



**M. C. E. Society's Allana Institute of
Management Sciences, Pune**

Constituent college of

DR. P. A. Inamdar University, Pune

FACULTY OF COMPUTER APPLICATIONS & IT

Master of Computer Applications (MCA)

**MCA Program Introduction, Eligibility
criteria & Syllabus Structure**

**Two years, Four Semesters, Full time Program
Under Choice Based Credit System (CBCS)**

&

**Outcome Based Education (OBE) Pattern
as per UGC, AICTE and NEP-2020 Guidelines
Syllabus Effective from 2023**

Maharashtra Cosmopolitan Education Society's

Dr. P.A INAMDAR UNIVERSITY, PUNE

Faculty of Computer Application and IT

MCA Programme Curriculum (2023-2025)

Syllabus Effective from 2023 Under Choice Based Credit System (CBCS) and as per UGC, AICTE and NEP-2020 Guidelines

Effective from AY 2023-2024

1.0 Preamble:

1. The Name of the program is Master of Computer Application (MCA)
2. The curriculum implements Outcome Based Education along with Choice Based Credit System and Grading System.
3. The main objectives of MCA Programme are to prepare the students industry ready and to take up positions as software developers, programmers, system analysts, system engineers, software engineers, data scientist and versatile IT corporate and academic faculty in the area of computer applications.
4. Accordingly, the MCA program curriculum at DrPAI University is developing IT entrepreneurs and IT professionals.

1.1 Vision, Mission, Quality Policy and Values

Vision

To be one of the most adorable, admired and trustworthy management institutes in India.

Mission

To provide practical and comprehensive management education.

To provide value-based IT education.

To provide development and growth opportunities to faculty and staff.

To create dependable and innovative professionals committed to the nation.

To foster scientific culture at the institute.

Mission of MCA Program

1. To provide applied and value-based IT education.
2. To prepare the students for suitable IT opportunities.
3. To create IT professionals that meet the requirements of changing trends in the IT industry and are committed to the Society and Nation.
4. To Produce professionals who can work through IT problems and provide practical solutions.
5. To develop scientific culture in the faculty and students.
6. To instil values, ethics and professionalism in the students.

Quality Policy

We continuously seek opportunities for improvement, to meet and exceed the needs of our students through a process of self-evaluation and continuous improvement. At AIMS, we are committed to qualitative education to eligible persons, thus creating human assets and enhancing intellectual capital. Our management training provides self-dependability, innovativeness, sociability, sensitivity and adherence to excellence.

Values

Integrity, Passion for truth and innovation, Humanity, Social Equality and Respect.

2 Program Introduction

The M.C.A. Program is a full-time two-year 112 credits Master's degree in Computer Applications offered by Dr. P. A. INAMDAR University (DrPAI University), Pune and conducted at its Allana Institute of Management Sciences, (MCA) Pune. The institute has excellent faculties, Laboratories, Library, and other facilities to provide a proper learning environment. The expectations and requirements of the software industry, immediately and in the near future, are visualised while designing the MCA programme.

2.1 Key Features:

- ❖ Two-year Computer Application program with creative and professional Core subjects Latest Technology of the industry.
- ❖ Professional Ability Enhancement subjects and number of Electives around the core and allied creative or technical fields
- ❖ Practical Training, Mini Projects and industrial exposure of around six months

2.2 Scope of the Program

The curriculum of an MCA programme includes Machine learning, Artificial Intelligence, Networking, Big Data, Mobile Application, Cloud Computing, business analytics to name a few. There is ample scope in the field of Information Technology with a lot of job opportunities. Candidates having an MCA degree may have great opportunities in top IT companies and top consultancy firms.

Some of the top job profiles for MCA graduates are App Developer, Business Analyst, and Database Engineer etc. Pursuing MCA from a recognized university opens various career paths not only within the country but also outside.

2.3 Program Objectives:

The basic objective of the Master of Computer Application (MCA) is to provide a steady stream of necessary Computer application knowledge, skills and foundation for acquiring a wide range of rewarding careers into rapidly expanding world of Information Technology

1. The main objectives of MCA Programme are to prepare the students industry ready and to take up positions as software developers, programmers, system analysts, system engineers, software engineers, data scientists, database designers and administrator, network engineers, and versatile IT corporate and academic faculty in the area of computer applications.
2. Accordingly the course curriculum aims at developing IT Professionals, IT Entrepreneur and IT experts for solving real world problems.
3. Innovation is a never-ending journey, and this would require skilled IT professionals all the time, which is one of the biggest advantages of pursuing MCA.
4. In addition, 'Social Interaction Skills', 'Communication Skills', 'Life Skills', 'Entrepreneurial Skills', and 'Research and analytical skills' which are necessary for career growth and for leading quality life are also imparted.

