2024-25 Sem - I

Student Information Manual

MCA

Student Information Manual (SIM)

- **Covering page**
- **Index**

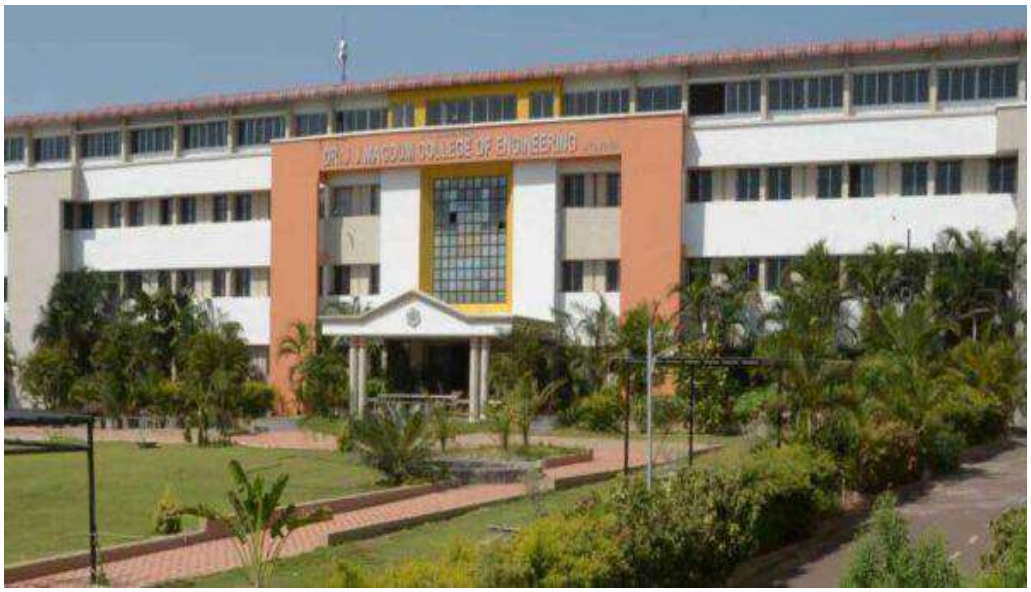
1. Institute Information
2. Vision of Institute
Mission of Institute
Quality Policy
3. Vision of Department
Mission of Department
Programme Educational Objectives (PEO's)
Programme Outcomes (PO's)
Programme Specific Outcomes (PSO)
4. Students role Responsibilities:
Code-of-Conduct:
5. Laboratory and 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
Teaching Plan
List of Experiment
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)

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,

2. **Problem Analysis**: Identify, formulate, research literature and analyze complex engineering problemsreaching substantiated conclusions using first principles of mathematics, natural sciences andengineering sciences.

3. **Design/Development of Solutions**: Design solutions for complex engineering problems and designsystem components or processes that meet specified needs with appropriate consideration for publichealth and safety, cultural, societal and environmental

4. **Conduct investigations** of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid

5. **Modern Tool Usage**: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with anunder-standing of the limitations.

6. **The Engineer and Society**: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering

7. **Environment and Sustainability**: Understand and the impact of professional engineering solutions in societal and environmental contexts and demonstrates knowledge of and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering

9. **Individual and Teamwork**: Function effectively as in visual, and as a member or leader in diverse teams and in multidisciplinary s

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear

11. **Project Management and Finance**: Demonstrate knowledge and understanding of engineering and management principles and apply these too noels on work, as a member and leader instead, to manage projects and in multidisciplinary environment.

12. **Lifelong Learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological

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

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

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

Autonomous Institute & NAAC A grade institute

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

Affiliated to Shivaji university Kolhapur., Shirol-Wadi Road, Agar bhag, Jaysingpur -416101

Department of Master of computer Application

Date:- 26/06/2024

Sr.No	Departmental work Assigned	Dates
1	Entrepreneurship development Cell (EDC)	31st August Expert lecture on EDC awareness
2	Academic Planner/Calendar	6th July
3	Advisory Board	2nd July
4	Course File Assessment (CFAR)	30th September
5	Feedback - Stakeholder – Students, Teachers, Employees, Alumni, Parents	18th October
6	Academics Reports	Every Month last week
7	Parent Meet	13th September, 18th October
8	Student Association - Guest lecture	21th September
9	Subject Choice	1st July
10	FY Course monitoring	Every Month last week
11	Faculty Development Program (FDP)	24th to 26th July
12	Budget of Department	26th June
13	Student Association Activities – MCASA (Department level 3, National level 1)	9th August
14	Induction program	1st August
15	Augmentation Student – Technical, Non-Technical	19th August, 27th September
16	STTP/Workshops/Conferences Organized	3rd August
17	Faculty Field Training	17th August
18	Industrial Visit	23rd September
19	Load Distribution	23rd June
20	Time Table	23rd June
21	Value Added Course	1st October
22	Additional Contents to Bridge Curriculum gap(Expert Lecture)	13th August, 17th September
23	Community Services(A,B,C,D)	22th August
24	SY course monitoring	Every Month last week
25	News Letter	8th October
26	Guest lecture	21st August
27	Course Outline	3rd July

