2025-26 Sem - I
Student Information Manual

MCA

Student Information Manual (SIM)

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INSTITUTE INFORMATION

Dr. J. J. Magdum College of Engineering was established by Dr J. J. Magdum Trust, Jaysingpurin the year 1992 with an objective to promote the cause of higher education. The institute is approved by All India Council of Technical Education (AICTE), New Delhi and Governmentof Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech programs in Mechanical, Civil, Computer Science Engineering, IT and Electronics.

Our Management extends its fullest support in building the institution as a center of excellencewith technically superior, ethically strong and competent engineers.

The serene campus vibrant with aesthetic bliss in an exhilarating convenient location, well connected by road, rail and air is easily accessible. The eco-friendly ambience creates and bestows a healthy learning atmosphere.

The institution is meticulous with modern laboratory, workshop facilities and state of art computer center providing an excellent infrastructure.

The institution has spacious library with vast collection of Books, Newspapers, National & International Journals, Magazines, Reference books, Encyclopedia, World of science, ASM hand books and course materials. E-learning through NPTEL Video course by NIT and IIT Professors are available.

The Teaching and Non-Teaching Staff of the institute is a blend of senior experienced and young dynamic faculty members devoted to the noble cause of education. Qualified, experienced, versatile and efficient faculty members mold the students diligently in ethical, moral and academic aspects.

We impart technology based experiential learning through industry visits, live projects, expert talks, MOOC's, workshops, case studies, upscale labs, and virtual classroom sessions.

Industry-Institute interaction and real-time projects nurture and craft the budding engineers to bloom and flourish in the field with the prowess guidance in the campus. The college equips the students with the latest skills which make them employable and future ready.

Due to able and proper guidance and motivation, many of our students have topped at University. Our training and placement work meticulously to improve and develop life skills to the students and tries hard to seek good jobs for our students. In addition to the academics, the students are engaged in sports and cultural activities which helps them to develop versatile personality. Various Club activities are conducted to encourage, motivate and inspire students from diverse culture to harness the talent through their perseverance.

The institute is having specious ground and the modern facilities for both indoor and outdoor games and ultra-modern Gymnasium. Due to proper guidance and motivation, many of our students have grabbed prizes at University level and different sport events.

We are committed to stakeholders for best results and produced more than 10000+ engineers getting campus placements.

VISION OF INSTITUTE

To be a Leading academic organization, creating skilled and Ethical Human Resources by leveraging Technical Education for Sustainable Development of Society.

MISSION OF INSTITUTE

M1: To produce competent technocrats to meet modern societal and industrial challenges.

M2: To create ethical and skilled human resources through quality education and various extension activities and outreach programs.

M3: To leverage technical expertise to solve societal issues for its sustainable development

VISION OF DEPARTMENT

To be the source of bringing out globally competent pioneering computing professionals, researchers, innovators and entrepreneurs and thereby succeed and contribute value to the knowledge-based economy and society.

MISSION OF DEPARTMENT

M1: To offer high-grade, value-based Post-graduate programme in the field of Computer Applications.

M2: To provide conductive environment so as to achieve excellence in teaching – learning, and research and development activities.

M3: To bridge the gap between industry and academia by framing curricula and syllabi based on industrial and societal needs.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO'S)

The Master of Computer Application Department strives for excellence in creating, applying and imparting knowledge in Computer Application through comprehensive education programs, research in collaboration with industry and service to professional societies, the community, the state, and the nation.

1. Learn and apply latest Software Technologies in the field of Computer Applications.

2. Identify real time problems and deliver innovative Software solutions for development of society to develop an ability for pursuing higher studies, research and development computer scienceand engineering, consultancy and entrepreneurship.

PROGRAMME OUTCOMES (PO'S)

At the end of successful completion of program, the graduates will be able to,

PO1: Apply knowledge and skills to solve information technology problems using advanced available tools.

PO2: Function effectively in multi-disciplinary teams and work as a team member and team leader to get technical solutions.

PO3: Understand, Design and evaluate solutions for complex 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.

PO4: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO5: 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.

PO6: Communicate with customer, colleagues, and managers. 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.

PO7: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PO8: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO9: 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.

PO10: Implement cost effective and improved system.

PO11:Develop confidence for self-education and ability for lifelong learning.

STUDENTS ROLES AND RESPONSIBILITIES

☐ Every student must carry his/her identity card while being present on the College Premises.

☐ Use of Cell phones is strictly prohibited during class/Labs hour.

☐ Without the permission of the Principal, Students are not allowed to circulate any printed materials within the college campus.

☐ Every student is expected to maintain the general cleanliness within the classrooms, laboratories and the campus in general.

☐ Students should handle the college properties with care. Damage to the furniture or any other materials may lead to penalty or suspension from the college.

☐ Intoxication or possession of narcotics and other dangerous material is strictly prohibited.

☐ Playing cards, spitting and loitering are strictly prohibited inside the college campus and shall invite severe punishment/disciplinary action

☐ Attempted or actual theft of and/or damage to property of the College, or property of a member of the College community, or other personal or public property, on or off campus will be considered as a punishable act.

☐ Every student will remain answerable to the college authority for his/her activity and conduct on the College Premises.

☐ Any act which obstructs teaching, research, administrative activity and other proceedings of the college is strictly prohibited.

☐ Indulging ragging, anti-institutional, anti-national, antisocial, communal, immoral or political expressions and activities within the Campus and hostel are strongly prohibited as well as punishable.

☐ Students are required to check the Notice Board and also website of the college for important announcements.

LABORATORY INSTRUCTIONS

- Students must present a valid ID card before entering the computer lab.
- Remove your shoes/chapels/sandals outside the lab.
- Playing of games on computer in the lab is strictly prohibited.
- Before leaving the lab, students must close all programs positively and keep the desktop blank.
- Students are strictly prohibited from modifying or deleting any important files and install any software or settings in the computer without permission
- Based on the prime priority, users may be requested by the lab in-charge, to leave the workstation any time and the compliance is a must.
- Eating and/or drinking inside the computer lab is strictly prohibited.
- Internet facility is only for educational/ study purpose.
- Silence must be maintained in the lab at all times.
- The lab must be kept clean and tidy at all times.
- If any problem arises, please bring the same to the notice of lab in-charge.
- No bags/ hand bags/ rain coats/ casual wears will be allowed inside the computer lab, however note book may be allowed.
- Lab timing will be as per the academic time table of different classes
- Every user must make an entry in the Computer Lab Register properly.
- Each student or visitor must take mobile phones in "Switched Off" mode while entering and or working in Computer Lab.
- Conversation, discussion, loud talking & sleeping are strictly prohibited.
- Users must turn-off the computer before leaving the computer lab.
- Maintain silence in lab.
- Computer Lab Assistants are available to assist with BASIC computer and software problems.
- Food and drink are not permitted in the computer lab.
- The use of cell phones is prohibited in the computer lab.
- Please take your calls outside. We also ask that you put your cell phone on vibrate mode.
- Unauthorized copying and/or installing of unauthorized software is not permitted
- Tampering with the hardware or software settings will not be tolerated.

CLASSROOM INSTRUCTIONS

- Students should know and obey rules and regulations of department as well as college.
- Students strive to meet Academic Expectations
- Students are expected to take all tests at the scheduled times seriously.
- Maintain discipline in the class
- A student should maintain at least 75% attendance in the Lectures of every subject and 100% overall performance. Otherwise, he or she will be debarred from the University Examination.
- Latecomers will not be entertained to enter into the classroom.
- Participate in the activities organized in the Department as well as in the College.
- While discussion, students should conduct and express themselves in a way that is respectful of all persons.
- Develop positive attitudes;
- Be cooperative and considerate.
- Welcome challenges.
- Be helpful to others
- Be kind, polite, and courteous to others
- Do the assigned work on time
- Be prepared for classes with all necessary supplies.
- Be Respectful and Punctual
- Be in the best of behaviors

DEPARTMENTAL ACADEMIC PLANNER

Departmental CALENDAR
Master of Computer Application
(A.Y. 2025-26, SEMESTER- I & III)

Week No.	Month	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Events
1	July 2025	7	8	9	10	11	12	13	07 – Commencement of Academic Sem-III, 07-16 – Declaration of Theory and Lab ISE Components,
2		14	15	16	17	18	19	20	16 – CO by individual faculty lecture plan duly signed by HOD 19- Expert Lecture
3		21	22	23	24	25	26	27	26 - Activity under MOU
4		28	29	30	31				30 – Monthly Report 31 – Syllabus Completion Report
	Instruction Days: 20								
4	August 2025					1	2	3	01 – Guest Lecture
5		4	5	6	7	8	9	10	04-08- VAC 07-08- Formative Feedback
6		11	12	13	14	15	16	17	16- Industrial Visit
7		18	19	20	21	22	23	24	19- Project Seminar-I 23 – CMC-I
8		25	26	27	28	29	30	31	26-28 – FDP 29 – Monthly Report 30 – Syllabus Completion Report
	Instruction Days: 22								
9	Sept. 2025	1	2	3	4	5	6	7	02 – Expert Lecture 03-04- CIE-1 06- MCASA Event
10		8	9	10	11	12	13	14	10- Summative Feedback 12- Parents Meet
11		15	16	17	18	19	20	21	16- Augmentation Non-Technical 19- Community Service
12		22	23	24	25	26	27	28	23- Project Seminar-II 25- Entrepreneur Cell 27 - CMC-II
13		29	30						29 – Monthly Report 30- Syllabus Completion Report
	Instruction Days: 24								
13	Oct. 2025			1	2	3	4	5	03 – Guest Lecture through MCASA 04- MCASA Event
14		6	7	8	9	10	11	12	6-10-VAC 08- Summative Feedback
15		13	14	15	16	17	18	19	16-MCASA Activity
16		20	21	22	23	24	25	26	24-Project Presentation-III 24-25 – Formative Feedback
17		27	28	29	30	31			27 - CMC-III 30 – Monthly Report, 31- Syllabus Completion Report
	Instruction Days: 21								
17	Nov. 2025					1	2		01-02-CIE-2 01-07 – Remedial Classes
18		3	4	5	6	7	8	9	04 – Gust lecture, 06 – MCASA Activity
19		10	11	12	13	14	15	16	15-21 – End Semester Examination (Lab POE/ OE)
20		17	18	19	20	21	22	23	17 – Parents Meeting

21		24	25	26	27	28	29	30	25 – Start of End Semester Examination (Theory) 28- Monthly Report 29- Syllabus Completion Report
Instruction Days: 04									
22	**Dec. 2025**	1	2	3	4	5	6	7	
23		8	9	10	11	12	13	14	
24		15	16	17	18	19	20	21	17 – End of End Semester Examination (Theory)
25		22	23	24	25	26	27	28	
26		29	30	31					

Activities	Public Holidays	Examination

DEPARTMENTAL TIMETABLE

Class: FY-MCA   **Date:** 14/07/2025
Year: 2025 – 2026   **Class Coordinator**: Prof. S. N. Wadkar

SN	TIME	MON	TUE	WED	THU	FRI
1	09:30 am - 10:30 am	DBMS (Prof. S. A. Bhagwat)	PYTHON (Prof. S. N. Wadkar)	DBMS (Prof. S. A. Bhagwat)	SE (Prof. S. A. Bhagwat)	F1 & F3 –CS(AMM) - ClassRoom F2 – PYTH(SNW) - Python Lab
2	10:30 am - 11:30 am	OS (Prof. V.S. Landage)	OS (Prof. V.S. Landage)	OST/DM - T (Prof. RSP /Prof. PNP)	OST/DM (Prof. RSP /Prof. PNP)	
			11.30 am - 11.40 am - SHORT BREAK			
3	11:40 am - 12:40 pm	AC-1 (Prof. P.N. Patil)	DBMS (Prof. S. A. Bhagwat)	PYTHON (Prof. S. N. Wadkar)	OS (Prof. V.S. Landage)	OST/DM (Prof. RSP /Prof. PNP)
4	12:40 pm - 01:40 pm	SE (Prof. S. A. Bhagwat)	SE-T (Prof. S. A. Bhagwat)	OST/DM (Prof. RSP /Prof. PNP)	AC-1 (Prof. P.N. Patil)	PYTHON (Prof. S. N. Wadkar)
			01.40 pm - 02.30 pm - LUNCH BREAK			
5	02:30 pm - 03:30 pm	F1- PYTH (VSL) -Python Lab (E&TC Dept) F2 – DBMS (SAB) - DBMS Lab F3 – PYTH(SNW) -VLSI (Lab) (E&TC Dept)	CS (Prof. A. M. More)	F1- PYTH (VSL)-Python Lab F2- PYTH (SNW) VLSI F3- DBMS (SAB) - DBMS Lab	Library	F1- DBMS(SAB) -DBMS Lab F2- CS (AMM) ClassRoom F3- PYTH(SNW) - VLSI
6	03:30 pm - 04:30 pm		SE (Prof. S. A. Bhagwat)			

Prof. R. S. Parkhe
I/C Timetable

Prof. P. Y. Kothawale
HOD

STRUCTURE OF SYLLABUS

Illustrative Semester wise Credit distribution structure for MCA Engineering Programme
Teaching and Evaluation Scheme
MCA (Master of Computer Application)
First Year MCA. (Semester- I)

Sr. No.	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	Evaluation Scheme							TOTAL
								Theory				Practical			
								CIE			ESE	CIE	ESE		
								T-I	T-II	ISE					
1	01MCL101	Operating System	3	-	--	3	3	20	20	10	50	--	--		100
2	01MCL102	Python Programming	3	-	--	3	3	20	20	10	50	--	--		100
3	01MCL103	Database Management System	3	-	--	3	3	20	20	10	50	--	--		100
4	01MCL104	Software Engineering	3	1	--	4	4	20	20	10	50	--	--		100
5	01MCL10X	Program Elective-I	3	1	--	4	4	20	20	10	50	--	--		100
6	01MCP105	Python Programming	--	--	4	4	2	--	--	--	--	50	50		100
7	01MCP106	Database Management System	--	--	2	2	1	--	--	--	--	50	50		100
8	01MCP107	Communication Skills	1	--	2	2	2	--	--	--	--	50	50		100
9	01MCL108	Audit Course - I	2	--	--	2	Audit	--	--		50	--	--		50
		Total	17	02	08	27	22	100	100	50	300	150	150		850

L- Lecture , T- Tutorial , P- Practical , T-I-Test I, T-II- Test II,
ISE- In Semester Evaluation, CIE- Continuous Internal Evaluation, ESE- End Semester Examination,

Program Electives - I

Sr.No.	Course Code	Courses
01	01MCL109	Open-Source Technologies
02	01MCL110	Digital Marketing

COURSE DETAILS/SYLLABUS

Master of Computer Application (MCA)

Under Faculty of Science and Technology (Engineering and Technology)

Part I Semester

01MCL101: Operating System

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCL101:Operating System
Prerequisites	Basics of Computer Hardware and software
Teaching scheme: Lectures	3 Hrs.
Credits	3
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: - -NA	TW: --NA

Course Outcomes:
1. Student will able to understand the basic concepts of operating systems and processes.
2. Student will able to analyze Scheduling algorithms and concept of Deadlocks.
3. Student will able to apply various memory management schemes.
4. Student will able to understand the basics of Distributed Operating System

UNIT 1: Introduction to Operating system **(12 HOURS)**

Introduction: Operating system definition, Functions of Operating System, Logical View, System View, Types of operating System, System Calls, System Programs.