4.1 Eligibility for Admission

1. The candidate should be an Indian National

2. The candidate should have passed B.C.A. or B. Sc. (Computer Science) or B. Sc. (IT) or B.E. (CSE) or B. Tech. (CSE) or B.E. (IT) or B.Tech. (IT) or equivalent Degree and obtained at least 50% marks in aggregate (at least 45% in case of candidates of Reserved categories, Economically Weaker Section and Persons with Disability category belonging to Maharashtra State)

3. The candidate should have passed any graduation degree (e.g.: B.E. or B.Tech. or B.Sc or B.Com. or B.A. or B. Voc. etc.) preferably with Mathematics at 10+2 level or at Graduation level and obtained at least 50% marks in aggregate (at least 45% in case of candidates of Reserved categories, Economically Weaker Section and Persons with Disability category belonging to Maharashtra State)

4. Valid score in any of the following common entrance examinations: MAH-MCA-CET, CMAT, & PERA

5. Obtained Score of any other State level Entrance Test of States in India

6. Obtained non zero positive score in Entrance Exam

7. Should have good communication skills

8. Should be able to converse, read and write in English given that the medium of instruction.

The decision of the admissions committee shall be final in deciding the selection of a candidate.

4.2 Admission Procedure :

Submit the Application Form either by visiting the campus or online (www.aimspune.org , www.drpaiu.edu.in/)
Review on scores in common entrance examinations(MAH-MCA-CET, CMAT, & PERA) and previous academic performance , Admission will be availed for the deserving candidate

4.2.1 Documents Required :

1. Entrance Exam Score Card.
2. SSC Marksheet (10th Standard)
3. HSC Marksheet (12th Standard / Diploma Marksheet
4. Degree Final Year Marksheet with all previous years marksheets
5. Leaving / Transfer Certificate
6. Domicile and Nationality Certificate
7. Migration Certificate (if applicable)
8. Caste Certificate (if applicable)
9. Three Colour Photos
10. Two Photocopies of the Above original Documents
11. Copy of ID- proof document (Aadhar card/ Driving Licence / PAN card)
12. Copy of Address proof document (Aadhar card / Electricity bill / Ration card / Passport)

4.3 Documents Required for NRI Admissions:

NRI candidates should produce the Employer Certificate of the sponsor – either Father or Mother.
Application form with all details furnished Photocopies of the following

1. NRI bank account passbook (front page photo copy)
2. Passport copy of the parent having NRI status.
3. Passport copy of student (except for NRI-S candidates)
4. Equivalence Certificate issued by the Association of Indian Universities (AIU)
5. NRI Status Certificate in respect of father/mother.
6. Certificates of Educational Qualifications 10th Std/12th Std/Degree/Transfer Certificate / Migration Certificate (as applicable to specific program)
7. Medical Fitness Certificate
8. Undertaking Duly Countersigned by Parent/Guardian.
9. Copy of ID- proof document
10. Copy of Address proof document

4.4 Documents Required for International Admissions:

Indian VISA

All International students will require a student visa endorsed by this Institution for joining full-time courses. No other endorsement is acceptable. The visa should be valid for the prescribed duration of the course.

A visa is required for International students. Persons of Indian Origin (PIO), and Overseas Citizens of India (OCI) who possess either OCI (Overseas Indian Citizenship) or PIO cards do not require Indian Visa. OCI and PIO card gives them the freedom to visit India without a visa. OCI and PIO cards are multi-purpose lifelong visas for visiting India. However, those PIOs who do not have PIO or OCI cards have to apply for a student visa.

International Candidates should produce the following:

1. Proof of age
2. Proof of nationality
3. 10th Standard Grade mark sheet
4. 12th Standard Grade mark sheet
5. Degree Certificate , Marksheet
6. Photograph - three copies
7. Application form with all details furnished.

