Master of Computer Applications (MCA) program is to empower students with comprehensive theoretical knowledge and practical skills in computer applications through accessible, flexible, and innovative online education, fostering adept professionals for the evolving digital landscape. The program aims to produce competent computer professionals with the ability to face future challenges.

Objectives

The online Master of Computer Applications (MCA) programme is a two-year postgraduate programme that focuses on computer applications and software development. The objectives of the MCA programme may include:

1. Provide a rigorous curriculum that aligns with industry standards and emerging technologies in the field of computer applications.
2. Foster critical thinking and problem-solving abilities among students through hands-on projects and real-world case studies.
3. Offer flexibility and accessibility to accommodate the diverse needs of working professionals, enabling them to pursue higher education without career interruptions.
4. Cultivate a collaborative online learning environment that encourages active participation, peer interaction, and knowledge sharing.
5. Equip students with advanced technical skills in areas such as software development, database management, and system analysis, enhancing their competitiveness in the job market.
6. Facilitate mentorship and guidance from experienced faculty members and industry experts to support students' academic and professional growth.
7. Emphasize the ethical and responsible use of technology, instilling values of integrity, professionalism, and social responsibility in students.
8. Incorporate interdisciplinary perspectives and emerging trends in computing to prepare students for dynamic and evolving career paths.
9. Provide opportunities for networking, internships, and industry collaborations to bridge the gap between academia and the workplace.
10. Continuously assess and update the curriculum and delivery methods to ensure relevance, quality, and effectiveness in meeting the evolving needs of the digital age.

B. Relevance of the program with HEIs Mission and Goals:-

The online MCA programme is aligned with CMPICA's mission to create a learning environment that fosters creativity, innovation, and critical thinking among students. The programme is designed to provide a world-class education in computer science and applications, with a focus on developing skilled professionals who can make valuable contributions to the industry and society. The MCA programme also aims to provide an inclusive and diverse learning environment, which is essential for the development of professionals who can work effectively in multicultural and global environments. The programme provides opportunities for students to engage in practical and project-based learning, which helps them develop teamwork skills, leadership skills, and communication skills. These are essential skills that prepare students to become successful professionals in the field of computer science and applications.

C. Nature of prospective target group of learners:-

The programme aims at providing learning opportunities to a diverse group of learners falling under the category of non-traditional learners such as full-time working professionals, entrepreneurs, individuals in remote regions, non-residents and homemakers. The online MCA programme is apt for students who cannot afford to pursue the education in regular mode due to time, cost and distance constraints.

D. Appropriateness of programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence:-

The online MCA program will be delivered with flexibility, allowing students to learn at their own pace while balancing work, family, and education. The learning resources are designed to support self-sufficient, self-directed, and independent learning. The program will be supported by a robust Learning Management System, offering a variety of resources including e-tutorials, e-materials, e-assignments, quizzes, discussion forums for doubt-solving, assessment and progress tracking tools, and display of results.

E. Instructional Design:-

Title of the programme	: MCA
Minimum & Maximum Duration	: 2 Years
Medium of Instruction	: English
Listed in sec (22) of UGC Act 1956	: Yes
Number of Seats	: 1000
Optional Early Exit certification	: Not applicable
Credit transfer	: Not Applicable
Course Credits	: 1 credit – 15 learning hours 2 credits – 30 learning hours 3 credits – 45 learning hours 4 credits – 60 learning hours

Note: learning hours consists of student's involvement in self-study, referring the study material (videos, ppts, books etc.) taking quizzes, assignments, projects, management

games and activities, participation in discussion and one-to-one counselling sessions with faculty members.

Eligibility:

Candidate should have passed Bachelor's degree (or equivalent) examination (any stream) with English as a subject/medium of instruction is eligible for admission to the MCA Programme and according to the regulations for admission decided by regulatory authorities and CHARUSAT from time to time.