Processes: Process Concept, Thread Concept, Difference between Process and Thread, Process Control Block, Process operations, Inter-process Communication, Communication in Client-Server.

UNIT 2: CPU Scheduling & Process Synchronization **12 HOURS)**

CPU Scheduling: Scheduling Concept, Scheduling Criteria, Scheduling algorithms, Scheduling Evaluation, Simulation Concept.

Process Synchronization: Synchronization concept, Need for Synchronization, Critical Section Problem, Semaphore, Monitor.

Deadlock: Deadlock concepts, Necessary Conditions for Deadlock, Deadlock Prevention, Deadlock Avoidance, Bankers Algorithm, Deadlock Detection, Deadlock Detection Algorithm for Single and Multiple Instance of Resources, Deadlock Recovery.

UNIT 3 : Memory& File Management   **(12 HOURS)**

Memory Management: Concept, Memory Management Techniques, Contiguous &Non Contiguous allocation, Relocation, Compaction, Logical & Physical Memory, Conversion of Logical to Physical address, Paging, Segmentation, Segment with paging, Virtual Memory Concept, Demand paging, Page fault.

File Management: File Structure, Protection, FILE system, Implementation, Directory structure, Free Space Management, File Access Methods, File Allocation Methods, Recovery.

UNIT 4 : Distributed Operating System   **(12 HOURS)**

Disk Management: Disk Structure, Disk Scheduling algorithm, Disk management, Swap Space concept and Management, RAID structure, Disk performance issues.

Distributed Operating System: Difference between Distributed & Centralized OS, Advantages of Distributed OS, Types of Distributed OS

Text Books:
1. Operating System Silberschatz, Galvin , Gagne, Wiley publication
2. Operating System Concepts and Design , Milan Milenkovic, MGH

References:
1. Distributed Operating System P.K. Sinha, PHI
2. Operating system Achyut Godbole
3. Operating System In Depth Doeppner Wiley India
4. Operating System Rohit KhuranaVikas pub.

01MCL102: Python Programming

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCL102: Python Programming
Prerequisites	Basics of Programming Languages C, C++
Teaching scheme: Lectures + Practical	3 Hrs. + 4 Hr.
Credits	3 + 2 = 5
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Practical: 2 Hr./Week	Practical:100 Marks POE: 50 Marks + TW(CIE): 50 Marks

Course Outcomes:

1. Student will able to Learn Basic Syntax of Python Programming.
2. Student will able to understand and implement concepts of object oriented methodology using Python.
3. Student will able to learn collections in Python.
4. Student will able to develop problem solving skills and their implementation through Python.

UNIT 1: Introduction to Python   (12 HOURS)

Introduction to Python: an interpreted high level language, interactive mode and script mode. Variables, Expressions and Statements, Variables and Types-mutable and Immutable variable and Keywords. Operators and Operands in Python. (Arithmetic, relational and logical operators), Operator precedence Expressions and Statements (Assignment statement); Taking input (using raw input) and input ()) and displaying output - print statement, Comments in Python. Conditional and Looping Construct if - else statement and nested if – else while, for, use of range function in for, Nested loops, break, continue.

UNIT 2: Functions & Strings   (12 HOURS)

Functions: Built-In Function, invoking built in functions, Functions from math, random, time & date, User Define Function. Strings: Creating, initializing and accessing the elements; String operators: +, *, in, not in, range, slice [n: m], String built in functions & methods, Strings constants defined in string module, Regular Expression and Pattern Matching.

UNIT 3: Lists, tuples, sets & dictionaries (12 HOURS)

Lists: Concept of mutable lists, creating, initializing and accessing the elements of list, List operations. Tuples: Immutable concept, creating, initializing and accessing the elements in a tuple; Tuple functions: cmp(), len(), max(), min(), tuple(). Sets: Concept of Sets, creating, initializing and accessing the elements of Sets operation (Membership, union, intersection, difference, and symmetric difference. Dictionaries: Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, Traversing, Dictionary functions & Methods.

UNIT 4 (12 HOURS)

Modules: Executing modules as scripts, The Module Search Path, ―Compiled‖ Python files Standard Modules, The dir.( ) Function ,Packages Importing * From a Package. I/O and File Handling:, Output Formatting ,Reading and Writing Files(text and binary mode).Errors and **Exceptions:** Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions. Introduction to Object Oriented concepts in Python.

This course should consist of 10 to 12 programming exercises with focus on covering the hands-on aspects.

Text Books

1. Learning Python By Mark Lutz,O'Reilly Publication
2. Programming with python, A users Book, Michael Dawson, Cengage Learning
3. Python Essential Reference, David Beazley, Third Edition 5. Python Bible

References:

1. Practical Programming: An introduction to Computer Science Using Python, second edition, Paul Gries, Jennifer Campbell, Jason Montojo, The Pragmatic Bookshelf.
2. Python for Informatics: Exploring Information, Charles Severance
3. John V Guttag. ‒Introduction to Computation and Programming Using Python‖, Prentice Hall of India
4. Nageswara Rao, ‒Core Python Programming‖, Dreamtech

01MCL103: Database Management System

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	**01MCL103: Database Management System**
Prerequisites	**Basics of Database**
Teaching scheme: Lectures + Practical	**3 Hrs. + 2 Hr.**
Credits	**3 + 1**
Evaluation Scheme ESE + CIE for Theory	**50 (ESE) + 50 (CIE)**

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	**Theory: 100 Marks, 50 (ESE) +50 (CIE)**
Practical: 2 Hr./Week	**POE: 50 Marks , TW(CIE): 25 Marks**

Course Outcomes:
1. Student will able to understand basic concepts of DBMS and RDBMS.
2. Student will able to apply and practice data modeling using the entity-relationship anddeveloping database designs.
3. Student will able to apply Structured Query Language (SQL) and learn SQL syntax.
4. Student will able to understand the needs of database processing and learn techniques for controlling theconsequences of concurrent data access.

UNIT 1: Basics of DBMS   **(12 HOURS)**

Basics Of DBMS: Database Concept, Characteristics and architecture of DBMS, Database users, 3-tier architecture of DBMS-its advantages over 2-tier, Introduction of Parallel, Distributed Databases, Mobile databases and Cloud databases.

UNIT 2: Introduction to RDBMS & Normalization   **(12 HOURS)**

Introduction to RDBMS: Entity introduction, characteristics, Comparison between DBMS, RDBMS, Generalization and Aggregation

Normalization: Functional dependency, types of normalization (1NF, 2NF, 3NF, BCNF).

Data constraint: Primary key, Foreign key, Unique key, Null, Not Null, Default key.

UNIT 3: SQL & NOSQL (12 HOURS)

SQL: Introduction to SQL, Features of SQL, Basic data types, SQL statements/commands, Set operations in SQL, order by and group by clause, between, in, like, create index, view and join command Nested queries, GRANT and REVOKE, Commit, Rollback, Save point. Join concept, Join Types, View.

NOSQL: Definition and Introduction**,** Features and Types of NOSQL databases, Sorted Ordered Column-Oriented Stores, Key/Value Stores, Document Databases, Graph Databases

Concurrency Control and Transaction Management: Transaction processing and

Unit 4: Concurrency control & transaction management (12 Hours)

Concurrency control & transaction management, Concept of transaction processing, ACID properties, Locking techniques, Timestamp based protocols, Granularity of data items, Deadlocks. Database Recovery & Backup.

This course should consist of 10 to 12 programming exercises with focus on covering the hands-on aspects.

Text Books:

1. Introduction to database systems C. J. Date Pearsons Education 8th
2. Database system concept Korth, Silberschatz and Sudarshan MGH 5th

References:

1. Fundamentals of Database Systems Elmasri Navathe PearsonEducation5th
2. SQL /PL SQL For Oracle 11G BlackBook Dr.Deshpande WileyDreamtech2012
3. ORACLE PL/SQL Programming Scott Ulman TMH 9th
4. SQL, PL/SQL the programming language of Oracle Ivan Bayross BPB 4th
5. Advance Database Management System hakrabharati/DasguptaWileyDreamtech2011
6. Database Management systems Ramakrishnan&Gehrke, McGraw-Hill,3rd Ed..

<div align="center">**01MCL104: Software Engineering**</div>

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCL104: Software Engineering
Prerequisites	Basics of Computer Hardware and software
Teaching scheme: Lectures + Tutorial	3 Hrs. + 1Hr
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: 1 Hr./Week	TW: NA

Course Outcomes:

1. Students will get foundation of software engineering, various process models and can apply the new models in development process.
2. Students will have effective communication and interaction skills for requirement engineering tasks.
3. Students can implement good coding practices and testing strategies thoroughly using testing tools.
4. Students will understand the need of lifelong learning and adapt to new software engineering concepts.

Unit-1 Introduction to Software Engineering   (12 HOURS)

Introduction to Software Engineering Definition, need for Software Engineering, Software Engineering Problem, Software Engineeringapproach, Software Development Life Cycle Process Models-Waterfall model-Classical, Iterative, Prototyping Model, Spiral Model, RapidApplication Development (RAD)

Unit-2 Requirements Anticipation and Investigation   (12 HOURS)

Requirements Anticipation and Investigation: Fact finding methods, Software requirement Specification (SRS)-Concept, Need, Characteristics,Components, Structure of SRS.
Decision Analysis Tools:-Decision Tree, Decision TableData Flow Diagrams, Entity Relationship Diagram

Unit-3: Design of input & Control   **(12 HOURS)**

Design of input & Control Objectives of Input Design, Input Validations,

Design of output: - Objectives of Output, Design Types of Output, Coupling & Cohesion

User Interface design: Elements of good design, design issues, features of modern GUI, error messages,

Unit-4: Coding: Programming principles and guide lines, Coding process   **(12 HOURS)**

Coding: Programming principles and guide lines, coding process

Testing: Testing fundamentals and types of Testing, Unit Testing, Integration Testing, System Testing, Alpha testing & Beta testing, Black Box, White Box, Testing process

Case Studies: Airline reservation System, Tours & Travels management System, Sales & Purchase Management System, Library Management System, Hospital Management System

Text Book-

1. System Analysis and design and Introduction to Software Engineering by Parthsarathi, B.W. Khalkar, Everest Publishing House

Reference Books-

1. An Integrated Approach to Software Engineering by Pankaj Jalote, Tata McGraw-Hill
2. Fundamentals of Software Engineering by Rajib Mall, PHI Learning
3. Software Engineering by R.S. Pressman, Tata McGraw-Hill
4. Software Engineering by Martin Shooman, McGraw-Hill

01MCL110: Digital Marketing

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCL110: Digital Marketing
Prerequisites	Basic of Computer Technology
Teaching scheme: Lectures + Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: 1 Hr./Week	TW: NA

Course Outcomes:-

1. Student will able to understand concept and significance of Digital Marketing.

2. Student will able demonstrate the Technical Elements of Digital Marketing.

3. Student will able learn contemporary developments in Digital Marketing

4. Students will able use Google analytics tools for generating various reports.

UNIT 1: Basics of Digital Marketing   (12 HOURS)

Principles of Digital Marketing, Basics of Marketing, What is Digital Marketing?, Comparison of Traditional and Digital Marketing, Statistics of Digital Marketing, Benefits of Digital marketing, Emerging trends in Digital marketing, Digital marketing platforms, Digital Marketing ,strategy for websites, Career opportunities in DigitalMarketing

UNIT 2: Website Designing   (12 HOURS)

Website Designing (Word Press), Types of Websites, Basics of HTML/CSS/JavaScript, Word Press Installation on Server, Understanding the Dashboard, Changing the Default Settings, Installing and customizing themes, Content management in WP, Creating categories, pages, and posts, Adding a menu, widgets to the website, Installing usefulplugins for site features, SEO specific plugins.