Dr. J. J. Magdum College of Engineering MCA Dept. Jaysingpur 416 101

Prof. P. V. Kothawale
HOD-MCA

DEPARTMENTAL TIMETABLE

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

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

Autonomous Institute & NAAC A grade institute

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

Affiliated to Shivaji University Kolhapur. Shirol-Wadi Road, Agar bhag, Jaysingpur -416101

Department of Master of computer Application

◈TIME TABLE – 1.1◈

Date: 18/09/2024

Academic Year: 2024-25
Department: Master of Computer Application

Semester: I
Class: FY
Class Room No: II
W.e.f.:13/09/2024

Class Co-ordinator: Prof. P. N. Patil

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
09.30 am – 10.30 am	DBMS	F1 – DBMS F2 – PYTHON F3 – CS	PE - I	SE	F1- PYTHON F2- CS F3- PYTHON	
10.30 am – 11.30 am	CS		PYTHON	PYTHON		
11.30 am – 11.40 am	Short Break					
11.40 am – 12.40 pm	F1 – CS F2 – DBMS F3 – PYTHON	DBMS	F1 – PYTHON F2 – PYTHON F3 – DBMS	PE - I	F1 – PE - I(TUT) F2 – PE - I(TUT) F3 – SE(TUT)	
12.40 pm – 01.40 pm		OS		OS	OS	
01.40 pm – 02.30 pm	Lunch Break					
02.30 pm – 03.30pm	PYTHON	F1 – SE(TUT) F2 – SE(TUT) F3 – PE - I(TUT)	SE	DBMS	Library Slot	
03.30 pm – 04.30pm	SE	PE - I	AC - I	AC - I		

Name of Subject	Batches	Name of Faculty Member	Name of Lab
[redacted]RATING SYSTEM , PYTHON(P)	F1(P)	PROF. S. B. PATIL	CLASSROOM
PROGRAM ELECTIVE - I	F1,F2,F3(TUT)	PROF. P. N. PATIL	CLASSROOM
PYTHON	F2,F3(P)	PROF. S. N. WADKAR	DATABASE LAB
I) DATABASE MANAGEMENT SYSTEM II) SOFTWARE ENGINEERING	F1,F2,F3(P), F1,F2,F3(TUT)	PROF. S. A. BHAGWAT	PYTHON LAB
COMMUNICATION SKILL	F1,F2,F3(P)	PROF. A. M. MORE	DATABASE LAB
AUDIT COURSE - I	--	PROF. P. N. PATIL	CLASSROOM

Prof. S. B. Patil
TIME TABLE I/C

Prof. S. B. Patil
Academic coordinator

Prof. P. V. Kothawale
HOD MCA

Prof. A. S. Sajane
Dean, Academics

Dr. G. V. Mulgund
Principal

STRUCTURE OF SYLLABUS

Dr. J. J. Magdum Trust's

Dr. J. J. Magdum College of Engineering, Jaysingpur
(An Autonomous Institute)

–

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						
								Theory				Practical		TOTAL
								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		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
9	01MCL108	Audit Course - I	2	--	--	2	Audit	--	--	--	50	--	--	50
		Total	**17**	**02**	**08**	**27**	**22**	**100**	**100**	**50**	**300**	**100**	**150**	**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,

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, Advantagesof 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..

01MCL104: Software Engineering

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 (9 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 2024-25) 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

Dept. of Master of Computer Application(MCA – I Sem-I 2024-25) Lecture Plan: Software Engineering	
Lecture No	**Topics**
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 2024-25) 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
	DistributedDatabases
	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 2024-25) 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 2024-25) **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 2024-25) **Lecture Plan: Communcation Skills**	
Lecture No	**Unit1 : Communcation**
01	Nature, Definition of Communication
02	Importance and objective of communication
03	Process and barriers
04	Factors and elements
05	Forms or types
06	Art of speaking
07	Speech styles
08	Oral presentation
09	Meetings
10	Interview
11	Preparation of formal speech
12	Group Discussion
	Unit2
13	Debate
14	Non verbal communication meaning ,its characteristics, classification
15	Body language and its importance
16	Gestures and posters
17	Listening skills
18	Observation Skills
19	Correction of common errors
20	Verb and its subject
21	Use of phrases and idioms
22	Use of infinitive, Gerund and participle
23	Errors and use of Adjectives and adverb
24	Punctuation and capitalisation

