

DEPARTMENT OF COMPUTER APPLICATIONS

Department of Computer Applications

M.C.A Structure

(2025 Pattern)



Department of Computer Applications

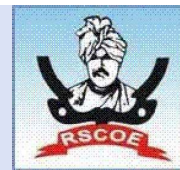
Vision

To be a centre of excellence in computing education, innovation, and research, nurturing ethically responsible professionals for societal and technological advancement.

Mission of Department

1. To provide outcome-based and experiential education in computer applications that enhances strong technical competence.
2. To nurture research and innovation to address real-world challenges.
3. To inculcate ethical values, leadership and social responsibility for industry-ready.





Department of Computer Application

Program Outcomes (POs)

- PO1 (Foundation Knowledge): Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving..
- PO2 (Problem Analysis): Identify, review, formulate and analyse problems for primarily focussing on customer requirements using critical thinking frameworks.
- PO3 (Development of Solutions): Design, develop and investigate problems with as an innovative approach for solutions incorporating ESG/SDG goals.
- PO4 (Modern Tool Usage): Select, adapt and apply modern computational tools such as development of algorithms with an understanding of the limitations including human biases.
- PO5 (Individual and Teamwork): Function and communicate effectively as an individual or a team leader in diverse and multidisciplinary groups. Use methodologies such as agile.
- PO6 (Project Management and Finance): Use the principles of project management such as scheduling, work breakdown structure and be conversant with the principles of Finance for profitable project management.
- PO7 (Ethics): Commit to professional ethics in managing software projects with financial aspects. Learn to use new technologies for cyber security and insulate customers from malware .
- PO8 (Life-long learning): Change management skills and the ability to learn, keep up with contemporary technologies and ways of working.

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Program Specific Outcomes (PSOs)

Upon successful completion of PG MCA program, the students will attain following program specific outcomes.

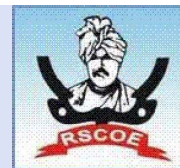
PSO1: Apply advanced computing skills and emerging technologies to solve evolving real-world challenges for the enhancement of quality of life and sustainable development.

PSO2: Integrate indigenous logical frameworks and traditional knowledge philosophies with cultural values to design contextually relevant and sustainable digital solutions.

Dr. Rinku Dulloo
BOS Chairman

Dr. Kavita Moholkar
Dean Academics

Dr. Avinash Badadhe
Director RSCOE



Highlights of the Syllabus

Curriculum of PG program for Computer Applications is designed in association with



Academic Experts



Industry/Corporate Experts



Distinguished Alumni

Features of MCA curriculum are designed in association with the **Industry**.



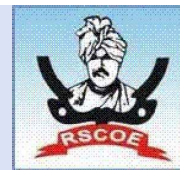
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Unique features of the curriculum

- The curriculum of MCA is designed in a way such that, students will get knowledge of most trending and “in use” industrial technologies and practices by the time they complete their post-graduation. Keeping this goal in mind updates the curriculum as and when required.
- MCA curriculum is designed to build a strong basic and clear all the fundamental concepts.
- Bridge course is introduced during the induction program for two weeks to learn basic concepts.
- Mini Projects- To understand the importance of working in teams and being part of collective success, we have incorporated Mini projects in each semester where student will work together and implement it.
- Human Values Course- RSCOE focus on the all-around development of our students. This includes refining their technical skills as well as their personal development. Human Values courses will teach them how to handle stressful situations, ethics of a professional and how to give back to the society. This will also motivate them to join the various CSR activities conducted by the company they join and help in achieving the different organizational goals of the company they join.
- Electives offered on emerging technologies. Students can opt any one as per his/her choice.
- Online Professional certification courses are enabled curriculum for all students.
- Language Proficiency courses - English, German and Japanese are introduced in curriculum. Student can opt any one of them.
- In order to make students ready for placement, gateway to industry course is given where basic aptitude and technical concepts are introduced.
- Professional communication skills course help students to develop over all personality and groom them.