UNIT 3: SEO (Search Engine Optimization) and SEM (Search Engine Marketing)   (12 HOURS)

I: SEO

Introduction to SEO, How Do Search engines work?, Search Engine Algorithms, Google Algorithm Updates, Google Search Console, Keyword Research Process, Keyword Research Tools, Competition Analysis, On page Optimization strategies, Content development strategy, Title & Meta Tags, Semantic SEO, Rich Snippets Integration, Speed Optimization, Off Page Optimization, Link Building Techniques as per latest standards, Local SEO Strategies, Penguin & Panda update recovery process, Reports and SERP Management, Click here for detailedSEO Curriculum

II. SEM

Introduction to Paid Marketing, Google Ads (Google AdWords) account and billing settings, Types of Campaigns PPC Campaign Setup, AdGroups and Keywords setup, idding strategies & Conversion Tracking, AdRank, Quality Score Optimization, Ad Formats & Ad Extensions, Shopping Campaigns, Dynamic search campaigns, Display Ads Campaigns, Remarketing campaigns, Mobile Apps Marketing, Video Marketing, Google Ads (Google AdWords) tools, MCC Account, AdWords Editor Tool

UNIT 4 : Google Analytics: (12 HOURS)

Google Analytics:

Purpose of website analytics, Tools for website analytics, Installing Google Analytics, Google Tag Manager, How to use Google Tag Manager, Implement Conversion Tracking, Basic terminology and KPI's, Audience Reports, Customer Acquisition Reports, Behavior Reports, Goals and Conversion Reports, Segmentation and Filters

Text Books:

1. Digital Markrting by Vibha mhatur, Saloni Arora.
2. Digital Marketing: Strategy, Implementation & Practice by Dave Chaffe,fiona ellis-chadwick

Reference Books:

1. MARKETING IN THE DIGITAL AGE Dinesh Kumar Professor of Marketing, JagranLakecity University, Bhopal Marketing faces a huge challenge in the digital era. T

2. Marketing 4.0: Moving from Traditional to Digital‖ by Philip Kotler

3. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns Hardcover –

4. Digital Marketing: Cases from India Paperback – 1 January 2018 by Edited by Rajendra Nargundkar and RomiSainy

01MCP107: Communication Skills

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCP107: Communication Skills
Prerequisites	Oral, Written Communication
Teaching scheme: Practical	2 Hr.
Credits	1
Evaluation Scheme ESE + CIE for Theory	NA

Teaching scheme	Examination scheme
Lectures: --	Practical: 50 Marks, POE:50 (ESE)
Practical: 2 Hr./Week	TW: NA

Course Outcomes:

The objectives of this course are to introduce communication techniques, professional correspondence techniques and enhance writing skills of the students.

UNIT 1   (9 HOURS)

Communication: Nature and Importance of Communication, Objectives of Communication, Importance of Communication, Process and barriers to Communication, Elements of Communication, Forms of Communication.

Verbal Communication Techniques: Art of Speaking, Speech Styles. Oral Presentation, Preparation of Formal Speech, Meetings, Interviews, Group Discussion, Debate.

UNIT 2   (9 HOURS)

Non-verbal Communication: Meaning, Characteristics & classification of Non-verbal Communication, Body Language, Gestures, Postures, and Listening & observation skills.

Rapid review of Grammar: Corrections of common errors, Verb and its subject, forms of verb, Use of phrases and idioms, Use of infinitive Gerund and Participle, Errors & Use of Adjective and adverb , Punctuation and capitalization.

Text Books:

1. R.K. Chaddha Communication Techniques and skills – Dhanpal Rai Publication,New Delhi.
2. Pravil S. R. Bhatia, Professional Communication Skills- S. Chand and Co. New Delhi.
3. J.D.O'Connor, Better English pronunciation.

References:

1. Wren and Martin, Highschool English Grammar and Composition – Chand and Co.,New Delhi.
2. Sunita Mishra, C.Muralikrishna, Communication Skills for Engineers – Pearson Education.
3. Aspi Doctor, Principles and Practice of Business Communication Rhoda Doctor, Sheth Publication, Mumbai.
4. John Collin, ‑Perfect Presentation‖, Video Arts MARSHAL
5. Jenny Rogers ─ Effective Interviews‖, Video Arts MARSHAL
6. Raman Sharma, ─ Technical Communications‖, OXFORD

01MCL108: Audit Course - I

DISASTER MANAGEMENT

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	**01MCL108: Audit Course-I**
Prerequisites	**Disaster Management**
Teaching scheme: Lectures	2 Hrs.
Credits	--
Evaluation Scheme CIE for Theory	50 (CIE)

Teaching scheme	Examination scheme
Lectures: 2 Hrs. /Week	Theory: 50 Marks (CIE)
Tutorial: NA	TW: NA

Course Outcomes:
1. Student will able to understand how to react effectively to natural, manmade, and planetary hazards

2. Student will able to explore the history of the field and comprehend how past

   events are earthquake,Landslides and volcanic hazards.

3. Student will able to describe the basic concepts of the emergency management cycle mitigation, preparedness,response, and recovery

UNIT 1. INTRODUCTION   **(4 HOURS)**

Disaster: Definition, Factors and Significance; Difference between Hazard and Disaster; Natural andManmade Disasters: Difference, Nature, Types and Magnitude.

UNIT 2. REPERCUSSIONS OF DISASTERS AND HAZARDS   **(5 HOURS)**

Economic Damage, Loss of Human and Animal Life, Destruction of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches,Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.

UNIT 3. DISASTER PRONE AREAS IN INDIA   (5 HOURS)
Study of Seismic Zones; Areas Prone To Floods and Droughts, Landslides and Avalanches; Areas ProneTo Cyclonic and Coastal Hazards with Special Reference to Tsunami; Post-Disaster Diseases and Epidemics

UNIT 4. DISASTER PREPAREDNESS AND MANAGEMENT   (5 HOURS)
Preparedness: Monitoring of Phenomena Triggering A Disaster Or Hazard; Evaluation Of Risk: ApplicationOf Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness.

UNIT 5. RISK ASSESSMENT & DISASTER MITIGATION   (5 HOURS)
Disaster Risk: Concept and Elements, Disaster Risk Reduction, Global and National Disaster RiskSituation. Techniques of Risk Assessment, Global Co-Operation in Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.
Disaster Mitigation: Meaning, Concept and Strategies of Disaster Mitigation, Emerging Trendsin Mitigation. Structural Mitigation and Non-Structural Mitigation, Programs Of Disaster Mitigation in India.

Text Books:
1. R. Nishith, Singh AK, ―Disaster Management in India: Perspectives, issues and strategies‖, New Royalbook Company.

References:
1. Sahni, PardeepEt.Al, ―Disaster Mitigation Experiences and Reflections‖, Prentice Hall Of India,New Delhi.
2. . Goel S. L. ―Disaster Administration and Management Text and Case Studies‖, Deep & Deep Publication Pvt. Ltd., New Delhi.

TEACHING PLAN

Dept. of Master of Computer Application(MCA – I Sem-I 2025-26)
Lecture Plan: Operating System

Lecture No	Topics
1	**Unit 1**
	Operating system Introduction & Definition
	Functions of Operating system
	Logical and System View
	Types of Operating System
	System Calls
	System Programs
	Process Concept
	Thread Concept
	Difference Between Process and Thread
	Process Control Block
	Process Operation, Inter-process Communication
	Communication In Client-Server
2	**Unit 2**
	CPU Scheduling concept, Scheduling Criteria
	Scheduling Algorithms
	Scheduling Evaluation, Simulation Concept
	Synchronization concept, Need for Synchronization
	Critical section Problem
	Semaphore, Monitor
	Deadlock Concepts, Necessary Conditions for Deadlock
	Deadlock Prevention , Deadlock Avoidance
	Bankers Algorithm
	Deadlock Detection
	Deadlock Detection Algorithm for single & Multiple Instance of Resources
	Deadlock Recovery
3	**Unit 3**
	Memory management Concept, Memory Management techniques
	Contiguous & Non-contiguous Allocation
	Relocation , Compaction, logical & physical memory
	Conversion of logical to physical address, paging
	Segmentation, segment with paging, virtual memory concept
	Demand paging, page-fault
	File management structure, protection , file system
	Implementation, Directory structure
	Free-space management, File access methods
	File Allocation Methods , Recovery
4	**Unit 4**
	Disk Structure
	Disk Scheduling Algorithm
	Disk Management
	Swap-space concept
	Swap-Space Management
	RAID Structure
	Disk Performance Issues
	Distributed Operating System
	Distributed V/S Centralized operating System
	Advantages of Distributed Operating System
	Types of Distributed Operating System

Lecture No	Topics
	Dept. of Master of Computer Application(MCA – I Sem-I 2025-26) **Lecture Plan: Software Engineering**
1	**Unit 1 Introduction to Software Engineering**
	Definition, need for Software Engineering
	Software Engineering Problem
	Software Engineering approach
	Software Development Life Cycle
	Process Models
	Water fall model- Classical, Iterative
	Prototyping Model
	Spiral Model
	Rapid Application Development (RAD)
2	**Unit 2**
	Requirements Anticipation and Investigation
	Fact finding methods
	Software requirement Specification (SRS)
	Concept, Need
	Characteristics
	Components, Structure of SRS
	Decision Analysis Tools:
	Decision Tree
	Decision Table
	Data Flow Diagrams
	Entity Relationship Diagram
3	**Unit 3**
	Design of input & Control
	Objectives of Input Design
	Input Validations
	Design of output
	Objectives of Output
	Design Types Of Output
	Coupling
	Cohesion
	User Interface design: Elements of good design
	design issues
	features of modern GUI
	error messages etc.
4	**Unit 4**
	Coding: Programming principles and guide lines
	Coding process
	Testing: Testing fundamentals and types of Testing
	Unit Testing, Integration Testing, System Testing
	Alpha testing & Beta testing,
	Black Box, White Box
	Testing process
	Case Studies: Airline reservation System
	Tours & Travels management System
	Sales & Purchase Management System
	Library Management System
	Hospital Management System

Dept. of Master of Computer Application(MCA – I Sem-I 2025-26)	
Lecture Plan: DBMS	
Lecture No	**Topics**
1	**Unit 1 Basics Of DBMS**
	Database Concept
	Characteristics and architecture of DBMS
	Database users
	3-tier architecture of DBMS-its advantages over 2-tier
	Introduction of Parallel
	Distributed Databases
	Mobile databases
	Cloud databases
2	**Unit 2 Introduction to RDBMS**
	Introduction to RDBMS
	Entity introduction
	characteristics
	Comparison between DBMS and RDBMS
	Generalization
	Aggregation
	Functional dependency
	Normalization
	Types of normalization (1NF, 2NF, 3NF, BCNF).
	Primary key, Foreign key
	Unique key, Null
	Not Null, Default key
3	**Unit 3 SQL**
	Introduction to SQL, Features of SQL
	Basic data types, SQL statements/commands
	Set operations in SQL
	order by and group by clause, between, in, like
	create index, view
	join command Nested queries, Join Types
	GRANT and REVOKE, Commit, Rollback, Save point
	NOSQL: Definition and Introduction, Features
	Types of NOSQL databases, Sorted Ordered Column-Oriented Stores
	Key/Value Stores
	Document Databases
	Graph Database
4	**Unit 4 Concurrency Control and Transaction Management**
	Concurrency Control
	Transaction Management
	Transaction processing
	Concurrency
	Concept of transaction processing
	ACID properties
	Locking techniques
	Timestamp based protocols
	Granularity of data items
	Deadlocks
	Database Recovery & Backup.