Programme Structure:

- The MCA programme is structured into four semesters, consisting of online learning for minimum 12 weeks per semester.

Programme Credits:

- Any student of the MCA programme who earns 108 credits by pursuing the prescribed course work and passing all tests, examinations, assignments, laboratory work, projects and all other evaluation components as per the passing standards of the University will be eligible for the award of the Master of Computer Applications (MCA) degree.

Semester-wise distribution of Credits for MCA:

Sr. No.	Semester	Number of Credits
1	Semester – 1	28
2	Semester – 2	24
3	Semester – 3	26
4	Semester – 4	30
	Total Credits	108

Teaching & Examination Scheme

Semester – I

Course Code	Course Title	Teaching Scheme				Examination Scheme				
		Contact Hours			Credit	Theory		Practical		Total
		Theory	Practical	Total		Internal	External	Internal	External	
CAOE501	Cloud Computing	3	-	3	3	30	70	-	-	100
CAOC505	Web Development using Open Source Technologies	2	3	5	5	30	70	30	70	200
CAOC506	Enterprise Computing using Java EE	3	3	6	6	30	70	30	70	200
CAOC507	Programming with .NET Architecture	2	3	5	5	30	70	30	70	200
CAOC508	Database Technologies	3	3	6	6	30	70	30	70	200

	Academic Speaking and Presentation Skills	-	3	3	3	-	-	30	70	100
Total		13	15	28	28	500		500		1000

Elective-I	
Course Code	Course Title
CAOE501	Cloud Computing
SWAYAM courses will be included as electives and updated periodically	

Semester-II

Course Code	Course Title	Teaching Scheme				Examination Scheme				
		Contact Hours			Credit	Theory		Practical		Total
		Theory	Practical	Total		Internal	External	Internal	External	
CAOE510	Python Web framework	3	3	6	6	30	70	30	70	200
CAOC513	Advanced Mobile Programming	3	3	6	6	30	70	30	70	200
CAOC514	Full-Stack Web Development	3	3	6	6	30	70	30	70	200
CAOC515	Software Engineering with Agile and DevOps	3	-	3	3	30	70	-	-	100
	Academic Writing	-	3	3	3	-	-	30	70	100
Total		12	12	24	24	400		400		800

Elective-II	
Course Code	Course Title
CAOE510	Python Web framework
SWAYAM courses will be included as electives and updated periodically	

Semester-III

Course Code	Course Title	Teaching Scheme				Examination Scheme				
		Contact Hours			Credit	Theory		Practical		Total
		Theory	Practical	Total		Internal	External	Internal	External	
CAOE601 – CAOE604	Elective-III	3	3	6	6	30	70	30	70	200
CAOC605	Software Quality Assurance	3	3	6	6	30	70	30	70	200
CAOC606	Mini Project	-	12	12	12	-	-	100	300	400
CAOC607	Green Computing		2	2	2	-	-	30	70	100
		06	20	26	26	200		700		900

Elective-III	
Course Code	Course Title
CAOE601	Digital Image Processing
CAOE602	Object Oriented Programming for Smart Contracts
CAOE603	Data Analytics
CAOE604	Internet of Things

Semester-IV

Course Code	Course Title	Teaching Scheme				Internal	External		Total
		Contact Hours			Credit	Continuous Evaluation	Report	Presentation & Viva	
		Inst.	Industry	Total					
CAOC608	Dissertation / Project Work	2	28	30	30	200	200	400	800

- Duration of the programme**

The minimum duration of the programme is 2 years.