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F. Y. M.C.A

Semester –I

Course Type	Course Code	Course	Teaching & Learning Scheme					Examination Scheme				Total Marks	Ownership	
					Total Hrs	Total Credits								
			T	Lab	Hrs	C	TA1	MSE	TA2	ESE	Laboratory			
SEC	MCA1101T	Data Structure with C++	3	-	3	3	10	30	10	50	-	100	MCA	
SEC	MCA1101L	Data Structure with C++ Lab		2	2	1	10	10	10	20	50	50	MCA	
CC	MCA1102T	Advance Database Management System	3	-	3	3	10	30	10	50	-	100	MCA	
CC	MCA1102L	Advance Database Management System Lab	-	2	2	1	10	10	10	20	50	50	MCA	
CC	MCA1103T	Core Java	3	-	3	3	10	30	10	50	-	100	MCA	
CC	MCA1103L	Core Java Lab	-	2	2	1	10	10	10	20	50	50	MCA	
CC	MCA1104T	Research Methodology	3	-	3	3	10	30	10	50	-	100	MCA	
CC	MCA1105T	Object Design & Agile Development	3	-	3	3	10	30	10	50	-	100	MCA	
AEC	HSCA1101L HSCA1102L HSCA1103L	Language Proficiency-I (ENGLISH) , (GERMAN) (JAPANESE)	-	2	2	2	10	10	10	20	50	50	Other department	
MDC	HSCA1104L	Indian Knowledge System	-	2	2	2	10	10	10	20	-	50	MCA	
AEC	MCA1106L	Online Professional Training Course	-	2	2	2	10	10	10	20	-	50	MCA	
AEC	MCA1107L	ESD- I	-	2	2	1	10	10	10	20	-	50	MCA	
	MCA1108L	Human Rights				1							MCA	
		Bridge Course	Non-Credit Course											
	Total		15	14	29	25						-	850	

Rinku Dulloo

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BOS Chairman

Kavita Moholkar

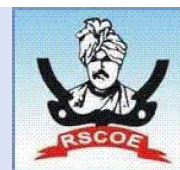
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F. Y. M.C.A
(Semester –II)

Course Type	Course Code	Course	Teaching & Learning Scheme				Examination Scheme					Total Marks	Ownership
					Total Hrs	Total Credits							
			L	P	Hrs	C	TA1	MSE	TA2	ESE	Laboratory		
SEC	MCA1109T	Advance JAVA	3	-	3	3	10	30	10	50	-	100	MCA
SEC	MCA1109L	Advance JAVA Lab	-	2	2	1	10	10	10	20	50	50	MCA
CC	MCA1110T	Python Programming	3	-	3	3	10	30	10	50	-	100	MCA
CC	MCA1110L	Python Programming Lab	-	2	2	1	10	10	10	20	50	50	MCA
CC	MCA1111T	Web Technology	3	-	3	3	10	30	10	50	-	100	MCA
CC	MCA1111L	Web Technology Lab	-	2	2	1	10	10	10	20	50	50	MCA
CC	MCA1112T	Optimization Technique	3	-	3	3	10	30	10	50	-	100	MCA
CC	MCA1113T	Elective-I	3	-	3	3	10	30	10	50	-	100	MCA
CC	MCA1114L-A	Research Project Lab	-	2	2	2	10	10	10	20	50	50	MCA
CC	MCA1114L-B	Research Project	-	-	-	4	10	30	10	50	100	100	MCA
AEC	MCA1115L	ESD - II	-	2	-	1	10	10	10	20	50	50	MCA
	MCA1116	Human Rights				1							
	Total		15	10	23	25					-	850	

Professional Elective I		Professional Elective I	
Course Code	Course Name	Cours	Course Name
MCA1113T-A	Internet Of Things	MCA1113T-E	Block Chain Technology
MCA1113T-B	Design and Analysis of Algorithm	MCA1113T-F	Big Data Analytics
MCA1113T-C	Cyber Security and Cyber Law	MCA1113T-G	Entrepreneurship Development
MCA1113T-D	Dev Ops		

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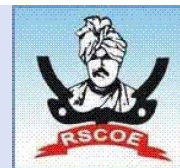
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S. Y. M.C.A
 (Semester –III)