Dept. of Master of Computer Application(MCA – I Sem-I 2025-26)	
Lecture Plan: Digital Marketing	
Lecture No	**Topics**
1	**Unit 1: Basics of Digital Marketing**
	Principles of Digital Marketing
	Basics of Marketing
	What is Digital Marketing
	Comparison of Traditional and Digital Marketing
	Statistics of Digital Marketing
	Benefits of Digital marketing
	Emerging trends in Digital marketing
	Digital marketing platforms
	strategy for websites
	Career opportunities in Digital Marketing
2	**Unit 2: Website Designing**
	Website Designing (Word Press)
	Types of Websites
	Basics of HTML/CSS/JavaScript
	WordPress Installation on Server, Understanding the Dashboard
	Installing and customizing themes, Changing the Default Settings
	Content management in WP
	Creating categories, pages, and posts, Adding a menu, widgets to the website, ,
	Installing useful plugins for site features ,
	SEO specific plugins
3	**Unit 3: SEO (Search Engine Optimization) and SEM (Search Engine Marketing)**
	Introduction to SEO, How Do Search engines work
	Search Engine Algorithms, Google Algorithm Updates
	Google Search Console, Keyword Research Process
	Keyword Research Tools, Competition Analysis
	On page Optimization strategies, Content development strategy
	Title & Meta Tags, Semantic SEO, Rich Snippets Integration,
	Speed Optimization, Off Page Optimization, Link Building Techniques as per latest standards
	Local SEO Strategies, Penguin & Panda update recovery process
	Reports and SERP Management
	Introduction to Paid Marketing, Google Ads (Google AdWords) account and billing settings
	Conversion Tracking, Ad Rank, Quality Score Optimization
	Ad Formats Ad Extensions, Shopping Campaigns, Dynamic search campaigns
	Display Ads Campaigns, Remarketing campaigns, Mobile Apps Marketing, Video Marketing,
	Google Ads (Google AdWords) tools, MCC Account, AdWords Editor Tool
4	**Unit 4: Google Analytics**
	Purpose of website analytics, Tools for website analytics
	Installing Google Analytics
	Google Tag Manager
	How to use Google Tag Manager
	Implement Conversion Tracking
	Basic terminology and KPI's,
	Audience Reports
	Customer Acquisition Reports
	Behaviour Reports
	Goals and Conversion Reports,

	Segmentation and Filters

Dept. of Master of Computer Application(MCA – I Sem-I 2025-26)	
Lecture Plan: Disaster Management	
Lecture No	**Topics**
1	**Unit 1: INTRODUCTION**
	Disaster: Definition, Factors and Significance, Difference between Hazard and Disaster
	Natural and Manmade Disasters
	Natural and Manmade Disasters :Difference, Nature
	Natural and Manmade Disasters: Types and Magnitude
2	**Unit 2: REPERCUSSIONS OF DISASTERS AND HAZARDS**
	Economic Damage, Loss of Human and Animal Life
	Natural Disasters: Earthquakes, Volcanisms, Cyclones
	Tsunamis, Floods, Droughts and Famines, Landslides and Avalanches
	Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks and Spills
	Outbreaks of Disease and Epidemics, War and Conflicts
3	**Unit 3: DISASTER PRONE AREAS IN INDIA**
	Study of Seismic Zones
	Areas Prone To Floods and Droughts
	Landslides and Avalanches
	Areas Prone To Cyclonic and Coastal Hazards with Special Reference to Tsunami
	Post-Disaster Diseases and Epidemics
4	**Unit 4: DISASTER PREPAREDNESS AND MANAGEMENT**
	Preparedness: Monitoring of Phenomena Triggering A Disaster or Hazard
	Evaluation of Risk:
	Application of Remote Sensing
	Media Reports: Governmental Preparedness
	Media Reports: Community Preparedness
5	**Unit 5: RISK ASSESSMENT & DISASTER MITIGATION**
	Disaster Risk: Concept and Elements
	Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment
	Global Co-Operation in Risk Assessment and Warning, People's Participation In Risk Assessment. Strategies for Survival
	Disaster Mitigation: Meaning, Concept and Strategies of Disaster Mitigation, Emerging Trends in Mitigation
	Structural Mitigation and Non-Structural Mitigation, Programs of Disaster Mitigation in India.

Dept of Master of Computer Application(MCA – I Sem-I 2025-26) Lecture Plan: Communcation Skills	
Lecture No	**Unit1 : Communcation**
1	Nature, Definition of Communication
	Importance and objective of communication
	Process and barriers
	Factors and elements
	Forms or types
	Art of speaking
	Speech styles
	Oral presentation
	Meetings
	Interview
	Preparation of formal speech
	Group Discussion
2	**Unit2**
	Debate
	Non verbal communication meaning ,its characteristics, classification
	Body language and its importance
	Gestures and posters
	Listening skills
	Observation Skills
	Correction of common errors
	Verb and its subject
	Use of phrases and idioms
	Use of infinitive, Gerund and participle
	Errors and use of Adjectives and adverb
	Punctuation and capitalisation

Dept. of Master of Computer Application(MCA – I Sem-I 2025-26)	
Lecture Plan: Disaster Management	
Lecture No	**Topics**
1	**Unit 1: INTRODUCTION**
	Disaster: Definition, Factors and Significance, Difference between Hazard and Disaster
	Natural and Manmade Disasters
	Natural and Manmade Disasters :Difference, Nature
	Natural and Manmade Disasters: Types and Magnitude
2	**Unit 2: REPERCUSSIONS OF DISASTERS AND HAZARDS**
	Economic Damage, Loss of Human and Animal Life
	Natural Disasters: Earthquakes, Volcanisms, Cyclones
	Tsunamis, Floods, Droughts and Famines, Landslides and Avalanches
	Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks and Spills
	Outbreaks of Disease and Epidemics, War and Conflicts
3	**Unit 3: DISASTER PRONE AREAS IN INDIA**
	Study of Seismic Zones
	Areas Prone To Floods and Droughts
	Landslides and Avalanches
	Areas Prone To Cyclonic and Coastal Hazards with Special Reference to Tsunami
	Post-Disaster Diseases and Epidemics
4	**Unit 4: DISASTER PREPAREDNESS AND MANAGEMENT**
	Preparedness: Monitoring of Phenomena Triggering A Disaster or Hazard
	Evaluation of Risk:
	Application of Remote Sensing
	Media Reports: Governmental Preparedness
	Media Reports: Community Preparedness
5	**Unit 5: RISK ASSESSMENT & DISASTER MITIGATION**
	Disaster Risk: Concept and Elements
	Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment
	Global Co-Operation in Risk Assessment and Warning, People's Participation In Risk Assessment. Strategies for Survival
	Disaster Mitigation: Meaning, Concept and Strategies of Disaster Mitigation, Emerging Trends in Mitigation
	Structural Mitigation and Non-Structural Mitigation, Programs of Disaster Mitigation in India.

EXPERIMENT LIST
AND
ASSIGNMENT LIST

1. Python Programming – I (PCC- MCA-C03)
Dr. J. J. Magdum Trusts's
DR J.J.MAGDUM COLLEGE OF ENGINEERING, JAYSINGPUR.

Department of Master of Computer Application

Class: SY MCA, SEM- I

Subject: Python Programming

Name of Faculty: Prof. S. N. Wadkar

Laboratory Name: Python lab

Lecture	Practical	Tutorial		Total Hrs/Wk
3	2	--		7
Theory	Term work	OE	POE	Total Marks
--	50	--	50	100

Experiment List

Expt. No.	Name of Experiment	Nature of Experiment	CO
1	What is python describe with the working of Interpreter? Explain the features of python Programming Language.	Non-Performing	1
2	What is the variables and datatype in python and write the program Simple calculator in python.	Performing	1
3	Write a program to print Armstrong Number or not	Performing	2
4	Write a program to print Prime number using function.	Performing	2
5	Write a program to check Count Vowel and Constant	Performing	2
6	Accept list from user and write a program To find largest and smallest number from list without using built-in-function.	Performing	3
7	Program to accept dictionary from user and print the sum of values in dictionary	Performing	3
8	Program to accept set and perform operations on set like Union, Intersection, Complement.	Performing	3
9	Write a program which accept one number and display Pattern Printing.	Performing	4
10	Write a program to count uppercase and lowercase letters in File Handling in python	Performing	4

01MCP106: Database Management System

Class: FY MCASEM- I

Subject: Database Management System

Name of Faculty: Prof. S. A. Bhagwat

Laboratory Name: Python lab

Lecture	Practical	Tutorial		Total Hrs/Wk.
3	2	---		05
Theory	Term work	OE	POE	Total Marks
50+50	25		50	175

Experiment List

Expt. No.	Name of Experiment	Nature of Experiment	CO
1	Study of ER diagram	Non-Performing	CO 106. 1
2	Study of Normalization and Normal forms.	Non-Performing	CO 106. 2
3	Implementation of DDL queries to create, alter (add, modify, rename, drop) and drop table.	Performing	CO 106. 3
4	Implementation of DML queries to insert delete update and display record of the table.	Performing	CO 106. 3
5	Implementation of set operations like Union, intersection and set difference.	Performing	CO 106. 3
6	Implementation of join operation like cross join, self-join, inner join, natural join, left outer join, right outer join and full outer join.	Performing	CO 106. 3
7	Implementation of aggregate function like min,max,avg,sum and count also use group by having clause	Performing	CO 106. 3
8	Implementation of scalar valued function in SQL server	Performing	CO 106. 4
9	Implementation of create procedure and how to use	Performing	CO 106. 4
10	Error handling in SQL server	Performing	CO 106. 4

01MCL10: Operating System

Lecture		Practical	Tutorial		Total Hr/Wk
3		0	1		4
Theory	ESE	T/W	OE	POE	Total Marks
50	50	-	--	0	100

Class	MCA I	Sem.: I
Course	Operating System	

Tutorial No.	Name of the Tutorial Operating System
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No. 6

01MCL104: Software Engineering

Lecture		Practical	Tutorial		Total Hr /Wk
3		0	1		4
Theory	ESE	T/W	OE	POE	Total Marks
50	50	-	--	0	100

Class	MCA I Sem.: I
Course	Software Engineering

Tutorial No.	Name of the Tutorial Software Engineering
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No. 6
7	Tutorial No. 7
8	Tutorial No. 8

01MCL110: Digital Marketing

Lecture		Practical	Tutorial		Total Hr /Wk
3		0	1		4
Theory	ESE	T/W	OE	POE	Total Marks
50	50	-	--	-	100

Class	MCA I Sem.: I
Course	Digital Marketing

Tutorial No.	Name of the Tutorial **Digital Marketing**
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No. 6
7	Tutorial No. 7
8	Tutorial No. 8

01MCP107: Communication Skills

Lecture		Practical	Tutorial		Total Hr /Wk
1		2	0		3
Theory	ESE	T/W	OE	POE	Total Marks
-	-	-	50	0	50

Class	MCA I Sem.: I
Course	Communication Skills

Tutorial No.	Name of the Assignment Communication Skills
1	What is communication? It's importance in the business world.
2	What are the types of the communication?
3	Explain factors of communication and its process.
4	Why speaking as an art? Explain.
5	What is mean by speech style? Explain its types.
6	What is formal speech? Explain its technique.
7	What is group discussion? Explain Dos and don'ts Debate and its benefits
8	Explain importance of body language in the communication?

FACULTY LIST

DEPARTMENT FACULTY LIST

Academic Year- 2025-2026 SEM- I

Sr. No.	Faculty Name
01	Prof. P.V. Kothawale
02	Prof. S. B. Patil
03	Prof. P. N. Patil
04	Prof. S. A. Bhagwat
05	Prof. S. N. Wadkar
06	Prof. R. S. Parkhe
07	Prof. A. M. More

STAFF LIST

DEPARTMENT STAFF LIST

Academic Year- 2025-2026 SEM- I

Sr. No.	Staff Name
01	Mr. R. S. Khandekar (Tech. Assistant)
02	Mr. D. S. Suryvanshi (Peon)

2025-26 Sem - III
Student Information Manual

MCA

Student Information Manual (SIM)

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Mission of Institute
Quality Policy
3. Vision of Department
Mission of Department
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Programme Outcomes (PO's)
Programme Specific Outcomes (PSO)
4. Students role Responsibilities:
Code-of-Conduct:
5. Laboratory and Classroom Instructions
Laboratory instructions:
Classroom instructions:
6. Department Academic Planner
7. Departmental time table
8. Structure of Syllabus
9. Subject Details
Course details/syllabus
Recommended Books
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Assignments
10. Department Faculty
11. Department Staff

INSTITUTE INFORMATION

Dr J. J. Magdum College of Engineering was established by Dr J. J. Magdum Trust, Jaysingpurin the year 1992 with an objective to promote the cause of higher education. The institute is approved by All India Council of Technical Education (AICTE), New Delhi and Governmentof Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech programs in Mechanical, Civil, Computer Science Engineering, IT and Electronics.

Our Management extends its fullest support in building the institution as a center of excellence with technically superior, ethically strong and competent engineers.

The serene campus vibrant with aesthetic bliss in an exhilarating convenient location, well connected by road, rail and air is easily accessible. The eco-friendly ambience creates and bestows a healthy learning atmosphere.

The institution is meticulous with modern laboratory, workshop facilities and state of art computer center providing an excellent infrastructure.

The institution has spacious library with vast collection of Books, Newspapers, National & International Journals, Magazines, Reference books, Encyclopedia, World of science, ASM hand books and course materials. E-learning through NPTEL Video course by NIT and IIT Professors are available.

The Teaching and Non-Teaching Staff of the institute is a blend of senior experienced and young dynamic faculty members devoted to the noble cause of education. Qualified, experienced, versatile and efficient faculty members mold the students diligently in ethical, moral and academic aspects.

We impart technology based experiential learning through industry visits, live projects, expert talks, MOOC's, workshops, case studies, upscale labs, and virtual classroom sessions.

Industry-Institute interaction and real-time projects nurture and craft the budding engineers to bloom and flourish in the field with the prowess guidance in the campus. The college equips the students with the latest skills which make them employable and future ready.

Due to able and proper guidance and motivation, many of our students have topped at University. Our training and placement work meticulously to improve and develop life skills to the students and tries hard to seek good jobs for our students. In addition to the academics, the students are engaged in sports and cultural activities which helps them to develop versatile personality. Various Club activities are conducted to encourage, motivate and inspire students from diverse culture to harness the talent through their perseverance.

The institute is having specious ground and the modern facilities for both indoor and outdoor games and ultra-modern Gymnasium. Due to proper guidance and motivation, many of our students have grabbed prizes at University level and different sport events.

We are committed to stakeholders for best results and produced more than 10000+ engineers getting campus placements.

VISION OF INSTITUTE

To be a Leading academic organization, creating skilled and Ethical Human Resources by leveraging Technical Education for Sustainable Development of Society.

MISSION OF INSTITUTE

- To promote learn ability of all stakeholders
- To empower rural youth to be competent in technical education and imbibeethical values.
- To contribute to local social and economic context, leading to satisfiedstakeholders.

PROGRAMME OUTCOMES

We strive for continual improvement in our performance through methodical academic monitoring, student participation, and use of the innovative teaching- learning processes.

VISION OF DEPARTMENT

To be the source of bringing out globally competent pioneering computing professionals, researchers, innovators and entrepreneurs and thereby succeed and contribute value to the knowledge-based economy and society.

MISSION OF DEPARTMENT

➢ To offer high-grade, value-based Post-graduate programme in the field of Computer Applications.

➢ To provide conducive environment so as to achieve excellence in teaching-learning, and research and development activities.