- Instructional delivery mechanisms**

As the programme will offer in Online mode, there are various instructional delivery mechanisms and media will be used to effectively deliver content like Learning management system, webinars, video lectures, multimedia, online discussion forum as per requirement. A learning management system (LMS) is an online platform that provides a centralized location for students to access learning content, engage in discussions, submit assignments, and take assessments. The LMS provides a user-friendly interface that is accessible on multiple devices, such as desktops, laptops, tablets, and smartphones. Webinars can be used for lectures, discussions, or interactive sessions

with students. Pre-recorded video lectures can be used to deliver course content in a concise and engaging way. Interactive multimedia includes simulations, games, and quizzes that are designed to reinforce learning. Discussion forums can be used to facilitate group discussions, peer-to-peer learning, and to provide feedback and support. Online and face-to-face counselling will be provided by academic counsellors appointed for the programme.

F. Procedure for admissions, curriculum transaction and evaluation:-

Procedure for Admissions

For admission to MCA programme the aspiring candidates will have to adhere to the following steps:

Step-1: Online submission of Application form and relevant documents

Step-2: Document Verification

Step-3: If eligible – Directions to pay fees within given time

Step-4: Post Fees payment – Email of admission confirmation

Step-5: Getting the LMS credentials and access to students' portal

Curriculum Transaction

- Course curriculum will be designed by well-trained faculty members with relevant experience. Inputs from industry experts will be considered for ensuring the dynamic nature of the curriculum.
 - The course structure and curriculum will be approved through Board of Studies, Faculty Board and Academic Council of University. This will enhance the quality of the curriculum.
 - The Faculty Board of the Faculty of Computer Science and Applications and the Dean of the Faculty of Computer Science and Applications will keep the curricula current and in tune with the changes happening in the world of management and make it relevant to the needs of different organs of society.
 - The review of the programme, its structure, the course curricula, pedagogy and evaluation will be undertaken by the individual Boards of Studies at least once in every three years.
- **Fees Structure**

The programme fee structure will be as follows:

Course	No. of Semesters	Fee for 1st Year	Fee for 2 nd Year	Total Fee (for the entire programme)
MCA Programme Fees	4	75,000 INR	75,000 INR	1,50,000 INR
Course Examination Fee		7000 INR	7000 INR	14000 INR

- **Evaluation System**

To ensure uniform system of education, duration of undergraduate programme, eligibility criteria for and mode of admission, credit load requirement and its distribution between course and system of examination and other related aspects, following academic rules and regulations are recommended.

1. Course Evaluation

1.1 The performance of every student in each course will be evaluated as follows:

- 1.1.1 Internal evaluation by the course faculty member(s) based on continuous assessment, for 30% of the marks for the course; and
- 1.1.2 Final examination by the University through written paper or practical test or oral test or presentation by the student or a combination of any two or more of these, for 70% of the marks for the course.

1.2 University Examination

- 1.2.1 The final examination by the University for 70% of the evaluation for the course will be through written paper or practical test or oral test or presentation by the student or a combination of any two or more of these.
- 1.2.2 In order to earn the credit in a course a student has to obtain grade other than FF.
- 1.2.3 Performance at Internal & University Examination will be done on the relative grading system.

2. Grading

The student's performance in any semester will be assessed by the Semester Grade Point Average (SGPA). Similarly, his performance at the end of two or more consecutive semesters will be denoted by the Cumulative Grade Point Average (CGPA). The SGPA and CGPA are defined as follows:

Grading Scheme

Grading Scheme Range of Marks (%)	96.0-100	86.0-95.9	76.0-85.9	66.0-75.9	56.0-65.9	46.0 – 55.9	36.0 – 45.9	Below 36.0	Absent
Letter Grade	O (Outstanding)	A+ (Excellent)	A (Very Good)	B+ (Good)	B (Above Average)	C (Average)	P (Pass)	F (Fail)	Ab (Absent)
Grade Point	10	9	8	7	6	5	4	0	0

$SGPA = \sum C_i G_i / \sum C_i$ where C_i is the number of credits of course i
 G_i is the Grade Point for the course
 i and $i = 1$ to n , n = number of courses in the semester

$CGPA = \sum C_i G_i / \sum C_i$ where C_i is the number of credits of course i
 G_i is the Grade Point for the course
 i and $i = 1$ to n , n = number of courses of all semesters up to which CGPA is computed.

