DATTA MEGHE INSTITUTE OF MEDICAL SCIENCES

(DEEMED TO BE UNIVERSITY)

SAWANGI (MEGHE), WARDHA

DEPARTMENT OF FACULTY OF SCIENCE & TECHNOLOGY

COURSE CURRICULUM FOR

MASTER OF COMPUTER APPLICATION

MCA

UNDER

SCHOOL OF ALLIED SCIENCES

W.E.F. 2021-22

Contents

1. PREAMBLE

Datta Meghe Institute of medical sciences undertakes important measures to enhance academic standards and quality in education including innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters. The university formulates various regulations and guidelines from time to time to improve the education system and maintain minimum standards and quality.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students.

2. ABOUT THE COURSE

The program revolves around the field of Computer and Computer Applications which is essentially about storing processing securing and managing information. Students will be trained to empower them with new and upcoming technologies and will learn how to analyze computer problems and system performance manage large amounts of data provide quality customer service and maintain a safe secure network system. This programme is useful to develop skills in network design, computational theory and computer systems programming

3. AIM

This course, Master in Computer Application, is designed and introduced by University to bridge the gap and produce employable graduate in Science & technology which will enable the industry to grow and the graduates to become successful in the field of Computer Application

Goals

- To enable a learner to pursue any area of knowledge domain depending upon his / her interest.
- To widen the horizon of learner's intellectual insight.
- Rigidity of present system does not allow pursuit of areas of interest as well as widening the educational horizon of the learner, and
- Provision of choice is an essential condition for broad-based learner's profile across areas of knowledge.

4. OBJECTIVES:

The objectives of the program are to -

1. Impart knowledge of computer and programming logic environment
2. Impart Knowledge for comprehensive training to postgraduate students to empower them with new and upcoming technologies
3. To equip students with the technical knowledge required for an computer professional to handle multi-tasking and multi-programming situations and to assess and develop applications with new technologies and programming.
4. Evaluate and compare cutting edge technologies and techniques and its application in the solution of common computer application based problems.

5. Develop the capacity to continuously learn and adapt to the changing technologies and organizational environments.

5. ELIGIBILITY CRITERIA:

The aspiring candidate should have

- Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree.

- OR Passed B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (with additional bridge Courses as per the norms of the University). "

6. INTAKE CAPACITY-

60 candidates per year

7. TEACHING LEARNING METHODOLOGY –

- The modality of teaching for teaching learning modules will be in the form of didactic
- Lectures, self directed learning, seminars presentation Microteaching etc.

8. MEDIUM OF INSTRUCTION:

- English shall be the medium of instruction for all the subjects of study and for examination of the course.

9. ATTENDANCE:

A candidate has to secure minimum 80% attendance in overall with at least-

1. 75% attendance in theoretical
2. 80% in Skills training (practical) for qualifying to appear for the final examination

10. COURSE DURATION-

- The MCA Course is of 2 years duration, divided into 4 Semesters (2 semesters each year) including dissertation/Project/ Internship in 4th semester.

11. EDUCATIONAL PROGRAM

A) Distribution of Course duration

First Semester– Foundation Course

Sl. No.	Course Titles
MCA101	Mathematical Logic Combination & Graph Theory
MCA102	Advanced Software Engineering
MCA103	UI Frameworks
MCA104	Front End Development & Programming
MCA105	Database Design Development
MCA106 (PR-1)	Front End Development & Programming Lab
MCA107 (PR-2)	Database Design Development Lab
MCA108	Business Communication

Second Semester

Sl. No.	Course Titles
MCA201	Applied Machine Learning
MCA202	Statistical Data Analytics with R
MCA203	Reinforcement Learning
	Develop Enterprise Application
MCA204	Deep Learning
	Application integration
MCA205	Software Testing and Quality Assurance
MCA206 (PR-1)	Machine Learning Lab
MCA207(PR-2)	R programming Lab
MCA208	Research Methodology with Writing Research Paper

Third Semester

Sl. No.	Course Titles
MCA301	AI Implementation Capstone

Fourth Semester

Sl. No.	Course Titles
MCA401	In plant Project Work and Seminar / Company Internship

B)Distribution of Hours and Credits

First Semester – Foundation Course

Course Code	Course Name	Lectures (L)	Tutorial (T)	Pra/Activity (P)	Credits
MCA101	Mathematical Logic Combination & Graph Theory	3	1	0	4
MCA102	Advanced Software Engineering	3	1	0	4
MCA103	UI Frameworks	3	1	0	4
MCA104	Front End Development & Programming	3	1	0	4
MCA105	Database Design Development	2	0	2	3
MCA106 (PR-1)	Front End Development & Programming Lab	0	0	4	2
MCA107 (PR-2)	Database Design Development Lab	0	0	4	2
MCA108	Business Communication	1	1	0	2
	Total	15	5	10	25