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 calculater 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

MC1103: Database Management System

Class: FY MCA SEM- 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	2
2	Study of Normalization and Normal forms.	Non-Performing	4
3	Implementation of DDL queries to create, alter (add, modify, rename, drop) and drop table.	Performing	3
4	Implementation of DML queries to insert delete update and display record of the table.	Performing	3
5	Implementation of set operations like Union, intersection and set difference.	Performing	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	3
7	Implementation of aggregate function like min,max,avg,sum and count also use group by having clause	Performing	3
8	Implementation of scalar valued function in SQL server	Performing	3
9	Implementation of create procedure and how to use	Performing	3
10	Error handling in SQL server	Performing	3

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- 2024-2025 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. A. M. More

STAFF LIST

DEPARTMENT STAFF LIST

Academic Year- 2024-2025 SEM- I

Sr. No.	Staff Name
01	Mr. A. G. Patil (Tech. Assistant)
02	Mr. D. S. Suryvanshi (Peon)

2024-25 Sem - III

Student Information Manual

MCA

Student Information Manual (SIM)

- **Covering page**
- **Index**

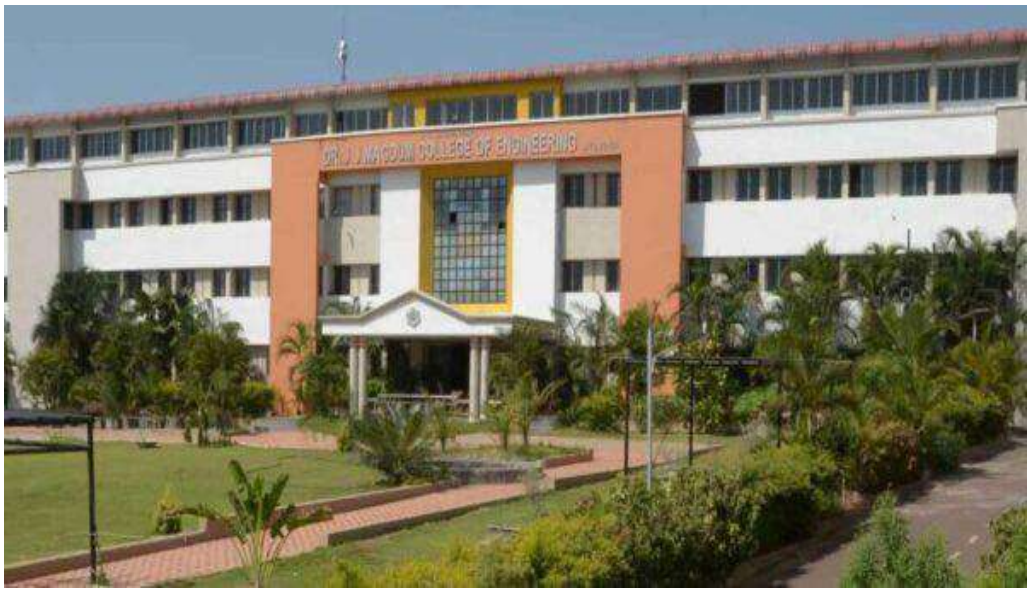
1. Institute Information
2. Vision of Institute
Mission of Institute
Quality Policy
3. Vision of Department
Mission of Department
Programme Educational Objectives (PEO's)
Programme Outcomes (PO's)
Programme Specific Outcomes (PSO)
4. Students role Responsibilities:
Code-of-Conduct:
5. Laboratory and 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
Teaching Plan
List of Experiment
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

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

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

Autonomous Institute & NAAC A grade institute

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

Affiliated to Shivaji university Kolhapur., Shirol-Wadi Road, Agar bhag, Jaysingpur -416101

Department of Master of computer Application

Date:- 26/06/2024

Sr.No	Departmental work Assigned	Dates
1	Entrepreneurship development Cell (EDC)	31st August Expert lecture on EDC awareness
2	Academic Planner/Calendar	6th July
3	Advisory Board	2nd July
4	Course File Assessment (CFAR)	30th September
5	Feedback - Stakeholder – Students, Teachers, Employees, Alumni, Parents	18th October
6	Academics Reports	Every Month last week
7	Parent Meet	13th September, 18th October
8	Student Association - Guest lecture	21th September
9	Subject Choice	1st July
10	FY Course monitoring	Every Month last week
11	Faculty Development Program (FDP)	24th to 26th July
12	Budget of Department	26th June
13	Student Association Activities – MCASA (Department level 3, National level 1)	9th August
14	Induction program	1st August
15	Augmentation Student – Technical, Non-Technical	19th August, 27th September
16	STTP/Workshops/Conferences Organized	3rd August
17	Faculty Field Training	17th August
18	Industrial Visit	23rd September
19	Load Distribution	23rd June
20	Time Table	23rd June
21	Value Added Course	1st October
22	Additional Contents to Bridge Curriculum gap(Expert Lecture)	13th August, 17th September
23	Community Services(A,B,C,D)	22th August
24	SY course monitoring	Every Month last week
25	News Letter	8th October
26	Guest lecture	21st August
27	Course Outline	3rd July