Photocopies of the following

1. International bank account passbook (front page photocopy)
2. Passport copy of student.
3. Equivalence Certificate issued by the Association of Indian Universities (AIU)
4. Certificates of Educational Qualifications 10th Std/12th Std/Degree/Transfer Certificate / Migration Certificate (as applicable to specific program).
5. Medical Fitness Certificate
6. Undertaking Duly Countersigned By Parent/Guardian.

4.5 Selection Basic

The selection would be made in accordance with the instructions periodically provided by Dr.PAIU University Pune and PERA and eligibility criterias led down by DTE Maharashtra State & AICTE new delhi time to time

5.0 MCA Program Focus:

5.1 PROGRAM EDUCATIONAL OUTCOMES(PEOs)

At the end of the MCA programme the learner will possess the following abilities as Learning Outcomes:

PO1: Apply IT information for offering value to stakeholders.

PO2: Design and evaluate IT solutions for complex problems, in order to meet specific needs of the corporate and society.

PO3: Application of research methodology in order to create new knowledge in the IT domain.

PO4: Application of modern computing techniques to multifaceted and complicated computing activities.

PO5: Abide by cyber regulations and commit to professional ethics.

PO6: Continuously engage in independent learning and develop as an IT professional.

PO7: Understand and apply computing knowledge to one's own work, and to teamwork in order to successfully handle computer related projects in a variety of fields.

PO8: Establish the right communication skills (read, write and present) in order to Communicate effectively with the corporate and IT community, and with society at large.

PO9: To Innovate and create Innovative IT ideas in order to add value to society at large.

PO10: To Identify the opportunity in order to create value & wealth for the betterment of all stakeholders.

5.2 Programme Outcomes (POs)

In general, TEN OUTCOMES have been identified and the curriculum and syllabi have been chosen in such a way that each of the courses meets one or more of these outcomes.

PO 1: IT Knowledge: Apply knowledge of IT fundamentals, Computer Applications, mathematics, and various domain knowledge appropriate for the IT specialisation to the abstraction and conceptualisation of Information sciences frameworks from defined problems and requirements.

PO 2: Design & Development of IT Solutions: Design and evaluate solutions for real world problems. Design, develop and evaluate IT projects, components, or processes, IT services that meet the specified needs with appropriate consideration for corporate, business world, public health and safety, cultural, societal, and environmental considerations.

PO 3: Conduct investigations of problems: Use research-based knowledge and research methods including design of IT experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 4: Usage of latest Computer Tools: Create, select, adapt, and apply appropriate techniques, resources, and latest computing tools to complex computer applications, with an understanding of the limitations.

PO 5: Professional Ethics: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional IT services.

PO 6: Long-Term Learning: Recognise the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PO 7: Project management and finance: Demonstrate 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 and in multidisciplinary environments.

PO 8: Communication Efficacy: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PO 9: Societal and Environmental Concern: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.

PO 10: Innovation and Entrepreneurship: Use of Innovative Technique to identify timely opportunities for creating value and wealth for the betterment of an individual and the Nation.

6. Medium of Instruction: The medium of Instruction will be English.

7. Attendance

For the term to be granted, the student must fulfil the requirement of 75% attendance in each semester in each subject. If the aforementioned condition is not met, the Director/Dean shall have the authority to prevent the student from appearing for an examination of a particular course.

8. Maximum Duration for completion of the Programme:

The candidates must complete the MCA programme by accumulating the necessary credits WITHIN 4 YEARS after the entrance date. If a student does not pass all of the credits within a total of four years, they will ultimately be judged to have failed. Such students will then need to reapply for admission in accordance with the criteria in effect at that time.

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MASTER OF COMPUTER APPLICATION (MCA)

SYLLABUS STRUCTURE

MCA FIRST YEAR

Semester I									
Sr. No	Subject Name	Course Code	Credit	Teaching Scheme			CCE1	CCE2	END TERM
				L	T	P			
1	Data Structure using C++	101	4	3	1		25	25	50
2	Operating System	102	4	3	1		25	25	50
3	Advance Scripting with HTML & CSS	103	4	3	1		25	25	50
4	Computer Networks and Data Communication	104	4	3	1		25	25	50
5	Open Elective 1	105	2	1	1			25	25
6	Value Added Course 1	106	2	1	1			25	25
7	Practical - C++ & Advance Scripting	107	4			4		50	50
8	Mini Project	108	4			4		50	50
TOTAL			28	700					

