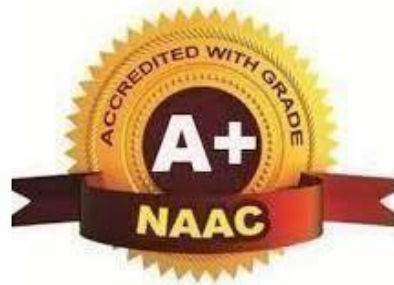




TULSIRAMJI GAIKWAD-PATIL **College of Engineering & Technology**

Mohgaon, Wardha Road, Nagpur - 441 108

An Autonomous Institute



DEPARTMENT OF MASTER IN COMPUTER APPLICATION

I to IV Semester

Teaching Scheme & Syllabus

Considering

**National Education
Policy 2020**

From

Academic Year 2026 – 27

Vision of Institute

To emerge as a learning Center of Excellence in the National Ethos in domains of Science, Technology and Management.

Mission of Institute

M1- To strive for rearing standard and stature of the students by practicing high standards of professional ethics, transparency and accountability.

M2- To provide facilities and services to meet the challenges of Industry and Society

M3- To facilitate socially responsive research, innovation and entrepreneurship

M4- To ascertain holistic development of the students and staff members by inculcating knowledge and profession as work practices.

Vision of the Department

The department of Master in Computer Applications aims to generate groomed, technically competent and skilled intellectual professionals specifically from the rural area to meet the current challenges of the modern computing industry.

Mission of the Department

- To stimulate students to learn effectively and apply the knowledge in the field of Engineering and Technology.
- To undertake industry academic collaboration to enhance competency in graduates.
- To foster innovative ideas amongst students for becoming leaders.
- To create an environment of research culture.
- To impart social and ethical values for inculcating the culture of lifelong learning.

Program Educational Objectives (PEO)

- Providing a strong theoretical and practical background across the computer science discipline with an emphasis on software development.
- To provide technical solutions in the field of information technology to the local society.
- To provide need-based quality training in the field of information technology.
- Empowering the youth in rural communities with computer education.
- To provide students with the tools to become productive, participating global citizens and life-long learners.

Program Outcomes (PO)

- 1. PO1 (Foundation Knowledge):** Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving.
- 2. PO2 (Problem Analysis):** Identify, review, formulate and analyse problems for primarily focussing on customer requirements using critical thinking frameworks.
- 3. PO3 (Development of Solutions):** Design, develop and investigate problems with as an innovative approach for solutions incorporating ESG/SDG goals.
- 4. 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.
- 5. 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.
- 6. 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.
- 7. 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
- 8. 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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SCHEME OF INSTRUCTION & SYLLABI

Programme: Master in Computer Application

Scheme of Instructions: First Year Master in Computer Application (As Per NEP 2020)

Semester – I

Sr.	Course Category	CourseCode	Course Title	L	P	Contact Hrs / week	Credits	Exam Scheme				
								CT - 1	CT - 2	TA / CA	ESE	TOTAL
1.	PCC	MCA41101	Object Oriented Programming Using Java	3	-	3	3	15	15	10	60	100
2.	PCC	MCA41102	Advance DBMS	3	-	3	3	15	15	10	60	100
3.	PCC	MCA41103	Artificial Intelligence	3	-	3	3	15	15	10	60	100
4.	PCC	MCA41104	Computer Network	3	-	3	3	15	15	10	60	100
5.	PEC	MCA41105-08*	Professional Elective – I	3	-	3	3	15	15	10	60	100
6.	PCC	MCA41109	OOP programming Lab using Java language	-	4	4	2	-	-	25	25	50
7.	PCC	MCA41110	Database Administration Lab	-	4	4	2	-	-	25	25	50
8.	PCC	MCA41111	Artificial Intelligence Lab	-	2	2	1	-	-	25	25	50
9.	VSE	MCA41112-15*	Vocational Skill Enhancement – I (Lab)	-	4	4	2	-	-	25	25	50
Total				15	14	29	22	75	75	150	400	700

*Indicates out of the four course codes each student has to select any one PEC & VSE from the list provided at the end of structure.

Course Category	PCC	PEC	VSE	Project	CC
Credits	17	3	2	-	-
Cumulative Summary	17	3	2	-	-

Total Credit: 22

				June, 2026	2.00	Applicable for AY 2026-27
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Semester – II

Sr.	Course Category	CourseCode	Course Title	L	P	Contact Hrs / week	Credits	Exam Scheme				
								CT - 1	CT - 2	TA / CA	ESE	TOTAL
1.	PCC	MCA41201	Software Engineering & Project Management	3	-	3	3	15	15	10	60	100
2.	PCC	MCA41202	Internet Programming	3	-	3	3	15	15	10	60	100
3.	PCC	MCA41203	Machine Learning	3	-	3	3	15	15	10	60	100
4.	PEC	MCA41204-07*	Professional Elective – II	3	-	3	3	15	15	10	60	100
5.	PCC	MCA41208	Salesforce Lab	-	4	4	2	-	-	25	25	50
6.	PCC	MCA41209	Machine Learning Lab using Python	-	4	4	2	-	-	25	25	50
7.	PRJ	MCA41210	Mini Project	-	4	4	2	-	-	25	25	50
8.	PCC	MCA41211	Internet Programming Lab using Advance Java	-	4	4	2	-	-	25	25	50
9.	VSE	MCA41212-15*	Vocational Skill Enhancement – II (Lab)	-	4	4	2	-	-	25	25	50
Total				12	20	32	22	60	60	165	365	650

*Indicates out of the four course codes each student has to select any one PEC & VSE from the list provided at the end of structure.