Dr. J. J. Magdum College of Engineering MCA Dept. Jaysingpur 416 101

Prof. P. V. Kothawale
HOD-MCA

DEPARTMENTAL TIME TABLE

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

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

Department of Master of Computer Application

◈TIME TABLE -1.2◈

Date:15/07/2024

Academic Year: 2024-25
Department: Master of Computer Application

Class Co-ordinator: Prof. S. N. Wadkar

Semester: III
Class: SY
Class Room No: II
W.e.f.:26/06/2024

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
09.30 am – 10.30 am	BD	IoT	IoT	CC	CC	
10.30 am – 11.30 am	IoT	MAD	CC	BD	MAD	
11.30 am – 11.40 am	Short Break					
11.40 am – 12.40 pm	CC	S1 – BD S2 – BD S3 – MAD	BD	S1 – MAD S2 – MAD S3 – MP	S1 – MP S2 – MP S3– MP	
12.40 pm – 01.40 pm	MAD		MAD			
01.40 pm – 02.30 pm	Lunch Break					
02.30 pm – 03.30pm	S1 – MAD S2 – MAD S3 – BD	BD	S1 – MP S2 – MP S3 – MAD	IoT	Library Slot	
03.30 pm – 04.30pm		IOT(TUT)		CC (TUT)		

Name of Subject	Batches	Name of Faculty Member	NAME OF LAB
MOBILE APPLICATION DEVELOPMENT	S1,S2,S3 (P), S2 (MP)	PROF. P. V. KOTHAWALE	DATABASE LAB
CLOUD COMPUTING	S1,S2(P), S1,S2,S3(TUT), S1(MP)	PROF. S. B. PATIL	DATABASE LAB
BIG DATA ANALYTICS	S1,S2,S3(P)	PROF. P. N. PATIL	PYTHON LAB
INTERNET OF THINGS	S1,S2,S3(TUT)	PROF. S. N. WADKAR	CLASSROOM
MINOR PROJECT	S3(MP)	PROF. S. A. BHAGWAT	PYTHON LAB

Prof. P. N. Patil
TIME TABLE I/C

Prof. S. B. Patil
Academic coordinator

Prof. P. V. Kothawale
HOD MCA

Prof. A. S. Sajane
Dean, Academics

Dr. G. V. Mulgund
Principal

STRUCTURE OF SYLLABUS

SECOND YEAR MASTER OF COMPUTER APPLICATION																			
SEMESTER III																			
SR. NO.	SUBJECT CODE	TEACHING SCHEME									EXAMINATION SCHEME								
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL		TERM WORK		
		Credit	No. Of Lectures	Hours	Credit	No. Of Hours	Hours	Credit	No. Of Hours	Hours	Mode	Marks	Total Marks	Min	MAX	MIN	MAX	MIN	
1	PCC-MCA-C10	4	4	4	1	1	1	-	-	-	CIE ESE	30 70	100	12 28	-	-	50	20	
2	PCC-MCA-C11	4	4	4	1	1	1	-	-	-	CSE ESE	30 70	100	12 28	-	-	50	20	
3	PCC-MCA-C12	3	3	3	-	-	-	2	4	4	-	-	-	-	50	20	50	20	
4	**Elective 01** PCC-MCA-C13 OR PCC-MCA-C14 OR PCC-MCA-C15	4	4	4	-	-	-	1	2	2	CSE ESE	30 70	100	12 28	50	20	50	20	
5	PCC-MCA-C16	-	-	-	-	-	-	4	8	8	-	-			100	40	100	40	
TOTAL		**15**	**15**	**15**	**2**	**2**	**2**	**7**	**14**	**14**			**300**		**200**		**300**		
SEMESTER IV																			
1	**Elective 02** PCC-MCA-C17 OR PCC-MCA-C18 OR PCC-MCA-C19	3	3	3	1	1	1	-	-	-	CIE ESE	30 70	100	12 28	-	-	25	10	
2	**Elective 03** PCC-MCA-C20 OR PCC-MCA-C21 OR PCC-MCA-C22	3	3	3	1	1	1	-	-	-	CIE ESE	30 70	100	12 28	-	-	25	10	
3	PCC-MCA-C23	-	-	-	-	-	-	10	20	20	-	-	-	-	200	80	100	40	
4	PCC-MCA-C24	-	-	-	-	-	-	6	12	12	-	-	-	-	100	40	50	20	
TOTAL		**6**	**6**	**6**	**2**	**2**	**2**	**16**	**32**	**32**			**200**		**300**		**200**		
SECOND YEAR TOTAL		**21**	**21**	**21**	**4**	**4**	**4**	**23**	**46**	**46**			**500**		**500**		**500**		