Course Type	Course Code	Course	Teaching & Learning Scheme				Examination Scheme						Ownership
					Total Hrs	Total Credits							
			L	P	Hrs	C	TA1	MSE	TA2	ESE	Laboratory	Total Marks	
CC	MCA2101T	Computer Networks	3		3	3	10	30	10	50	-	100	MCA
CC	MCA2102T	Elective-II(Mini Project)	3		3	3	10	30	10	50	-	100	MCA
CC	MCA2102L	Elective-II(Mini Project) Lab		2	2	1	10	10	10	20	50	50	MCA
CC	MCA2103T	Emerging Software Testing and Tools	3		3	3	10	30	10	50	-	50	MCA
CC	MCA2103L	Emerging Software Testing and Tools Lab		2	2	1	10	10	10	20	50	50	MCA
CC	MCA2104T	Principles & practices of Management & Organization Behaviour	3		3	3	10	30	10	50	-	100	MCA
SEC	MCA2105T	Cloud Computing	3		3	3	10	30	10	50	-	100	MCA
AEC	HSCA2101L	Professional communication Skills		2	2	2	10	10	10	20	50	50	MCA
AEC	MCA2106L	Online Professional Training Course		2	2	3	10	10	10	20	50	50	MCA
HSSM	HSCA2102L	Universal Values & Ethics		2	2	2	10	10	10	20	50	50	MCA
	MCA2107	Introduction to Cyber Security				2							
	MCA2108	Skill Development				2							
	MCA2109	Introduction to Constitution				2							
	Total		15	10	25	24					-	700	

Professional Elective II (Theory)			
Course Code	Course Name	Course code	Course Name
MCA2102T-A	Advance Development Technology	MCA2102T-D	Framework – Springboot
MCA2102T-B	Mobile Application Development	MCA2102T-E	Framework – React JS
MCA2102T-C	Artificial Intelligence and Machine Learning	MCA2102T-F	Data Science
Professional Elective II(Laboratory)			
MCA2102L-A	Advance Development Technology Lab	MCA2102L-D	Framework – Springboot Lab
MCA2102L-B	Mobile Application Development Lab	MCA2102L-E	Framework – React JS Lab
MCA2102L-C	Artificial Intelligence and Machine Learning Lab	MCA2102L-F	Data Science Lab

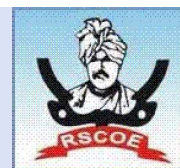
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S. Y. M.C.A
(Semester –IV)

Course Type	Course Code	Course	Teaching & Learning Scheme				Examination Scheme					Total Marks	Ownership
					Total Hrs	Total Credits							
			L	P	Hrs	C	TA1	MSE	TA2	ESE	Laboratory		
	MCA2109	Industrial Internship			-	16	250			200	-	450	MCA
	MCA2110	Introduction to Cyber Security				2							
	MCA2111	Skill Development				2							
	Total					16					-	450	

Abbreviations:

CC-Core Course, **SEC**- Skill Enhancement course, **MDC**- Multi Disciplinary Course, **HSSM** : Humanities Social Science and Management, **AEC** : Ability Enhancement Course **L** – Lecture, **T** – Tutorial, **P** – Practical, **Hr** – Hours, **C** – Credits, **TuT** – Tutorial, **TA1,TA2** – In Semester Evaluation, **MSE** – Mid Semester Evaluation, **ESE** – End Semester Evaluation, **ESD**(Employment Skill Development)

Note:

For Theory courses: There shall be MSE, ISE(TA1,TA2) and ESE. The ESE is a separate head of passing.
 For Lab courses: There shall be continuous assessment (ISCE consists of TA1,MSE and TA2). The ESE is a separate head of passing.

Online Professional Training Course MCA1106L : online courses from Swayam/Coursera/Udemy

Online Professional Training Course MCA2106L: online courses from NPTEL only.

As a part of MCA1112L-B Research Project Course students will prepare and submit the research project hard bound, As well as publish research paper in this. For the following subject students need to complete a course from Coursera, udemy, Swayam. The assessment for the same can be decided based on the subject(Presentations/ Assignments/Quiz/Group Discussion/Field Study etc) As the courses need to be completed as per guidelines given by Savitribai Phule Pune University MCA1108L- Human Rights , MCA1109L Introduction to cyber security/ Information Security, MCA1117-Human Rights, MCA1118- Introduction to cyber security/ Information Security , MCA2107- Skill Development, MCA2108- Indian Constitution, MCA2110- Skill Development.

	Total marks	Credits
Sem I	850	25
Sem II	850	25
Sem III	700	24
Sem IV	450	16
Total	2850	90

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