

SANKALCHAND PATEL UNIVERSITY, VISNAGAR

Faculty of Computer Science



Structure, Teaching Scheme and Syllabus of Master of Computer Application (MCA)

Program Code: CS201

With effect from: 2025-26

Program Outcomes:

P01	Computational Knowledge	Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualisation of computing models from defined problems and requirements.
P02	Problem Analysis	Identify, formulate, research literature, and solve <i>complex</i> computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
P03	Design /Development of Solutions	Design and evaluate solutions for <i>complex</i> computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
P04	Conduct Investigations of Complex Computing Problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
P05	Modern Tool Usage	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to <i>complex</i> computing activities, with an understanding of the limitations
P06	Professional Ethics	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice
P07	Life-long Learning	Recognise the need, and have the ability, to engage in independent learning for continual development as a computing professional.

P08	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.
P09	Communication Efficacy	Communicate effectively with the computing community, and with society at large, about <i>complex</i> computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
P010	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 practice
P011	Individual and Team Work	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.
P012	Innovation and Entrepreneurship	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

Program Specification Outcomes:

PSO 1: Design, develop and implement interdisciplinary application software projects to meet the demands of industry requirements using modern tools and technologies.

PSO 2: Analyses the societal needs to provide novel solutions through technological based research.

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List of Elective-I Courses

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010203T	Introduction to Artificial Intelligence	3
2	Data Science	4CS2010204T	Data Analytics using Python	3
3	Cyber Security	4CS2010205T	Information and Network Security	3
4	Full Stack Development	4CS2010206T	Full Stack Development-I	3

List of Elective-I Courses Practical

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010203P	Introduction to Artificial Intelligence Practical	2
2	Data Science	4CS2010204P	Data Analytics using Python Practical	2
3	Cyber Security	4CS2010205P	Information and Network Security Practical	2
4	Full Stack Development	4CS2010206P	Full Stack Development-I Practical	2

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Semester: III

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List of Elective-II Courses

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010304T	Fundamentals of Machine Learning	3
2	Data Science	4CS2010305T	Data Visualization and Business Intelligence	3
3	Cyber Security	4CS2010306T	Security Monitoring	3
4	Full Stack Development	4CS2010307T	Full Stack Development-II	3

List of Elective-II Courses Practical

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010304P	Fundamentals of Machine Learning Practical	2
2	Data Science	4CS2010305P	Data Visualization and Business Intelligence Practical	2
3	Cyber Security	4CS2010306P	Security Monitoring Practical	2
4	Full Stack Development	4CS2010307P	Full Stack Development-II Practical	2

List of Elective-III Courses

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010308T	Deep Learning	3
2	Data Science	4CS2010309T	Statistical Modeling and Predictive Analytics	3
3	Cyber Security	4CS2010310T	Vulnerability Assessment and Penetration Testing (VAPT)	3
4	Full Stack Development	4CS2010311T	Full Stack Development-III	3

List of Elective-III Courses Practical

Sr. No.	Specialization	Course Code	Course Name	Credit
1	AI & ML	4CS2010308P	Deep Learning Practical	2
2	Data Science	4CS2010309P	Statistical Modeling and Predictive Analytics Practical	2
3	Cyber Security	4CS2010310P	Vulnerability Assessment and Penetration Testing (VAPT) Practical	2
4	Full Stack Development	4CS2010311P	Full Stack Development-III Practical	2

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Program Name: Master of Computer Application

Abbreviation Name: MCA

Semester: IV

Program Code: CS201

With effect from: 2025-26

Course Code	Course Name	Type of Course	Credit	Hours per week				Theory (Marks)				Practical (Marks)				Total (Marks)
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
4CS2010401P	System Development Project	-	15	-	-	30	30	-	-	-	-	140	350	140	350	700
Total			15	-	-	30	30	-	-	-	-	140	350	140	350	700