Sr. No.	Code No.	Subject	Semester	Credits
01	PCC-MCA-C10	Internet Of Things	3	05
02	PCC-MCA-C11	Cloud Computing	3	05
03	PCC-MCA-C12	Mobile Application Development	3	05
04	PCC-MCA-C13	Data Analytics	3	05
05	PCC-MCA-C14	Data Mining	3	05
06	PCC-MCA-C15	Big Data Analytics	3	05
07	PCC-MCA-C16	Minor Project	3	04
08	PCC-MCA-C17	Cyber Security	4	04
09	PCC-MCA-C18	Digital Forensics	4	04
10	PCC-MCA-C19	Information Security	4	04
11	PCC-MCA-C20	Enterprise Resource Planning	4	04
12	PCC-MCA-C21	E-Governance	4	04
13	PCC-MCA-C22	Business Intelligence	4	04
14	PCC-MCA-C23	Major Project	4	10
15	PCC-MCA-C24	Seminar	4	06

***** For Theory CIE 30 Marks,**

Two tests of 30 marks at college should be conducted and best of two marks should be communicated to university.

***** Guidelines to paper setter:**

In theory ESE examination of 70 marks following points
should be considered, 1. First question of 10 marks should be
allotted to Objective type questions.
2. In Remaining 60 marks, four questions of 15 marks should be considered

***** CGPA Calculation**

The CGPA shall be calculated at the end of all semesters.
For calculation of CGPA, a formula given in guidelines shall be used. The standard of passing shall be in accordance with the following table.

Marks Obtained	Numerical Grade (Grade Point)		CGPA	Letter Grade
Absent	0 (zero)		-	-
0 – 39	0 (zero)		0.0 – 4.99	F (Fail)
40 – 49	5		5.00 – 5.49	C
50 – 59	6		5.50 – 6.49	B
60 – 69	7		6.50 – 7.49	B+
70 – 79	8		7.50 – 8.49	A
80 – 89	9		8.50 – 9.49	A+
90 – 100	10		9.50 – 10.0	O (Outstanding)

COURSE DETAILS/SYLLABUS

Master of Computer Application Sem – III

M.C.A. Part-II Semester III

Paper MCA-C10: Internet of Things
(Choice Based Credit System)

Course Details:

Course Details Class	**Second Year M.C.A. Semester III**
Course Code and Course Title	**PCC- MCA-C10: : Internet of Things**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Tutorial	**4 Hrs. + 1 Hr.**
Credits	**4 + 1**
Evaluation Scheme ESE + CIE for Theory	**70 (ESE) + 30 (CIE)**

Teaching scheme	**Examination scheme**
Lectures: 4 Hrs. /Week	**Theory: 100 Marks, 70 (ESE) +30 (CIE)**
Tutorial: 1 Hr./Week	**TW: 50 Marks**

Course Outcomes:

After completion of this course student should be able to 1.
Understand the role of IoT in various application domains.
2. Illustrate different technologies of IoT.
3. Identify various communication protocols used for IoT.
4. Elaborate emerging trends in IoT.

Unit 1: Introduction to IoT **12 HOURS**

Fundamentals of IoT, IoT architecture: Design principals of IoT architecture, Outline of IoT architecture, IoT architectural Reference Model (ARM), Functional view, Information View, Deployment View and Operational View, Various platforms of IoT, Real time examples of IoT, Challenges of IoT.

Unit 2: Arduino Environment **12 HOURS**

Arduino Uno architecture, Arduino IDE, Software and Libraries, Basics of Embedded C programming for Arduino, Interfacing basic hardware components with Arduino, Types of Sensors, Working of Sensors, Interfacing Sensors with Arduino. IoT communication technologies: Bluetooth, RFID, Wi-Fi.

Unit 3: IoT Application Development **12 HOURS**

Introduction to ESP8266 Wi-Fi module, Wi-Fi libraries, Configuring ESP8266 with Arduino, Setting up Web Client for IoT, Interfacing ESP8266 with web services, Web Server for IoT: Introduction to Web server, Installation of Web server for IoT, Configuration of Web server for IoT, Posting data to web server.

Unit 4: RaspberryPi and Emerging Trends in IoT **12 HOURS**

Introduction to RaspberryPi, Introduction to board of RaspberryPi, Operating systems on RaspberryPi, Configuring RaspberryPi, Programing RaspberryPi with Python, Accessing RaspberryPi, Other IoT devices, Role of Big data, Machine learning and Cloud computing in IoT.