➢ To bridge the gap between industry and academia by framing curricula and syllabi based on industrial and societal needs.

➢ To offer tasks for experiential technology-intensive knowledge through collaborative and interdisciplinary activities.

➢ To provide appropriate forums to develop innovative talents, practice ethical values and inculcate as enduring learners.

➢ To facilitate students to nurture skills to practice their professions competently to meet the ever-changing needs of society

PROGRAMME EDUCATIONAL OBJECTIVES (PEO'S)

1. To train students with good of knowledge in core areas of Information Technology and related engineering so as to analyze, design, and synthesize data and technical concepts.

2. To inculcate in students to maintain high professionalism and ethical standards, effective oral and written communication skills, to work as part of teams.

3. To provide our graduates with learning environment awareness of the life-long learning needed for a successful professional career and to introduce them to written ethical codes and guidelines, perform excellence, leadership and demonstrate good citizenship.

4. To provide students with academic environment that is aware of excellence, leadership, entrepreneurship, ethical responsibility and ability to work in multidisciplinary teams.

5. To train students with excellent scientific and engineering knowledge so as to understand, analyze, design and create products and solutions for Software engineering problems.

PROGRAMME OUTCOMES (PO'S)

At the end of successful completion of program, the graduates will be able to,

1. Apply knowledge and skills to solve information technology problems using advanced available tools.

2. Function effectively in multi-disciplinary teams and work as a team member and team leader to get technical solutions.

3. Understand, Design and evaluate solutions for complex 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.

4. Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

5. 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.

6. Communicate with customer, colleagues, and managers. 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.

7. Maintain professional work ethic, appearance, and demonstration of personal responsibility.

8. Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

9. Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

10. 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.

11. Implement cost effective and improved system.

12. Develop confidence for self-education and ability for lifelong learning.

STUDENTS ROLES AND RESPONSIBILITIES

- Every student must carry his/her identity card while being present on the College Premises.
- Use of Cell phones is strictly prohibited during class/Labs hour.
- Without the permission of the Principal, Students are not allowed to circulate any printed materials within the college campus.
- Every student is expected to maintain the general cleanliness within the classrooms, laboratories and the campus in general.
- Students should handle the college properties with care. Damage to the furniture or any other materials may lead to penalty or suspension from the college.
- Intoxication or possession of narcotics and other dangerous material is strictly prohibited.
- Playing cards, spitting and loitering are strictly prohibited inside the college campus and shall invite severe punishment/disciplinary action
- Attempted or actual theft of and/or damage to property of the College, or property of a member of the College community, or other personal or public property, on or off campus will be considered as a punishable act.
- Every student will remain answerable to the college authority for his/her activity and conduct on the College Premises.
- Any act which obstructs teaching, research, administrative activity and other proceedings of the college is strictly prohibited.
- Indulging ragging, anti-institutional, anti-national, antisocial, communal, immoral or political expressions and activities within the Campus and hostel are strongly prohibited as well as punishable.
- Students are required to check the Notice Board and also website of the college for important announcements.

LABORATORY INSTRUCTIONS

- Students must present a valid ID card before entering the computer lab.
- Remove your shoes/chapels/sandals outside the lab.
- Playing of games on computer in the lab is strictly prohibited.
- Before leaving the lab, students must close all programs positively and keep the desktop blank.
- Students are strictly prohibited from modifying or deleting any important files and install any software or settings in the computer without permission
- Based on the prime priority, users may be requested by the lab in-charge, to leave the workstation any time and the compliance is a must.
- Eating and/or drinking inside the computer lab is strictly prohibited.
- Internet facility is only for educational/ study purpose.
- Silence must be maintained in the lab at all times.
- The lab must be kept clean and tidy at all times.
- If any problem arises, please bring the same to the notice of lab in-charge.
- No bags/ hand bags/ rain coats/ casual wears will be allowed inside the computer lab, however note book may be allowed.
- Lab timing will be as per the academic time table of different classes
- Every user must make an entry in the Computer Lab Register properly.
- Each student or visitor must take mobile phones in "Switched Off" mode while entering and or working in Computer Lab.
- Conversation, discussion, loud talking & sleeping are strictly prohibited.
- Users must turn-off the computer before leaving the computer lab.
- Maintain silence in lab.
- Computer Lab Assistants are available to assist with BASIC computer and software problems.
- Food and drink are not permitted in the computer lab.
- The use of cell phones is prohibited in the computer lab.
- Please take your calls outside. We also ask that you put your cell phone on vibrate mode.
- Unauthorized copying and/or installing of unauthorized software is not permitted
- Tampering with the hardware or software settings will not be tolerated.

CLASSROOM INSTRUCTIONS

☐ Students should know and obey rules and regulations of department as well as college.

☐ Students strive to meet Academic Expectations

☐ Students are expected to take all tests at the scheduled times seriously.

☐ Maintain discipline in the class

☐ A student should maintain at least 75% attendance in the Lectures of every subject and 100% overall performance. Otherwise, he or she will be debarred from the University Examination.

☐ Latecomers will not be entertained to enter into the classroom.

☐ Participate in the activities organized in the Department as well as in the College.

☐ While discussion, students should conduct and express themselves in a way that is respectful of all persons.

☐ Develop positive attitudes;

☐ Be cooperative and considerate.

☐ Welcome challenges.

☐ Be helpful to others

☐ Be kind, polite, and courteous to others

☐ Do the assigned work on time

☐ Be prepared for classes with all necessary supplies.

☐ Be Respectful and Punctual

☐ Be in the best of behavior

DEPARTMENTAL ACADEMIC CALENDER

Week No.	Month	Week Days							Events
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	
1	July 2025	7	8	9	10	11	12	13	07 – Commencement of Academic Sem-III, 07-16 – Declaration of Theory and Lab ISE Components,
2		14	15	16	17	18	19	20	16 – CO by individual faculty lecture plan duly signed by HOD 19- Expert Lecture
3		21	22	23	24	25	26	27	26 - Activity under MOU
4		28	29	30	31				30 – Monthly Report 31 – Syllabus Completion Report
		Instruction Days: 20							
4	August 2025				1	2	3		01 – Guest Lecture
5		4	5	6	7	8	9	10	04-08- VAC 07-08- Formative Feedback
6		11	12	13	14	15	16	17	16- Industrial Visit
7		18	19	20	21	22	23	24	19- Project Seminar-I 23 – CMC-I
8		25	26	27	28	29	30	31	26-28 – FDP 29 – Monthly Report 30 – Syllabus Completion Report
		Instruction Days: 22							
9	Sept. 2025	1	2	3	4	5	6	7	02 – Expert Lecture 03-04- CIE-1 06- MCASA Event
10		8	9	10	11	12	13	14	10- Summative Feedback 12- Parents Meet
11		15	16	17	18	19	20	21	16- Augmentation Non-Technical 19- Community Service
12		22	23	24	25	26	27	28	23- Project Seminar-II 25- Entrepreneur Cell 27 - CMC-II
13		29	30						29 – Monthly Report 30- Syllabus Completion Report
		Instruction Days: 24							
13	Oct. 2025			1	2	3	4	5	03 – Guest Lecture through MCASA 04- MCASA Event
14		6	7	8	9	10	11	12	6-10-VAC 08- Summative Feedback
15		13	14	15	16	17	18	19	16-MCASA Activity
16		20	21	22	23	24	25	26	24-Project Presentation-III 24-25 – Formative Feedback
17		27	28	29	30	31			27 - CMC-III 30 – Monthly Report, 31- Syllabus Completion Report
		Instruction Days: 21							
17	Nov. 2025					1	2		01-02-CIE-2 01-07 – Remedial Classes
18		3	4	5	6	7	8	9	04 – Gust lecture, 06 – MCASA Activity
19		10	11	12	13	14	15	16	15-21 – End Semester Examination (Lab POE/ OE)
20		17	18	19	20	21	22	23	17 – Parents Meeting
21		24	25	26	27	28	29	30	25 – Start of End Semester Examination (Theory) 28- Monthly Report 29- Syllabus Completion Report
		Instruction Days: 04							
22	Dec. 2025	1	2	3	4	5	6	7	
23		8	9	10	11	12	13	14	
24		15	16	17	18	19	20	21	17 – End of End Semester Examination (Theory)

25		22	23	24	25	26	27	28	
26		29	30	31					

Activities	Public Holidays	Examination

DEPARTMENTAL TIME TABLE

Dr. J. J. Magdum Trust's (No. E/902)

Dr. J. J. Magdum College of Engineering, Jaysingpur

Autonomous Institute, NAAC 'A' & NBA Accredited

Approved by A.I.C.T.E, New Delhi, Recognized by Govt. of Maharashtra

Department of Master of Computer Application
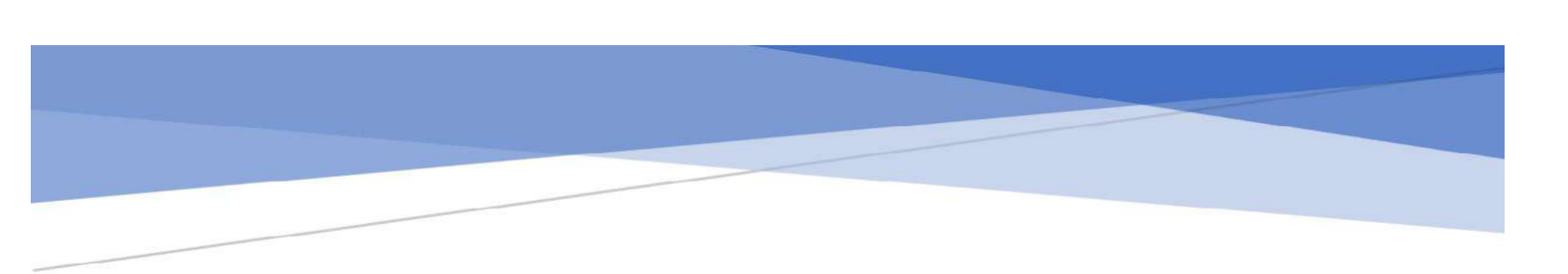
Class: SY-MCA
Year: 2025 – 2026

Date: 29/09/2025
Class Coordinator: Prof. P. N. Patil.

SN	TIME	MON	TUE	WED	THU	FRI
1	09:30 am - 10:30 am	DS (Prof. V. A. Landage)	S1 – MT(RSP) - DBMS Lab	AI/ML (Prof.PNP/Prof.SNW)	S1 – MP(PVK) - DBMS Lab	S1 - DS (VAL) - Python Lab
2	10:30 am - 11:30 am	AI/ML (Prof.PNP/Prof.SNW)	S3 – MP(SAB) - Python Lab S2 – MP(PNP) - Python Lab	DS (Prof. V. A. Landage)	S2 - MP(PVK) - DBMS Lab S3 - DS(VAL) - Python Lab	S2 - MP (PNP) - DBMS Lab S3 - MP (RSP) - DBMS Lab
	11.30 am - 11.40 am - SHORT BREAK					
3	11:40 am - 12:40 pm	S1 – MP(RSP) - DBMS Lab S2 - DS (VAL) - Python Lab S3 - MP (SNW) DBMS Lab	AI/ML (Prof.PNP/Prof.SNW)	S1 - MP(PVK) - Python Lab S2 - MP (RSP) - DBMS Lab S3 - MP(SAB) - DBMS Lab	S1 - MP(PVK) - Python Lab S2 - MT (RSP) - DBMS Lab S3 - MT(SNW) - DBMS Lab	DS (Prof. V. A. Landage)
4	12:40 pm - 01:40 pm		MT (Prof. R.S. Parkhe)			CC (Prof. S.A. Bhagwat)
	01.40 pm - 02.30 pm - LUNCH BREAK					
5	02:30 pm - 03:30 pm	MT (Prof. R. S. Parkhe)	CC (Prof. V. A. Landage)	MT (Prof. R.S. Parkhe)	CC (Prof. S.N.Wadkar)	Library
6	03:30 pm - 04:30 pm	AC-III (Prof. R. S. Parkhe)	AI - T (Prof. P.N.Patil)	AC-III (Prof. P.N. Patil)	ML - T (Prof.S.N.Wadkar)	

Prof. R. S. Parkhe
I/C Timetable

Prof. P. V. Kothawale
HOD

STRUCTURE OF SYLLABUS

Dr. J. J. Magdum College of Engineering, Jaysingpur

J. J. Magdum Trust's

(An Autonomous Institute)

Teaching and Evaluation Scheme
MCA (Master of Computer Application)
Second Year MCA. (Semester- III)

Sr. No.	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	Theory CIE T-I	T-II	ISE	ESE	Practical CIE	ESE	TOTAL
1	01MCL201	Cloud Computing	3		--	3	3	20	20	10	50	--	--	100
2	01MCL202	Data Science	3		--	3	3	20	20	10	50	--	--	100
3	01MCL203	Mobile Technologies	3		--	3	3	20	20	10	50	--	--	100
4		Program Elective-III	3	1	-	4	4	20	20	10	50	--	--	100
5	01MCP204	Major Project		--	8	8	4					50	50	100
6	01MCP205	Data Science Lab	--	--	2	2	1	--	--	--	--	50	50	100
7	01MCP206	Mobile Technologies Lab	--	--	2	2	1					50	50	100
8	01MCP207	SWAYAM.MOOC Course	--	--	2	2	1	--	--	--	--	--	50	50
9	01MCL208	Audit Course - III	2	--	--	2	Audit	--	--	--	50	--	--	50
		Total	**14**	**01**	**14**	**29**	**20**	**80**	**80**	**40**	**250**	**150**	**200**	**800**

L- Lecture , T- Tutorial , P- Practical , T-I-Test I, T-II- Test II,
ISE- In Semester Evaluation, CIE- Continuous Internal Evaluation, ESE- End Semester Examination,

Open Elective -III

Sr.No.	Course Code	Courses
01	01MCL209	Artificial Intelligence
02	01MCL210	Machine Learning

Note for Open Elective
An Open Elective course is included in the curriculum of S. Y. MCA (Semester-III), under which students need to learn either MOOC course or courses offered by department.
Guidelines for MOOC course under Open Elective
1. If students opt for MOOC course as an Open Elective, he/she should select this course from NPTEL platform only.
2. As three credits are allotted to open elective, selected MOOC course must be of minimum 6 weeks or 30 hours.
3. Students need to solve assignments given by platform and also, give the final certification exam at allotted NPTEL exam center.
4. Student must secure certification of NPTEL platform , otherwise he/she will not be eligible for

final evaluation.