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SYLLABUS STRUCTURE

MCA FIRST YEAR

Semester II									
Sr. No	Subject Name	Course Code	Credit	Teaching Scheme			CCE1	CCE2	END TERM
				L	T	P			
1	Java Programming	201	4	3	1		25	25	50
2	Object Oriented Software Engineering	202	4	3	1		25	25	50
3	Advance DBMS	203	4	3	1		25	25	50
4	Advance Internet Technologies (Node JS & Angular)	204	4	3	1		25	25	50
5	Open Elective 2	205	2	1	1			25	25
6	Value Added Course 2	206	2	1	1			25	25
7	Practical based on Java Programming & AIT	207	4			4		50	50
8	Mini Project	208	4			4		50	50
TOTAL			28	700					

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SYLLABUS STRUCTURE

MCA SECOND YEAR

Semester III									
Sr. No	Subject Name	Course Code	Credit	Teaching Scheme			CCE1	CCE2	END TERM
				L	T	P			
1	Python Programming	301	4	3	1		25	25	50
2	Optimization Technique	302	4	3	1		25	25	50
3	Data Warehousing & Data Mining	303	4	3	1		25	25	50
4	ASP.NET using C#	304	4	3	1		25	25	50
5	Open Elective 3	305	2	1	1			25	25
6	Value Added Course 3	306	2	1	1			25	25
7	Practical- Python Lab & ASP.NET using C#	307	4			4		50	50
8	Mini Project	308	4			4		50	50
TOTAL			28	700					

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SYLLABUS STRUCTURE

MCA SECOND YEAR

Semester IV									
Sr. No	Subject Name	Course Code	Credit	Teaching Scheme			CCE1	CCE2	END TERM
				L	T	P			
1	Knowledge Representation- Artificial Intelligence, ML & DL	401	4	3	1		25	25	50
2	Mobile Application Development	402	4	3	1		25	25	50
3	Software Project Management	403	4	3	1		25	25	50
4	Practical - KRAI & MAD Lab	404	4			4		50	50
5	Research and Information Technology Project	405	12			12		150	150
TOTAL			28	700					

List of Open Elective Courses :

SEMESTER I	SEMESTER II	SEMESTER III
1. Research Methodology	1 Business Intelligence Analyst (Visualisation tools PowerBi/Tableau)	1 Speech Recognition
2 Linux / Windows System Administration	2 NoSQL (MongoDB)	2 Data Science using Python / R Programming
3 SQL, PL/SQL,	3 MVC Framework(Codeigniter/Laravel)	3 Gesture recognition
4. Applied Statistical Methods	4 Cloud Computing (AWS/ Google Cloud/ MS Azure)	4 Robotic Process Automation (RPA)
5 Digital Marketing	5. PPM & OB	5 Digital Image processing
6. Content Management System(CMS) -WordPress /Joomla	6 Database Administration (Oracle/ MYSQL)	6 Big data Technologies
7. Data Privacy and Protection	7 BlockChain Technology	7 IT infrastructure- Devops
8. Scratch and MIT App Inventor Programming	8 Design Thinking & Problem Solving Skills	8 Image processing
9. Advanced Spreadsheet	9 Network & Cyber Security	9 Green Computing
10 MS-Back-Office	10. Entrepreneurship and Innovation	10 IoT & Smart Technologies
11. Computer Network - Hardware	11. Web Mining - Text Mining	11. Full Stack Development

List of Value added Elective Courses (Multidisciplinary Courses)

Value Added Elective 1	Value Added Elective 2	Value Added Elective 3	Value Added Elective 4
Business Communication	Soft Skill - English Vocabulary & written abilities	Soft Skill - Spoken English & Verbal Communication	Presentations, Personal Interview & Group Discussions Skills
Fundamentals of Digital Image and Video Production	Catering & Hotel Management	Sketching & Oil Painting	Music Therapy
Basic Oral Hygiene	Fundamentals Of Unani Pathy	Cupping Therapy	YOGAThery
Course in 3D-Animation	Hospitality Management	Course in Art & Design	Introduction to Law
Trading courses	Cultural Studies	Content Writing course	Basics of Photography
Social Media Management	Indian Culture & Heritage	Graphic designing course	Innovation & Startup