Text Books:

1. Internet of Things, Srinivasa K. G., Cengage Learning India, 2017.
2. Internet of Things (A Hands on approach), Vijay Madisetti and Arshadeep Bagha, 1st edition, VPT, 2014

Reference Books:

1. Internet of Things: Architecture and Design principles, 1st edition, McGraw Hill, 2017
2. Arduino Programing in 24 hours, Richard Blum, Sams, 1st edition
3. RaspberryPi cookbook, Simon Mark, O'Reilly, 3rd edition

M.C.A. Part-II Semester III

Paper MCA-C11: Cloud Computing
(Choice Based Credit System)

Course Details:

Course Details Class	**Second Year M.C.A. Semester III**
Course Code and Course Title	**PCC- MCA-C11: Cloud Computing**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Tutorial	**4 Hrs. + 1 Hr.**
Credits	**4 + 1**
Evaluation Scheme ESE + CIE for Theory	**70 (ESE) + 30 (CIE)**

Teaching scheme	**Examination scheme**
Lectures: 4 Hrs. /Week	**Theory: 100 Marks, 70 (ESE) +30 (CIE)**
Tutorial: 1 Hr./Week	**TW: 50 Marks**

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 KumarSehgal, Springer, 2019

M.C.A. Part-II Semester III

Paper MCA-C12: Mobile Application Development
(Choice Based Credit System)

Course Details:

Course Details Class	**Second Year M.C.A. Semester III**
Course Code and Course Title	**PCC- MCA-C12: Mobile Application Development**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Practical	**3 Hrs. + 4Hrs.**
Credits	**3 + 2**
Evaluation Scheme ESE + CIE for Theory	**NA**

Teaching scheme	**Examination scheme**
Lectures: 3 Hrs. /Week	**NA**
Practical: 4 Hr./Week	**POE: 50 Marks TW: 50 Marks**

Course Outcomes:

After completion of this course student should be able to

1. Understand fundamentals of Android Application Development Environment.
2. Identify various components of Android Framework for developing mobile Applications.
3. Apply Android Application Framework for developing mobile Applications.
4. Analyze different security threats for android mobile applications.

Unit 1: Introduction to Android **12 HOURS**

Introduction to Mobile operating System, Android versions and its feature, 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 Framework **12 HOURS**

UI components: TextView, Buttons, Check Boxes and Radio Groups, Spinner, DatePicker, TimePicker. Android Menu: Option Menu, Context Menu, Popup Menu. Activity: Activity Lifecycle, Activity Example,
View:GridView, WebView, ScrollView. Layout Manager: Relative Layout, Linear Layout, Table Layout, Grid Layout. Intent: Overview, Implicit Intents, Explicit Intents, Intents with Activities

Unit 3: Advanced Android Applications **12 HOURS**

SQLite Database: Creating SQLite Database, Creating, Updating, and Deleting Database Records, Closing and Deleting a SQLite Database. Telephony API: Telephony Manager, Get Call State, Making Phone Call, Send SMS, Send Email. Location API: Location API Fundamental, Example of Android Location API, Working with Google Maps.

Unit 4: Android Security **12 HOURS**

Mobile application threats: Working of mobile applications, Client-side vulnerabilities, Server-side vulnerabilities, Mobile application threats, Risks for users. Android Security: SystemLevel Security, Application Security, Application Security measures, Application Security Scans.

Reference Books:-

1. Android, P.K. Dixit, Vikas Publication
2. Android Application Development – BlackBook Pradip Kotari, Dreamtech
3. Composing Mobile Apps Learn, Explorer, Apply using Android Anubhav Pradhan, Anil Deshpande, Wiley.
4. Android Wireless Application Development By Lauren Darcey and Shane Conder, Pearson Education, 2 nd Edition.
5. Unlocking Android Developer's Guide By Frank Ableson and Charlie Collins and RobiSen, Manning Publication Co.
6. Android Security Internals: An In-Depth Guide to Android's Security Architecture 1st Edition, ElenkovNikolay, No Starch Press

Paper MCA-C15: Big Data Analytics
(Choice Based Credit System)

Course Details:

Course Details Class	**Second Year M.C.A. Semester III**
Course Code and Course Title	**PCC- MCA-C15: Big Data Analytics**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Practical	**4 Hrs. + 2 Hr.**
Credits	**4 + 1**
Evaluation Scheme ESE + CIE for Theory	**70 (ESE) + 30 (CIE)**

Teaching scheme	**Examination scheme**
Lectures: 4 Hrs. /Week	**Theory: 100 Marks,** 70 (ESE) +30 (CIE)
Practical: 4 Hr./Week	**POE: 50 Marks TW: 50 Marks**

Course Outcomes:

After completion of this course student should be able to 1.
Understand the Big Data challenges.
2. Gain conceptual understanding of NOSQL Database, map and reduce and functional programming.
3. Apply concepts of Hadoop Distributed File System.