5. Final evaluation of the MOOC course will be based on oral examination conducted by department and marks secured in the exam conducted by NPTEL

6. If student fails in NPTHL certification course, he or she should reregister for the course in the next semester.

COURSE DETAILS/SYLLABUS

Master of Computer Application Sem – III

01MCL201: Cloud Computing

Course Details:

Course Details Class	Second Year M.C.A. Semester III
Course Code and Course Title	01MCL201: Cloud Computing
Prerequisites	Computer Fundamentals
Teaching scheme: Lectures	3 Hrs.
Credits	3
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: NA	TW: NA

Course Outcomes:

After completion of this course student should be able to

1. Differentiate between different types and services of cloud computing.
2. Assess the role of virtualization in cloud computing.
3. Identify security issues in cloud computing.
4. Describe risk assessment and management in cloud.

Unit 1: Introduction to Cloud Computing: (12 HOURS)

Overview, Roots of Cloud Computing, Layers and Types of Cloud, Desired Features of a Cloud, Cloud Architecture, Services and Applications: Infrastructure as a Service, Platform as a Service, Using Paas Application Frameworks, Software as a Service, Identity as a Service, and Compliance as a Service.Cloud Infrastructure Management, Infrastructure as a Service Providers, Platform as a Service Providers, Benefits and Disadvantages of Cloud Computing, Challenges and Risks of Cloud computing.

Unit 2: Abstraction and Virtualization: (12 HOURS)

Introduction to Virtualization Technologies, Load Balancing and Virtualization, Understanding Hyper visors, Understanding Machine Imaging, Porting Applications, Virtual Machines Provisioning and Manageability Virtual Machine Migration Services, Virtual Machine Provisioning and Migration in Action, Provisioning in the Cloud Context

Unit 3: Securing the Cloud: (12 HOURS)
Administrating the Clouds, Cloud Management Products, 15 Periods 9 Emerging Cloud
Management Standards, Securing the Cloud, Securing Data, Establishing Identity and Presence,
Storage Area Networks, Disaster Recovery in Clouds

Unit 4: Managing Risks in Cloud: (12 HOURS)
Risk of Cloud computing and Related Cost :Risk Assessment and Management , Risk of Vendor
Lock- in, Risk of Loss of control over IT services Risk of Poor Provisioning, Risk of Multi,
tenant environment , Risk failure of cloud provider, SLA risk, security, malware and Internet
Attacks, Risk with Application Licensing

Reference Books:-
1. Cloud Computing, U S Pandey & Kavita Choudhary, S.Chand, 1st edition, 2014
2. Sosinsky B., ―Cloud Computing Bible‖, Wiley India ISBN 13: 9788126529803.
3. Buyya R., Broberg J., Goscinski A., ―Cloud Computing: Principles and Paradigm‖, John Wiley &
   Sons ISBN NO: 81–7758– 575-4
4. Velte T., Velte A., Elsenpeter R., ―Cloud Computing – A practical Approach‖, Tata McGrawHill.
5. Cloud Computing with Security, Naresh Kumar Sehgal, Springer, 2019

01MCL202: Data Science

Course Details:

Course Details Class	Second Year M.C.A. Semester III
Course Code and Course Title	01MCL202: Data Science
Prerequisites	Statistics and Probability , Programming and Data Manipulation
Teaching scheme: Lectures + Practical	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Practical: 2 Hr./Week	POE:50 (ESE) +50 (CIE)

Course Outcomes:

At the end of this course, the students will be able to:

CO1 : Apply thy knowledge of Data Science and the skill set needed to be a Data Scientist

CO2: Use different tools for Data Science.

CO3: To create effective visualization of given data (to communicate or persuade).

CO4: Apply basic machine learning algorithms (Linear Regression, k-Nearest Neighbours (k-NN), k-means, Naive Bayes) for predictive modelling

Unit 1: Introduction: (12 HOURS)

What is Data Science? - Big Data and Data Science hype – and getting past the hype - Why now? – Datafication - Current landscape of perspectives - Skill sets needed, Statistical Inference - Populations and samples - Statistical modelling, probability distributions, fitting a model - Intro to R

Exploratory Data Analysis and the Data Science Process - Basic tools (plots, graphs and summary statistics) of EDA - Philosophy of EDA - The Data Science Process

Unit 2: Basic Machine Learning Algorithms (12 HOURS)

Linear Regression - k-Nearest Neighbours (k-NN) - k-means, One More Machine Learning Algorithm and Usage in Applications - Motivating application: Filtering Spam - Why Linear Regression and k-NN are poor choices for Filtering Spam - Naive Bayes and why it works forFiltering Spam Data Wrangling: APIs and other tools for scrapping the Web

Unit 3: Feature Generation and Feature Selection - (12 HOURS)

Feature Generation (brainstorming, role of domain expertise, and place for imagination) - Feature Selection algorithms – Filters; Wrappers; Decision Trees; Random Forests

Mining Social-Network Graphs - Social networks as graphs - Clustering of graphs - Direct discovery of communities in graphs - Partitioning of graphs - Neighbourhood properties in graphs

Unit 4: Data Visualization – (12 HOURS)

Basic principles, ideas and tools for data visualization - Examples of inspiring (industry) projects - Exercise: create your own visualization of a complex dataset Data Science and Ethical Issues - Discussions on privacy, security, ethics - A look back at Data Science - Nextgeneration data scientists

Text Books:

Cathy O'Neil and Rachel Schutt. Doing Data Science, Straight Talk From The Frontline. O'Reilly. 2014, ISBN: 9781449358655.

Reference Books:

1. Jure Leskovec, Anand Rajaraman and Jeffrey Ullman. Mining of Massive Datasets. v2.1, Cambridge University Press. 2014 (free online),ISBN -978-1107077232.

2. Kevin P. Murphy. Machine Learning: A Probabilistic Perspective. ISBN 0262018020. 2013

3. Foster Provost and Tom Fawcett. Data Science for Business: What You Need to Know about Data Mining and Data-analytic Thinking. ISBN 1449361323. 2013.

4. Trevor Hastie, Robert Tibshirani and Jerome Friedman. Elements of Statistical Learning, Second Edition. ISBN 0387952845. 2009. (free online)

5. Avrim Blum, John Hopcroft and Ravindran Kannan. Foundations of Data Science, ISBN: 9781108485067.

6. Mohammed J. Zakiand, Wagner Miera Jr. Data Mining and Analysis: Fundamental Concepts and Algorithms. Cambridge University Press. 2014,ISBN:0521766338

7. Jiawei Han, Micheline Kamber and Jian Pei. Data Mining: Concepts and Techniques, Third Edition. ISBN 0123814790. 2011

01MCL203: Mobile Technologies

Course Details:

Course Details Class	Second Year M.C.A. Semester III
Course Code and Course Title	01MCL203:Mobile Technologies
Prerequisites	Computer Fundamentals
Teaching scheme: Lectures + Practical	3 Hrs. + 1Hrs.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	-
Practical: 2 Hr./Week	POE: 50 (ESE) + 50 (CIE)

Prerequisite: Programming Languages, Mobile Development Frameworks, User Interface (UI) Design

Course Outcomes:

After completion of this course student will be able to

CO1: Learn Mobile Technology Fundamentals

CO2: Develop proficiency in Android Application Development

CO3: Improve proficiency in iOS Application Development

CO4: Perform Application of Mobile Development Skills

Unit 1: Introduction to Mobile Technology   (12 HOURS)
Introduction to Mobile operating System, Evolution of mobile technology, Characteristics of
Mobile Applications. Comparison between Android, Windows and IoS. Architecture &
Environment: SDK, Android Development Tools, Android Virtual Devices, Emulators,
Dalvik Virtual Machine, Android
Directory Structure.

Unit 2: Android Application Development   (12 HOURS)
UI components Design: TextView, Buttons, Check Boxes and Radio Groups, Spinner,
DatePicker,
TimePicker. Android Menu: Option Menu, Context Menu, Popup Menu. Activity: Activity
Lifecycle,
Activity Example, Views, Layout Manager and types, Intent, Storing data with SQLite
databases, Handling permissions and security in Android apps.

Unit 3: IOS Development   **(12 HOURS)**
Introduction to iOS platform, Setting up the iOS development environment (Xcode),Basic iOS application structure,User interface design with Interface Builder, Handling user input and events in iOS apps, Working with table views and collection views, Storing data with Core Data, Networking and data communication in iOS apps, Deploying iOS apps to the App Store.

Unit 4: Cross-Platform Development:
Introduction to cross-platform development frameworks (e.g., React Native, Flutter), Pros and cons of cross-platform development, Building a simple cross- platform app, Strategies for code sharing and platform-specific optimizations.

Reference Books:-
1. Android, P.K. Dixit, Vikas Publication
2. Android Application Development – Black Book Pradip Kotari, Dreamtech
3. Composing Mobile Apps Learn, Explorer, Apply using Android Anubhav Pradhan, Anil Deshpande, Wiley Publications

4. "Android Programming: The Big Nerd Ranch Guide" by Bill Phillips and Chris Stewart by Bill Phillips, Chris Stewart, Kristin Marsicano Released January 2017 ISBN: 9780134706061
5. "iOS Programming: The Big Nerd Ranch Guide" by Christian Keur and Aaron Hillegass ISBN-13: 9780137570386 Published 2022
6. "Head First Android Development: A Brain-Friendly Guide" by Dawn Griffiths and David Griffiths ISBN 10: 1491974052 ISBN 13: 9781491974056Publisher: O'Reilly Media, 2017
7. "Cross-Platform Development with Xamarin.Forms" by Paul Johnson ISBN-10 : 1784391190 ISBN-13 : 978-1784391195

01MCL209: Artificial Intelligence

Course Details:

Course Details Class	First Year M.C.A. Sem-II
Course Code and Course Title	01MCL209: Artificial Intelligence
Prerequisites	Basic Programming in Python.
Teaching scheme: Lectures +Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: 1 Hr./Week	TW: NA

Course Outcomes:
1. Evaluate Artificial Intelligence (AI) methods and describe their foundations.
2. Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation and learning.
3. Demonstrate knowledge of reasoning and knowledge representation for solving real world problems.
4. Analyze and illustrate how search algorithms play vital role in problem solving.

UNIT 1: Artificial Intelligence and Its Issues: **(12 HOURS**)

Definitions - Importance of AI, Evolution of AI - Applications of AI, Classification of AI systems with respect to environment, Knowledge Inferring systems and Planning, Uncertainty and towards Learning Systems. Problem solving by Search, Problem space - State space, Blind Search - Types, Performance measurement. Types, Game playing mini-max algorithm, Alpha-Beta Pruning

UNIT 2 **(12 HOURS)**
Probabilistic Reasoning & Markov Decision process:
Probability, conditional probability, Bayes Rule, Bayesian Networks- representation, construction and inference, temporal model, hidden Markov model.
MDP formulation, utility theory, utility functions, value iteration, policy iteration and partially observable MDPs.

UNIT 3 (**12 HOURS)**
Learning Systems & Expert Systems:
Forms of Learning Types - Supervised, Unsupervised, Reinforcement Learning, Learning Decision Trees. Expert Systems - Stages in the development of an Expert System - Probability based Expert Systems - Expert System Tools - Difficulties in Developing Expert Systems - Applications of Expert Systems.

UNIT 4   **(12 HOURS)**

AI with Python:
Study of important inbuilt libraries of Python like NumPy, SciPy, matplotlib, nltk, Simple AI. Installing Python. Setting up PATH. Running Python. Study of real time applications of AI with Python, Case Studies: AI Platforms-Azure ML, Google AI, Swift AI, Tensorflow.

Textbook:

1. Artificial Intelligence - A Modern Approach Russell, S. and Norvig, P. 3rd edition, Prentice Hall.2015
2. Artificial Intelligence: Foundations of Computational Agents Poole, D. and Mackworth, A. Cambridge University Press.2010

Reference Books:

1. Artificial Intelligence, 3rd edition Ric, E., Knight, K and Shankar, B. Tata McGraw Hill.2009
2. Artificial Intelligence -Structures and Strategies for Complex Problem Solving, Luger, G.F. 6th edition, Pearson.2008
3. Artificial Intelligence and Intelligent Systems. Padhy, N.P. Oxford University Press. 2009

MC1204: Machine Learning

Course Details:

Course Details Class	First Year M.C.A. Sem-II
Course Code and Course Title	MC1204: Machine Learning
Prerequisites	Basic Programming in Python.
Teaching scheme: Lectures +Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 50 (ESE) +50 (CIE)
Tutorial: 1 Hr./Week	TW: NA

Course Outcomes:

After completion of this course student should be able to
1. Introduce machine learning techniques.
2. Become aware of various parametric and non-parametric methods in machine learning.
3. Understand a wide variety of learning algorithms.
4. Design and implement various machine learning algorithms in a range of real-world applications

Unit 1:   (12 HOURS)

Introduction to Machine Learning: Different types of Learning: Supervised, Unsupervised, Semi Supervised, Hypothesis space. Machine Learning Models: Geometric, Logical and probabilistic. Features: Types and Selection Methods.