Second Semester

Course Code	Course Title	L	T	P	Credits
MCA201	Applied Machine Learning	3	1	0	4
MCA202	Statistical Data Analytics with R	3	1	0	4
MCA203	Reinforcement Learning Develop Enterprise Application	3	1	0	4
MCA204	Deep Learning Application integration	3	1	0	4
MCA205	Software Testing and Quality Assurance	2	0	2	3
MCA206 (PR-1)	Machine Learning Lab	0	0	4	2
MCA207(PR-2)	R programming Lab	0	0	4	2
MCA208	Research Methodology with Writing Research Paper	2	0	0	2

Third Semester

Course Code	Course Title	L	T	P	Credits
MCA301	AI Implementation Capstone	0	0	40	20
		0	0	40	20

Fourth Semester

Course Code	Course Title	L	T	P	Credits
MCA401	In plant Project Work and Seminar / Company Internship	0	0	46	23
		0	0	46	23

C) Distribution of teaching hours

Sl. No.	Course Titles	Hours			Credits		
		Theory	Practical	Total	Theory	Practical	Total
	First Semester						
1	Mathematical Logic Combination & Graph Theory	60	0	60	4	0	4
2	Advanced Software Engineering	60	0	60	4	0	4
3	UI Frameworks	60	0	60	4	0	4
4	Front End Development & Programming	60	0	60	4	0	4
5	Database Design Development	30	15	45	2	1	3
6	Front End Development & Programming Lab	0	60	60	0	2	2
7	Database Design Development Lab	0	60	60	0	2	2
8	Business Communication	30	0	30	2	0	2
	TOTAL	**300**	**135**	**435**	**20**	**5**	**25**

Sl. No.	Course Titles	Hours			Credits		
		Theory	Practical	Total	Theory	Practical	Total
	Second Semester						
1	Applied Machine Learning	60	0	60	4	0	4
2	Statistical Data Analytics with R	60	0	60	4	0	4
3	Reinforcement Learning / Develop Enterprise Application	60	0	60	4	0	4
4	Deep Learning / Application integration	60	0	60	4	0	4
5	Software Testing and Quality Assurance	30	15	45	2	1	3

6	Machine Learning Lab	0	60	60	0	2	2
7	R programming Lab	0	60	60	0	2	2
8	Research Methodology with Writing Research Paper	30	0	30	2	0	2
	TOTAL	300	135	435	20	5	25

D) <u>Curriculum Design</u>

The Master of Computer Application Program is organized into 4 teaching Semesters Minimum 180 working days will be available for teaching, learning and evaluation (TLE) in each year of study and 90 working days shall be available for each semester.

One Credit will be awarded to 1 contact hour of teaching and learning for Theory and one Credit will be awarded to 2 contact hours of teaching and learning for Practical and Studentship. For elective courses 2 contact hours shall be awarded one credit.

E) <u>Program Outcomes of MCA</u>

PO1) **Computational knowledge**: Acquire knowledge of Computing Fundamentals, Basic Mathematics, Computing Specialization and Domain Knowledge of proper computing models from defined problems.

PO2) **Problem analysis**: Identify, formulate review research literate and analyze complex engineering problems reading substantiated conclusions using first principles mathematics, computing science and relevant domains.

PO3) **Design/development of solutions**: Ability to design system s/w or process as per needs and specifications.

PO4) **Conduct investigations of complex computing problems**: Use research-based knowledge and research methods including design of experiments, analysis & interpretation of data & synthesis of information to provide valid conclusions.

PO5) **Modern Tool Usage**: Ability to demonstrate skills to use modern s/w & h/w tools to analyze problems.

PO6) **Professional Ethics**: Apply ethical principles and commit to professional ethics and cyber regulations.

PO7) **Life-Long Learning**: Ability to develop confidence for self-education and life-long learning in the broadest context of technological change.

PO8) **Project management and finance**: Ability to demonstrate knowledge & understanding of the engineering and management principles and apply them as a member & as a leader in a team to manage multidisciplinary projects.

PO9) **Communication Efficacy**: Ability to communicate effectively in both verbal and written form.

PO10) **Societal and Environmental Concern**: Ability to understand the impact of IT solutions in a global and societal context.

PO11) **Individual and Team Work**: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO12) **Innovations and entrepreneurship**: Find out right opportunity for entrepreneurship and create odd value for the betterment of an individual and society at large.