Unit 1: "Big Data" in the Enterprise **12 HOURS**

Big Data Concepts, Challenges. Opportunities from Big Data Enterprise Information Management: New Approach to Enterprise Information Management for Big Data, Capabilities needed for Big data Big Data Implications for Industries Big Data Analytics for Telecom/Banking/Retail/HealthCare/IT/Operations.

Unit 2: Data Modelling 12 HOURS Understanding data integration Pattern Big Data Workload Design Approaches Map-Reduce patterns,
Algorithms and Use Cases. Introduction of NoSQL Database concepts: ACID Vs. BASE, Advantages, Where Applicable, Schema, Two Phase Commit, Sharding and Share Nothing Architecture, NoSQL Databases, Brewers CAP Theorem, Features and comparisons of few NOSQL Databases (Cassandra, MongoDB, Cloudera, CouchDB, HBase)

Unit 3: Hadoop Framework **12 HOURS**

Hadoop Architecture, History of Hadoop – Facebook, Dynamo, Yahoo, Google Components Of Hadoop Framework :HDFS, MAP Reduce Introduction to Pig, Hive, Mahout Installation of Single Node cluster-installation of Java, Hadoop Configuration.

Unit 4: Big Data Analytics Methodology **12 HOURS**

Big data Analytics Methodology- Analyse& Evaluate Business Cases Develop Business HypothesisAnalyse outcomes, Build & Prepare Data sets, Select & Build Analytical Model, Design For Big data Scale,

Build production ready System, Setting up the Big Data Analytics System, Gathering data, Measure & Monitor. Extracting Value From Big Data: Real time Analytics, Apache Spark, In-Memory Data Grid for Real time Analysis , Map Reduce & Real Time Processing ,Use Case.

Text Books:

1. Madhu Jagadeesh, Soumendra Mohanty, Harsha Srivatsa, "Big Data Imperatives: Enterprise Big Data Warehouse, BI Implementations and Analytics", 1st Edition, A press (2013)

Reference Books:

1. Frank J. Ohlhorst, "Big Data Analytics: Turning Big Data into Big Money", Wiley Publishers (2012)
2. Cristian Molaro, Surekha Parekh, Terry Purcell, "DB2 11: The Database for Big Data &Analytics",MC Press, (2013)
3. Tom White, "Hadoop –The Definitive Guide, Storage and analysis at internet scale",SPD,O'Really

Paper MCA-C16: Minor Project

(Choice Based Credit System)

Course Details:

Course Details Class	**Second Year M.C.A. Semester III**
Course Code and Course Title	**PCC- MCA-C16: Minor 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: 4 Hr./Week	**POE: 100 Marks TW: 100 Marks**

Course Outcomes:

After completion of this course student should be able to 1.
Identify the problem in existing system.
2. Develop SRS document for proposed system.
3. Develop application using appropriate technology platform.
4. Validate the developed application

A group of maximum two students prepare a mini project under the guidance of internal guide. Project report will be evaluated by the internal teacher out of 20 marks and there will be viva-voce examination for 80 marks. The student should prepare the project report based courses studied in Semester I, Semester II and Semester III. Guidelines of Major Projects should be followed except industry certificate, joining report and industry work progress report.

TEACHING PLAN

Dept. of Master of Computer Application(MCA – I Sem-III 2024-25) 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 2024-25) Lecture Plan: Mobile Application Development	
Lecture No	**Topics**
1	**Unit 1 Introduction to Android**
	Introduction to mobile os
	Android versions and its features
	Characteristics of mobile application ,comparison between android ,windows and iOS
	Android architecture
	Functions of OS
	Software Development Kit (SDK)
	Android development tools
	Android virtual devices(AVD)
	Emulator, DVM, JVM
	Android directory structure
	Working and difference of DVM and JVM
2	**Unit 2 Android Application Framework**
	UI component: Text view ,Buttons
	Check boxes and radio groups
	Spinner ,Date picker ,Time picker
	Android menu: Option menu, context menu, popup menu
	Android activity lifecycle
	Activity lifecycle example
	View: Grid view, web view
	Scroll view, Layout manager
	Relative layout & linear layout
	Table layout & grid layout
	Implicit intent with example
	Explicit intent with example
3	**Unit 3 Advanced Android Applications**
	Creating SQLite database and updating
	Deleting database records
	Closing and deleting SQLite database
	Telephony API
	Telephony manager
	Get call state of telephony
	Making phone call
	Send SMS and email
	Location API fundamentals
	Example of android location API
	Working with Google maps
4	**Unit 4 Android Security**
	Mobile application threats
	Working of mobile applications
	Client side vulnerabilities
	Server side vulnerabilities
	Mobile application threats in client
	Risks for users
	Android security
	System level security
	Application security
	Application security measures
	Application security scan