3. Detention Rule

A student will be promoted to next year only if he/she has cleared all the courses of the year he/she is studying in.

4. Awards of Degree

4.1 Every student of the programme who fulfils the following criteria will be eligible for the award of the degree:

4.1.1 He should have earned at least minimum required credits as prescribed in course structure; and

4.1.2 He should have cleared all evaluation components in every course; and

4.2 The student who fails to satisfy minimum requirement of CGPA will be allowed to improve the grades so as to secure a minimum CGPA for the award of degree. Only latest grade will be considered.

5. Award of Class

The class awarded to a student in the programme is decided by the final CGPA as per the following scheme:

Distinction:	CGPA ≥ 7 & ≤ 10
First class:	CGPA ≥ 6.0 & < 7
Second Class:	CGPA ≥ 5.0 & < 6.0
Pass Class:	CGPA < 5.0

6. Transcript

The transcript issued to the student at the time of leaving the University will contain a consolidated record of all the courses taken, credits earned, grades obtained, SGPA, CGPA, class obtained, etc.

G. Requirement of the laboratory support and Library Resources:-

In an online MCA program, laboratory support will be provided through various means such as virtual labs, cloud-based labs, or remote access to physical labs. Simulations and virtual labs will be used to provide students with a virtual environment in which they can perform practical tasks. In some cases, it may be possible to provide students with remote access to physical labs. Moreover, Instructors will record practical demonstrations and provide students with access to these videos. Students can watch these videos and practice the tasks on their own computers. Instructors will use video conferencing tools to demonstrate practical tasks and answer students' questions.

H. Cost estimate of the programme and the provisions:-

The programme fee structure will be as follows:

Course	No. of Semesters	Fee for 1st Year	Fee for 2nd Year	Total Fee (for the entire programme)
MCA Programme Fees	4	75,000 INR	75,000 INR	1,50,000 INR
Course Examination Fee		7000 INR	7000 INR	14000 INR

I. Quality assurance mechanism and expected programme outcomes:-

The programme structure of online MCA programme is developed under the guidance of the expert committee and Board of Studies and Faculty Board. It is developed as per the guideline of statutory bodies. It is approved by Board of Studies, Faculty Board and Academic Council of the University. Every year the curriculum of the course will be reviewed as per the need of IT Industry and forwarded to the Board of Studies, Faculty Board and Academic Council with suggestions.

The changes in the course curriculum as per the needs and requirements from time to time. The University will help the passed-out students in their placement in different industries through the training and placement cell.

Quality of the instructions delivered will be regularly assessed through students' feedback on instructional methodology, LMS platform and experience while learning. Feedback of stakeholders viz. Industry experts, Employers, Alumni, Parents will be taken for further improvement.

CIQA will play a major role in ensuring the quality of online education and reviewing the teaching learning and evaluation process.

CIQA will be responsible to improve the standards of online education through strategic planning, implementation, regular academic audits and Annual Quality Assurance Report to be submitted to NACC on regular basis

The expected programme outcomes are as follows. The Graduate of MCA programme will be able to:

1. Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.
2. Identify, critically analyze and formulate complex computing problems using fundamentals of computer science and application domains.
3. Transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies
4. Devise and conduct experiments, interpret data and provide well informed conclusions.
5. Select modern computing tools, skills and techniques necessary for innovative software solutions
6. Apply and commit professional ethics and cyber regulations in a global economic environment.
7. Recognize the need for and develop the ability to engage in continuous learning as a Computing professional.
8. Understand, management and computing principles with computing knowledge to manage projects in multidisciplinary environments.
9. Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations.
10. Recognize economical, environmental, social, health, legal, ethical issues involved in the use of computer technology and other consequential responsibilities relevant to professional practice.
11. Work as a member or leader in diverse teams in multidisciplinary environment.
12. Identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.