Unit 2:   (12 HOURS)

Regression and Classification: Regression: Simple Linear Regression, Multiple Linear Regression, Other Considerations in the Regression Model. Classification: Logistic Regression: The Logistic Model, Estimating the Regression Coefficients, Making Predictions, Multiple Logistic Regression. Performance Evaluation: Error, Accuracy, Precision, Recall. Sampling Methods: Train/Test Sets, Cross Validation, Difficulties in evaluating hypothesis, Sample Error, True Error. What to measure: Precision and Recall, accuracy, AUC, ROC, How to measure: Cross Validation, how to interpret.

Unit 3:   (12 HOURS)

Linear and Probabilistic Models: Linear Model: Least Square Method, Multivariate Linear regression, least square regression for classification, Support Vector Machine. Probabilistic Model:

Normal Distribution and its geometric interpretation, Naïve Bayes model for classification.
Model Ensembles: Bagging and Random Forest, Boosting: Boosted Rule Learning, Mapping the ensemble landscape: Bias, Variance and Margins.

Unit 4: (12 HOURS)

Introduction to Deep Learning: The Neural Network: The Neuron, Feed-forward neural networks, Linear neurons and their limitations, Sigmoid, Activation Functions: Tanh and ReLU Networks, Softmax output layers. Training Feed-forward neural networks: Gradient Descent, Learning Rates, Gradient Descent with Sigmoid neurons, The Back Propagation algorithm, Test sets, Validation Sets and over fitting, preventing over fitting in Deep Neural Networks. Convolutional Neural Networks: Architectural Description of Convolution Networks, Filters and Feature Maps, Back propagation in CNN

Reference Books:-

Nikhil Buduma, "Fundamentals of Deep Learning, O"Reilly", 1st Edition, ISBN NO. 978-14-919-2561-4.
EthemAlpaydin, "Introduction to Machine Learning", PHI, 2nd Edition, 2013.
C.M. Bishop, "Pattern Recognition and Machine Learning", Springer 1stEdition, 2013.
Tom Mitchell, "Machine Learning, Mcgraw-Hill", 1

01MCP204: Major Project

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	01MCP204: Major Project
Prerequisites	Computer Fundamentals
Teaching scheme: Practical	8 Hrs.
Credits	4
Evaluation Scheme ESE + CIE for Theory	NA

Teaching scheme	Examination scheme
Lectures: NA	NA
Practical: 8 Hr./Week	POE: 50 (ESE) +50 (CIE)

Course Outcomes:

After completion of this course student should be able to
1. Identify the problem in existing system and develop SRS.
2. Understand the industrial line of work and corporate work culture.
3. Select appropriate technology platform for problem solving
4. Develop application using appropriate technology platform.
5. Test developed application for user acceptance.
6. Write project report in professional format.

Guide Lines for Projects:

A student has to take project work at the end of third semester of MCA
1. For major project student should go for in-plant training of 90 days after completion of semester III.
2. Project report will be submitted to institute/department before university examination of 4th Semester.
3. Project work will be done individually and students should take guidance from assigned guide and prepare a Project Report on ―Project Work" to be submitted to the Head of the Department.
4. Acceptance/Rejection of Project Report:
  a. The student should submit progress report with draft project report to the guide.
  b. Respective guide has right to suggest modifications for resubmission or accept the project.
  c. Only on acceptance of draft project report, the student should make the final copy.

Following format for the submission of the Project Report.

a. Paper:

The Report shall be typed on white paper, A4 size, for the final submission. The report to be submitted must be original and subsequent copies may be photocopied on any paper.

b. Typing:

The typing shall be of standard letter size, 1.5 spaced and on both side of the paper. (Normal text should have Times New Roman, Font size 12. Headings can have bigger size)

c. Margins: The typing must be done in the following margins: Left -----1.5 inch, Right ------- 1 inch Top ----- 1 inch, Bottom - 1 inch

d. Front Cover: The front cover should contain the following details:

TOP: The title in block capitals of 6mm to 15mm letters.

CENTRE: Full name in block capitals of 6mm to 10mm

letters.

BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing with center alignment.

e. Blank Sheets: At the beginning and end of the report, two white black papers should be provided, one for the purpose of binding and other to be left blank.

Documentation Format

a) Cover Page

b) Institute/College Recommendation

c) Organization Certificate

d) Guide Certificate

e) Declaration

f) Acknowledgement

g) Index

Chapter Scheme

1) Introduction to Project

- Introduction
- Existing System
- Need and scope of Computer System
- Organization Profile (Optional & applicable for live project only)

2) Proposed System

- Objectives
- Requirement Engineering.
  - Requirement Gathering
  - Software Requirements

3) System Analysis

- System Diagram
  - DFD
  - ERD

Note: Use advanced tools and techniques as per requirement.

4) System Design
- Database Design
- Input Design & its samples
- Output Design (on screen)

5) Implementation
- System Requirement
- Hardware
- Software
- Installation process
- User Guideline

6) Reports (with valid Data)
(Minimum 6-10 reports)

7) Conclusion and Suggestions
- Conclusion
- Limitations
- Suggestion

Annexure
- Source code (Include Main Logic source code)
- Questioner/Schedule (if used)
- Joining Report, Progress Reports, Student Guide Meet Record

01MCL208: Audit Course -III
CONSTITUTION OF INDIA

Course Details:

Course Details Class	First Year M.C.A. Sem-III
Course Code and Course Title	01MCL208: Audit Course-III
Prerequisites	Constitution of India
Teaching scheme: Lectures	2 Hrs.
Credits	--
Evaluation Scheme CIE for Theory	50 (CIE)

Teaching scheme	Examination scheme
Lectures: 2 Hrs. /Week	Theory: 50 Marks (CIE)
Tutorial: NA	TW: NA

Course Outcomes:

1. Describe historical background of the constitution making and its importance forbuilding a democratic India.
2. Understand the Constitutional Rights and and duties
3. Analyse the decentralization of power between central, state and local self-government

UNIT 1. HISTORY OF MAKING OF THE INDIAN CONSTITUTION &PHILOSOPHY OF THE INDIAN CONSTITUTION   (4 HOURS)

History of Making of the Indian Constitution: History, Drafting Committee, (Composition & Working)
Philosophy of the Indian Constitution: Preamble, Salient Features

UNIT 2. CONTOURS OF CONSTITUTIONAL RIGHTS & DUTIES   (4 HOURS)

Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom ofReligion, Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of StatePolicy, Fundamental Duties.

UNIT 3. ORGANS OF GOVERNANCE   (4 HOURS)

Parliament, Composition, Qualifications and Disqualifications, Powers and Functions,
ExecutivePresident, Governor,Council of Minister.
Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions.

UNIT 4. LOCAL ADMINISTRATION   (4 HOURS)

District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of
Elected Representative, CEO of Municipal Corporation. Pachayati raj: Introduction, PRI: Zila
Pachayat. Elected officials and their roles, CEO Zila Pachayat: Position and role. Block level:
Organizational Hierarchy(Different departments),Village level: Role of Elected and Appointed officials,
Importance of grass root democracy

UNIT 5. ELECTION COMMISSION   (4 HOURS)

Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners.
State Election Commission: Role and Functioning. Institute and Bodies for the welfare of
SC/ST/OBC andwomen.

Text Books:
1.Dr. S. N. Busi, —Dr. B. R. Ambedkar framing of Indian Constitution‖, 1st Edition, 2015.
   2.M. P. Jain, —Indian Constitution Law‖, Lexis Nexis, 7th Edition,2014..

References:
1.   The Constitution of India, 1950 (Bare Act), Government Publication.
2.   D.D. Basu, —Introduction to the Constitution of India‖, Lexis Nexis, 2015.

TEACHING PLAN

Dept. of Master of Computer Application(MCA – I Sem-III 2025-26) Lecture Plan: Cloud Computing	
Lecture No	**Topics**
1	**Unit 1 Introduction to Cloud Computing**
	Roots of cloud computing
	Layers and Types of Cloud, Features of cloud
	Cloud Architecture
	Service and Applications: Infrastructure as a service
	Platform as a Service, using Paas Application Framework
	Software as a Service
	Iaas & Compliance as a service
	Cloud Infrastructure Management
	Infrastructure as a service Providers
	Platform as a Service Providers
	Benefits and Disadvantages of Cloud Computing
	Challenges and Risks of Cloud computing
2	**Unit 2 Abstraction and Virtualization**
	Introduction to Virtualization
	Virtualization Technologies
	Load Balancing
	Virtualization
	Understanding Hypervisor
	Understanding Machine Imaging
	Porting Applications
	Virtual Machine Provisioning
	Manageability Virtual Machine Migration
	Virtual Machine Migration services
	Virtual Machine Provisioning and Migration in Action
	Provisioning in the Cloud Context
3	**Unit 3 Securing the Cloud**
	Introduction of Securing
	Securing the data data cloud
	Administrating the Cloud
	Cloud Management Product
	Emerging Cloud Management Standards
	Securing the Cloud
	Securing Data
	Establishing Identity
	Identity and Presence
	Storage Area Networks
	Disaster Recovery in Clouds
4	**Unit 4 Managing Risks in Cloud**
	Risks of Cloud Computing
	Cloud Related Cost
	Risk Assessment and Management
	Risk of Vendor Lock -in
	Risk of Loss of Control over TI Services
	Risks of Poor Provisioning
	Risk of Multi-tenant environment
	Risk failure of cloud provider
	SLA Risk
	Cloud Security
	Malware and Internet Attacks
	Risk with Application Licensing

Dept. of Master of Computer Application(MCA – I Sem-III 2025-26)
Lecture Plan: Mobile Technologies

Lecture No	Topics
1	**Unit 1 Introduction to Android**
	Introduction to Mobile Technology & Mobile Operating Systems
	Evolution of Mobile Technology – 1G to 5G
	Characteristics and Types of Mobile Applications
	Mobile OS Comparison: Android vs Windows vs iOS
	Introduction to Android Architecture
	SDK and Android Development Tools Overview
	Android Virtual Devices (AVD) and Emulators
	Dalvik Virtual Machine and ART
	Android Directory Structure Explained
	Lab Demo: Installing Android Studio & Creating First Project
	Lab: Working with AVDs and Emulators
2	**Unit 2 Android Application Framework**
	Introduction to UI Components in Android
	TextView, Button, CheckBox, RadioGroup – Usage & Demo
	Spinner, DatePicker, TimePicker – Usage & Demo
	Menu Types: Options Menu, Context Menu, Popup Menu
	Activity Lifecycle – Theory and Examples
	Intents and their Types – Explicit vs Implicit
	Views and Layout Managers (Linear, Relative, Constraint)
	Layout Practical: Designing Forms using Layout Managers
	SQLite Database in Android
	Lab: SQLite Database – Insert, Update, Retrieve
	Permissions and Security Handling in Android
	Revision, Mini App Demo, and Unit 2 Quiz
3	**Unit 3 Advanced Android Applications**
	Introduction to iOS and Comparison with Android
	Installing Xcode & Overview of the iOS Development Environment
	Basic Structure of an iOS App
	Interface Builder: UI Design in iOS
	Handling User Input and Events
	Working with Table Views – Static and Dynamic
	Collection Views – Setup and Use Cases
	Core Data – Data Persistence in iOS
	Networking and RESTful APIs in iOS
	Practical: Building a Simple iOS App
	App Deployment Process to the App Store
	Revision, Lab Review, and Unit 3 Quiz
4	**Unit 4 Android Security**
	Installation and Setup of Flutter SDK and React Native
	Building UI using React Native Components
	Building UI using Flutter Widgets
	Practical: "Hello World" App in Flutter
	Practical: "Hello World" App in React Native
	Code Sharing Strategies in Cross-Platform Apps
	Handling Platform-Specific Features in Cross-Platform Development
	Case Studies: WhatsApp, Instagram, and others using Cross-Platform
	Pros and Cons of Cross-Platform Development
	Revision, Final Lab Demos, and Unit 4 Quiz

Dept. of Master of Computer Application(MCA – I Sem-III 2025-26)
Lecture Plan: Artificial Intelligence

Lecture No	Topics
1	**Unit 1 Artificial Intelligence and Its Issues:**
	Definitions - Importance of AI
	Evolution of AI - Applications of AI
	Classification of AI systems with respect to environment
	Knowledge Inferring systems and Planning
	Uncertainty and towards Learning Systems
	Problem solving by Search
	Problem space - State space
	Blind Search - Types, Performance measurement
	Game playing mini-max algorithm
	Alpha-Beta Pruning
2	**Unit 2 Probabilistic Reasoning & Markov Decision process:**
	Probability
	Conditional probability
	Bayes Rule
	Bayesian Networks-representation
	Construction and inference
	Temporal model
	Hidden Markov model
	MDP formulation
	Utility theory
	Utility functions
	Value iteration
	Policy iteration and partially observable MDPs
3	**Unit 3 Learning Systems & Expert Systems:**
	Forms of Learning Types
	Supervised, Unsupervised
	Reinforcement Learning
	Learning Decision Trees.
	Expert Systems - Stages in the development of an Expert System
	Probability based Expert Systems
	Expert System Tools
	Difficulties in Developing Expert Systems
	Applications of Expert Systems
4	**Unit 4 AI with Python:**
	Study of important inbuilt libraries of Python
	NumPy, SciPy
	matplotlib, nltk,
	Simple AI
	Installing Python
	Setting up PATH
	Running Python
	Study of real time applications of AI with Python
	Case Studies: AI Platforms
	Azure ML
	Google AI, Swift AI
	Tensorflow