Dept. of Master of Computer Application(MCA – I Sem-III 2024-25)
Lecture Plan: Big Data Analytics

Lecture No	Topics
1	**Unit 1 Big Data in the Enterprise**
	Big data concepts
	Challenges, opportunities from big data enterprise
	New approach to enterprise
	capabilities needed for big data
	Big data analytics for telecom
	Big data implications for industries
	Banking industry
	Retail industry
	Healthcare industry
	It industry
	Operations
	Advantages and Disadvantages of big data
2	**Unit 2 Data Modelling**
	Understanding data integration pattern big data workload design approaches
	Map-reduce patterns, algorithms and use cases
	Introduction of NoSQL database concepts: ACID Vs BASE
	Advantages, where applicable schema
	Two phase commit
	Sharding and Shared nothing architecture
	NoSQL databases
	Brewer's CAP theorem
	Features and comparison of few NoSQL databsaes
	Cassandra and MongoDB
	Cloudera and CouchDB
	HBase
3	**Unit 3 Hadoop Framework**
	Hadoop architecture
	History of hadoop
	Facebook
	Yahoo, google components of hadoop framework
	HDFS
	Map-reduce introduction to pig
	Hive
	Mahout installation
	Single node cluster installation of java
	Hadoop configuration
	Dynamo
4	**Unit 4 Big Data Analytics Methodology**
	Big data analytics methodology introduction
	Analyze and evaluate bussiness hypothesis
	Build and prepare data sets
	Select and build analytical model
	Design for big data scale
	Build production ready system
	setting up the big data analytics system and gathering data
	Measure and monitor extracting value from BD real time analytics
	In memory data grid and map reduce in real time processing
	apache spark
	Real time analytics

EXPERIMENT LIST
AND
ASSIGNMENT LIST

Dr. J. J. Magdum Trust's

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

Department of Master of Computer Applications

EXPERIMENT LIST

Mobile Application Development Academic Year 2024-25 SEM-III

Exp. No.	Name of Experiment	Performing / Non Performing	Course Outcome
01	Installation of Android SDK, emulator.	Non-Performing	CO1
02	Creating simple project and study of android project structure and installing apk on mobile device/tablet, configuring mobile device/tablet in Android Studio with developer option and running app directly on mobile device/tablet.	Performing	CO2
03	Write a program to use of different layouts.	Performing	CO2
04	Write a program to use of Intents in an application	Performing	CO2
05	Program to demonstrate Buttons, Text Fields, Checkboxes, Radio Buttons, and Toggle Buttons with their events handler.	Performing	CO2
06	Program to demonstrate Spinners, Touch Mode, Alerts, Popups, and Toasts with their events handler.	Performing	CO2
07	Write a program to use of Intents for SMS and Telephony.		CO2
08	Program to demonstrate Touch Mode, Menus with their events handler.	Performing	CO2
09	Write a mobile application that creates alarm clock.		CO3
10	Program to demonstrate notification with their action.	Performing	CO4
11	Develop a native calculator application.	Performing	CO4
12	Write a program to study and use of SQLite database and security.	Performing	CO3, CO4

Dr. J. J. Magdum Trust's

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

Department of Master of Computer Applications

EXPERIMENT LIST

Big Data Analytics Academic Year 2024-25 SEM-III

Expt. No.	Name of Experiment	Nature of Experiment	CO
1	Installation and configuration of Hadoop	Non-Performing	3
2	Study of NoSQL database using MongoDB to create, update and insert	Non-Performing	2
3	Implement basic database queries using MongoDB	Performing	2
4	Implement arrays and aggregate functions in MongoDB	Performing	2
5	Implement basic queries using Apache CouchDB	Performing	2
6	Implement CouchDB views and MapReduce	Performing	2
7	Implement date queries in MongoDB	Performing	2
8	Implement date queries using aggregate function in MongDB	Performing	2
9	Implement embedded documents in MongoDB	Performing	2
10	Implement Bucket operator in MongoDB	Performing	2

Cloud Computing (PCC-MCA-C04)

Lecture		Practical	Tutorial		Total Hr /Wk
4		0	1		5
Theory	CIE	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
8	Assignment No. 1

Internet of Things PCC-MCA-C10

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

Class	MCA II Sem.: III
Course	Internet of Things

Tutorial No.	Name of the Tutorial IOT
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	Assignment No. 1

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

STAFF LIST

DEPARTMENT STAFF LIST

Academic Year- 2024-2025 SEM- III

Sr. No.	Staff Name
01	Mr. A. G. Patil (Tech. Assistant)
02	Mr. D. S. Suryvanshi (Peon)