Course Category	PCC	PEC	VSE	Project	CC
Credits	15	3	2	2	-
Cumulative Summary	32	6	4	2	-

PROGRESSIVE TOTAL CREDITS: 22 + 22 = 44

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Scheme of Instructions: First Year Master in Computer Application (As Per NEP 2020)

Semester – III

Sr.	Course Category	Course Code	Course Title	L	P	Contact Hrs/week	Credits	Exam Scheme				
								CT- 1	CT- 2	TA/CA	ESE	TOTAL
1.	PCC	MCA42301	Deep Learning	3	-	3	3	15	15	10	60	100
2.	PCC	MCA42302	Block Chain Technologies	3	-	3	3	15	15	10	60	100
3.	PCC	MCA42303	Data Science	3	-	3	3	15	15	10	60	100
4.	PEC	MCA42304 - 07*	Elective Subject	3	-	3	3	15	15	10	60	100
5.	CC	MCA42308	Communication & Personality Development	2	-	2	2	07	07	6	30	50
6.	PCC	MCA42309	Software Testing and Quality Assurance Lab	-	4	4	2	-	-	25	25	50
7.	PCC	MCA42310	Mobile Application using Android	-	4	4	2	-	-	25	25	50
8.	PCC	MCA42311	Tableau Lab based on Data Science	-	4	4	2	-	-	25	25	50
9.	VSE	MCA42312- 15*	Vocational Skill Enhancement – III (Lab)	-	4	4	2	-	-	25	25	50
Total				14	16	30	22	67	67	146	370	650

*Indicates out of the four course codes each student has to select any one PEC from the list provided at the end of structure.

Course Category	PCC	PEC	VSE	Project	CC
Credits	15	3	2	-	2
Cumulative Summary	47	9	6	2	2

PROGRESSIVE TOTAL CREDITS: 44 + 22 = 66

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SCHEME OF INSTRUCTION & SYLLABI

Programme: Master in Computer Application

Scheme of Instructions: Second Year Master in Computer Application (As Per NEP 2020)

Semester – IV

Sr.	Course Category	CourseCode	Course Title	L	P	Contact Hrs / week	Credits	Exam Scheme				
								CT - 1	CT - 2	TA / CA	ESE	TOTAL
1.	PROJ	MCA42401	Project Work Full Time	-	38	38	19	-	-	300	300	600
2.	PEC	MCA42402-05*	Program Elective-IV	3	-	3	3	15	15	10	60	100
Total				3	38	41	22	15	15	310	360	700

*Indicates out of the four course codes each student has to select any one PEC from the list provided at the end of structure.

Course Category	PCC	PEC	VSE	Project	CC
Credits	-	3	-	19	
Cumulative Summary	47	12	6	21	2

PROGRESSIVE TOTAL CREDITS: 66 + 22 = 88

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Vocational Skill Enhancement (Lab) Courses

Semester – I		Semester – II		Semester – III	
Course Code	Vocational Skill Enhancement – I (Lab)	Course Code	Vocational Skill Enhancement – II (Lab)	Course Code	Vocational Skill Enhancement – II (Lab)
MCA41112	PHP	MCA41212	React-JS	MCA42310	Gen AI
MCA41113	Angular	MCA41213	DJango	MCA42311	Power BI
MCA41114	Computer Architecture and Organisation	MCA41214	Node.js	MCA42312	Google Cloud for NLP
MCA41115	Java Script	MCA41215	DevOps	MCA42313	AWS

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List of Professional Elective Courses

Semester – I		Semester – II		Semester - III		Semester - IV	
Course Code	Professional Elective-I	Course Code	Professional Elective-II	Course Code	Professional Elective-III	Course Code	Professional Elective-IV
MCA41105	Internet of Things (IoT)	MCA41204	Enterprise Resource Planning	MCA42304	Information Security	MCA42402	Systems and Usable Security
MCA41106	Big Data Analytics	MCA41205	Network Security	MCA42305	Soft Computing	MCA42403	Foundations of Virtual Reality
MCA41107	Computer Ethics	MCA41206	Social Network Analysis & Digital Marketing	MCA42306	Cyber Security	MCA42404	Real-Time Systems
MCA41108	Parallel Programming	MCA41207	Digital Image Processing	MCA42307	Natural Language Programming (NLP)	MCA42405	UI/UX Design

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