Dept Of Master of Computer Application (MCA - II Sem- III 2025-26) Lecture Plan: Machine Learning	
Lecture No	**Topics**
1	**Unit 1 Fundamentals of Communication**
	Introduction to Machine Learning
	Different types of Learning
	Supervised
	Unsupervised
	Semi Supervised
	Hypothesis space
	Machine Learning Models
	Geometric
	Logical
	probabilistic
	Features
	Types and Selection Methods
2	**Unit 2**
	Regression and Classification: Regression
	Simple Linear Regression, Multiple Linear Regression
	Other Considerations in the Regression Model
	Classification: Logistic Regression: The Logistic Model
	Estimating the Regression Coefficients
	Making Predictions, Multiple Logistic Regression
	Performance Evaluation: Error, Accuracy, Precision, Recall
	Sampling Methods: Train/Test Sets
	Cross Validation, Difficulties in evaluating hypothesis
	Sample Error, True Error
	What to measure: Precision and Recall, accuracy, AUC, ROC
	How to measure: Cross Validation, how to interpret
3	**Unit 3**
	Linear and Probabilistic Models
	Linear Model: Least Square Method
	Multivariate Linear regression
	least square regression for classification
	Support Vector Machine
	Probabilistic Model:Normal Distribution
	and its geometric interpretation
	Naïve Bayes model for classification
	Model Ensembles: Bagging and Random Forest
	Boosting: Boosted Rule Learning
	Mapping the ensemble landscape: Bias
	Variance and Margins
4	**Unit 4**
	Introduction to Deep Learning: The Neural Network
	The Neuron, Feed-forward neural networks
	Linear neurons and their limitations
	Sigmoid, Activation Functions
	Tanh and ReLU Networks, Softmax output layers
	Training Feed-forward neural networks: Gradient Descent
	Learning Rates, Gradient Descent with Sigmoid neurons
	The Back Propagation algorithm, Test sets, Validation Sets
	over fitting, preventing over fitting in Deep Neural Networks
	Convolutional Neural Networks
	Architectural Description of Convolution Networks
	Filters and Feature Maps, Back propagation in CNN

Dept. of Master of Computer Application(MCA – I Sem-III 2025-26) Lecture Plan: Data Science	
Lecture No	**Topics**
1	**Unit 1**
	What is Data Science? Detailed definition: Intersection of computer science, statistics, and domain knowledge.
	Data Science vs. Data Analytics vs. Machine Learning vs. AI.
	Lifecycle of a data science project
	Big Data - Deep dive into Volume, Velocity, Variety, Veracity, Value.
	Social media and Big Data
	Data science teams in startups vs. large corporations
	Population and Sample
	Data Analyst, Business Analyst, Data Scientist, Data Engineer
	Simple linear regression, mean(), median(), sd(), cv(), summary() function
	EDA, Data cleaning, Model building
	Scatter plots, histograms
	Vectors, data frames, basic operations
2	**Unit 2**
	What is Machine Learning? Supervised Learning, Unsupervised Learning
	Reinforcement Learning
	Reinforcement Learning (based on feedback
	What is k-NN?A non-parametric, instance-based learning algorithm
	Classification is based on majority voting of the 'k' nearest neighbours.
	Why Linear Regression & k-NN Perform Poorly
	What is k-Means?An unsupervised learning algorithm used for clustering data into k groups
	Naive Bayes:Probabilistic classifier based on Bayes' Theorem with a "naive" assumption of feature independence.
	Bayes' Theorem: , Types - Multinomial, Gaussian, Bernoulli
	Wrangling Extracted Data, Cleaning text, removing HTML tags, tokenization
	Web Scraping & APIs
3	**Unit 3**
	What is Feature Generation? Mathematical Transformations, Date/time decomposition, Text features, Domain-specific features
	Brainstorming, Role of domain expertise, and place for imagination
	Why Feature Selection? - Reduces overfitting, Improves model accuracy, Reduces training time
	Filter Methods - Use statistical techniques to rank features, Independent of any ML algorithm.
	Decision Trees; Random Forests
	MiningSocial-NetworkGraphs-Socialnetworksasgraphs-Clusteringofgraphs-
	Direct discovery of communities in graphs-Partitioningofgraphs
	Neighborhood properties in graphs
	1 Graph Clustering
	Community Detection
	Graph Partitioning
4	**Unit 4**
	Why Data Visualization? Enhances understanding of data
	Reveals trends, patterns, and outliers, Supports decision-making
	Principles of Good Visualization
	Simplicity and clarity, Contextual relevance, Accuracy, Effective use of color and space
	Types of Visualization - Univariate: Histograms, boxplots, Bivariate: Scatter plots, line charts, Multivariate: Heat maps, bubble plots, Categorical: Bar charts, pie chart
	Tools Overview – R, Python, Tableau, Power BI
	Real-world Visulation Projects - COVID-19 dashboards (Johns Hopkins, WHO), Financial dashboards, Ecommerce: Conversion funnels, Sports analytics (ESPN, FIFA)
	Data Ethics – Privacy, Security, and Responsibility
	Understand ethical concerns in data collection, storage, and usage.

Dept. of Master of Computer Application(MCA – I Sem-III 2025-26)	
Lecture Plan: Constitution Of India(Audit Course)	
Lecture No	**Topics**
1	**Unit 1**
	Values and self-development...
	Social values and individual attitudes
	Work ethics, Indian vision of humanism.
	Moral and non- moral valuation.
	Standards and principles
	Value judgments.
2	**Unit 2**
	Importance of cultivation of values
	Sense of duty.
	Devotion, Self-reliance.
	Confidence, Concentration.
	Truthfulness, Cleanliness.
	Honesty, Humanity.
	Power of faith, National Unity.
	Patriotism. Love for nature, Discipline.
3	**Unit 3**
	Personality and Behavior Positive Thinking.
	Development - Soul and Scientific attitude.
	Integrity and discipline. Punctuality, Love and Kindness.
	Avoid fault Thinking.
	Free from anger, Dignity of labor.
	Universal brotherhood and religious tolerance.
	True friendship. Happiness vs suffering, love for truth.
	Aware of self-destructive habits. Association and Cooperation.
	Doing best for saving nature.
4	**Unit 4**
	Character and Competence –Holy books vs Blind faith..
	Self-management and Good health.
	Science of reincarnation
	Equality, Nonviolence, Humility, Role of Women.
5	**Unit 5**
	All religions and same message...
	Mind your Mind, Self-control
	Honesty, Studying effectively

EXPERIMENT LIST
AND
ASSIGNMENT LIST

Dr. J. J. Magdum Trusts's
DR J.J.MAGDUM COLLEGE OF ENGINEERING, JAYSINGPUR.

Department of Master of Computer Applications

Year: 2025-2026

Class: SY MCA SEM- III

Subject: Mobile Technologies Lab (01MCP206)

Name of Faculty: Prof. R.S. Parkhe

Laboratory Name: Database Lab

Lecture	Practical	Tutorial		Total Hrs/Wk
3	1	--		4
Theory	Term work	OE	POE	Total Marks
--	50	--	50	100

Experiment List

Expt. No.	Name of Experiment	Experiment Description (Libraries/Tools Used)	Nature of Experiment	Mapped CO(s)
1	Install Android Studio and run your first "Hello World" app.	Android Studio, Emulator/AVD	Setup / Introductory	CO1, CO2
2	Use TextView, EditText, and Button to capture and display user input.	Android SDK (UI Widgets)	Hands-on / UI Design	CO2
3	Design a simple form using LinearLayout and ConstraintLayout.	Android Layout Managers	Hands-on / UI Design	CO2
4	Implement RadioButtons and CheckBoxes with event handling.	Android Event Listeners	Hands-on / Event Handling	CO2
5	Use Spinner, DatePicker, and TimePicker in an activity.	Android Widgets	Hands-on / UI Interaction	CO2
6	Create different menu types: Option, Context, and Popup.	Android Menu APIs	Hands-on / UI Interaction	CO2
7	Understand and demonstrate the activity lifecycle	Activity Lifecycle APIs	Concept Demo / Hands-on	CO2
8	Pass data between activities using Intent.	Explicit & Implicit Intents	Hands-on / Data Transfer	CO2
9	Store and retrieve data using SQLite in Android.	SQLite Database, SQLiteOpenHelper	Hands-on / Data Management	CO2
10	Create a basic iOS app using Xcode and Interface Builder.	Xcode, Interface Builder	Setup / Hands-on	CO1, CO3

11	Implement TableView in iOS to display a list of items	UIKit Framework, Swift	Hands-on / UI Design	CO3
12	Use CoreData to store user data in iOS	CoreData Framework	Hands-on / Data Management	CO3
13	Design a UI in Flutter using widgets like Column, Row, and Text	Flutter SDK, Dart	Hands-on / Cross-Platform UI	CO4
14	Build a React Native App to Display a List of Users.	React Native, JavaScript, FlatList Component	Hands-on / Cross-Platform UI & Data Handling	CO4
15	Create a cross-platform app that shows device info using Flutter.	Flutter SDK, React Native Device Info APIs	Hands-on / Cross-Platform App Development	CO4

DR J.J.MAGDUM COLLEGE OF ENGINEERING, JAYSINGPUR.

Department of Master of

Class: SY MCA SEM- III

Subject: Data Science

Name of Faculty: Prof. V.A.Landage

Laboratory Name: Database Lab

Lecture	Practical	Tutorial		Total Hrs/Wk
3	2	--		5
Theory	Term work	OE	POE	Total Marks
--	50	--	50	100

Experiment List

Expt. No.	Name of Experiment	Experiment Description (Libraries/Tools Used)	Nature of Experiment	COs
1.	Python for Data Science – Basics	Python installation, IDE setup, variables, data types, loops, and functions. (Python, Jupyter Notebook)	Performing	01MCP205.1
2.	Data Handling with Pandas	Reading CSV/Excel files, dataframes, indexing, filtering, missing data handling. (Pandas)	Performing	01MCP205.1
3.	Descriptive Statistics & Probability Distributions	Summary statistics, normal & binomial distributions, histogram plots. (pandas, numpy, matplotlib)	Performing	01MCP205.1
4.	Data Visualization with Matplotlib & Seaborn	Bar charts, box plots, scatter plots, pair plots, heatmaps. (matplotlib, seaborn)	Performing	01MCP205.4
5.	Exploratory Data Analysis (EDA)	Analyse datasets using summary stats, correlation, and visual exploration. (pandas, seaborn)	Performing	01MCP205.1
6.	Data Science Process – Mini Case Study	Apply full DS workflow: problem → data → insight using small dataset. (pandas, seaborn)	Performing	01MCP205.1
7.	Simple Linear Regression	Train/test a linear regression model and evaluate performance. (scikit-learn, Matplotlib)	Performing	01MCP205.2
8.	k-Nearest Neighbours (k-NN)	Apply k-NN for classification and visualize decision boundaries. (scikit-learn)	Performing	01MCP205.2

9.	Naive Bayes for Spam Detection	Train a Naive Bayes classifier on a spam dataset. Evaluate precision/recall. (scikit-learn)	Performing	01MCP205.2
10.	k-means Clustering	Apply unsupervised clustering and visualize clusters. (scikit-learn, seaborn)	Performing	01MCP205.2
11.	Data Wrangling & Pre-processing	String operations, encoding, scaling, imputation, feature engineering. (pandas, sklearn.preprocessing)	Performing	01MCP205.3

Cloud Computing

Lecture		Practical	Tutorial		Total Hr /Wk
4		0	1		5
Theory	T1/T2	T/W	OE	POE	Total Marks
70	30	50	--	0	150

Class	MCA II	Sem.: III
Course	Cloud Computing	

Tutorial No.	Name of the Tutorial CC
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No.6
7	Tutorial No. 7

Artificial Intelligence

Lecture		Practical	Tutorial		Total Hr /Wk
4		0	1		5
Theory	T1/T2	T/W	OE	POE	Total Marks
70	30	50	--	0	150

Class	MCA II Sem.: III
Course	Artificial Intelligence

Tutorial No.	Name of the Tutorial AI
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No.6
7	Tutorial No. 7
8	Tutorial No. 8

Machine Learning

Lecture		Practical	Tutorial		Total Hr /Wk
4		0	1		5
Theory	T1/T2	T/W	OE	POE	Total Marks
70	30	50	--	0	150

Class	MCA II Sem.: III
Course	Machine Learning

Tutorial No.	Name of the Tutorial ML
1	Tutorial No. 1
2	Tutorial No. 2
3	Tutorial No. 3
4	Tutorial No. 4
5	Tutorial No. 5
6	Tutorial No.6
7	Tutorial No. 7
8	Tutorial No. 8

FACULTY LIST

DEPARTMENT FACULTY LIST

Academic Year- 2024-2025 SEM- III

Sr. No.	Faculty Name
01	Prof. P. V. Kothawale
02	Prof. S. B. Patil
03	Prof. P. N. Patil
04	Prof. S. A. Bhagwat
05	Prof. S. N. Wadkar
06	Prof. V. A. Landage

STAFF LIST

DEPARTMENT STAFF LIST

Academic Year- 2024-2025 SEM- III

Sr. No.	Staff Name
01	Mr. R. S. Khandekar (Tech. Assistant)
02	Mr. D. S. Suryvanshi (Peon)