2024-25 Sem - II
Student Information Manual

MCA

Student Information Manual (SIM)

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

DEPARTMENT ACADEMIC PLANNER

ACADEMIC PLANNER 2024-25 SEM-II

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

Departmental Calendar of Events for the Academic Year 2024-25 (Odd Semester)
F.Y MCA & SY MCA – IInd Sem & IVth Sem

Week No.	Month	Weekdays							No of working days	Events
		MON	TUE	WED	THU	FRI	SAT	SUN		
1	January				3	4		5	2	Commencement of SY MCA- 1st January Load distribution – 3rd January
2	January	6	7	8	9	10	11	12	5	Subject Choice – 6th January Time Table – 9th January
3	January	13	14	15	16	17	18	19	6	CO by individual faculty lecture plan duly signed by HOD – 15th January
4	January	20	21	22	23	24	25	26	5	Dept. Academic Planner Submission - 20th January Alumni Meet – 26th January
5	January February	27	28	29	30	31	1	2	6	Syllabus Completion Report, Monthly Report – 30th January Project Seminar 1 – 31st January Commencement of FY MCA - (Autonomous) - 1st February
6	February	3	4	5	6	7	8	9	5	Expert Lecture – 5th February VAC – 7th,8th,9th February Annual Sports (Rana Bhoomi) – 1st to 8th February
7	February	10	11	12	13	14	15	16	6	FDP – 10th to 14th February Formative Feedback (SY MCA) – 10th to 14th February, Industrial Visit – 12th February MCASA Activity – 15th February
8	February	17	18	19	20	21	22	23	4	Expert Lecture – 17th February Shiv Jayanti celebrations – 19th February Annual Social Gathering – 20th and 21st February
9	February March	24	25	26	27	28	1	2	5	Syllabus Completion Report, Monthly Report – 27th February Augmentation Non-Technical – 28th February CIE – I (SY MCA) – 1st & 3rd March
10	March	3	4	5	6	7	8	9	5	Project Seminar 2 – 4th March Community Service – 7th March
11	March	10	11	12	13	14	15	16	5	UT – I (FY MCA) – 13th & 15th March
12	March	17	18	19	20	21	22	23	5	Summative Feedback (SY MCA) – 17th to 21st March Formative Feedback (FY MCA) – 17th to 21st March Technical Fest (Ashwamedh) – 20th and 21st March
13	March	24	25	26	27	28	29	30	6	Guest Lecture – 25th Marchs Syllabus Completion Report, Monthly Report – 29th March
14	March April	31	1	2	3	4	5	6	5	VAC – 1st April Project Seminar 3 – 4th April Parents Meet (SY MCA) – 01st to 05th April
15	April	7	8	9	10	11	12	13	4	Summative Feedback (FY MCA) – 7th to 11th April
16	April	14	15	16	17	18	19	20	4	CIE – II (SY MCA) – 19th & 21st April
17	April	21	22	23	24	25	26	27	5	UT – II (FY MCA) – 22nd & 23rd April 25th April Last day of Academics (SY MCA)
18	April May	28	29	30	1	2	3	4	5	Syllabus Completion Report, Monthly Report, CMC Report Submission – 30th April Parents Meet (FY) – 28th to 30th April
19	May	5	6	7	8	9	10	11	5	MCASA Activity – 6th May
20	May	12	13	14	15	16	17	18	5	
21	May	19	20	21	22	23	24	25	5	ESE (FY MCA) 24th May Onward
22	May	26	27	28	29	30	31		6	Syllabus Completion Report, Monthly Report – 30th May
No. of Working Days		18	21	19	19	20	12		109	

** CMC meeting of all classes is to be conducted last week of every month

** Proctor Meeting – In 1st and 3rd week of every month

Academic Coordinator   HOD-MCA   Dean Academics   Principal

DEPARTMENTAL TIMETABLE

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Department of Master of Computer Application

❖TIME TABLE❖

Date: 23/01/2025

Academic Year: 2024-25

Department: Master of Computer Application

Class Coordinator: Prof. P. N. Patil

Semester: II

Class: FY

Class Room No.: 2

W.e.f.:23/01/2025

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
09.30 am – 10.30 am	WT	F1-PC (AMM) F2-JAVA(SNW) F3-WT(PNP)	WT	IOT	F1-JAVA(PVK) F2-WT(PNP) F3-JAVA(PVK)	Non-Technical Aptitude
10.30 am – 11.30 am	AC - II		F1-IOT(TUT) F2- DCN(TUT) F3- CS(TUT)	CS		
11.30 am – 11.40 am	Short Break					
11.40 am – 12.40 pm	F1-DCN(TUT) F2- CS(TUT) F3- IOT(TUT)	DCN	DCN	JAVA	JAVA	JAVA
12.40 pm – 01.40 pm	DCN	JAVA	IOT	WT	F1-CS(TUT) F2- IOT(TUT) F3- DCN(TUT)	WT
01.40 pm – 02.30 pm	Lunch Break					
02.30 pm – 03.30 pm	F1-WT(PNP) F2-PC(AMM) F3- JAVA(PVK)	CS	CS	F1-JAVA(PVK) F2-JAVA(SNW) F3-PC(AMM)	PC	Technical Aptitude
03.30 pm – 04.30 pm		IOT	AC - II		Library Slot	

Name of Subject	Batches	Name of Faculty Member	NAME OF LAB
JAVA PROGRAMMING	F1, F2, F3(P)	Prof. P. V. Kothawale	DATABASE LAB
WEB TECHNOLOGIES	F1, F2, F3(P)	Prof. P. N. Patil	PYTHON LAB
DATA COMMUNICATION AND NETWORK	F1, F2, F3 (TUT)	Prof. S. B. Patil	
CYBER SECURITY	F1, F2, F3 (TUT)	Prof. S. A. Bhagwat	
INTERNET OF THINGS JAVA PROGRAMMING	F1, F2, F3 (TUT) F2 (P)	Prof. S. N. Wadkar	DATABASE LAB
AUDIT COURSE-II (VALUE EDUCATION)	----	Prof. D. B. Padalkar	
PROFESSIONAL COMMUNIVATION	F1, F2, F3(P)	Prof. A. M. More	-

Prof. S. B. Patil   Prof. S. B. Patil   Prof. P.V. Kothawale   Prof. A. S. Sajane   Dr. G. V. Mulgund

TIME TABLE I/C   Academi coordinator.   HOD MCA   Dean, Academics   Principal

STRUCTURE OF SYLLABUS

Teaching and Evaluation Scheme
MCA (Master of Computer Application)
First Year MCA. (Semester- II)

Sr. No.	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	Theory CIE T-I	Theory CIE T-II	Theory CIE ISE	Theory ESE	Practical CIE	Practical ESE	TOTAL
1	01MCL111	Data Communication and Network	3	1	--	4	4	20	20	10	50	--	--	100
2	01MCL112	Web Technology	3		--	3	3	20	20	10	50	--	--	100
3	01MCL113	Java Programming	3		--	3	3	20	20	10	50	--	--	100
4		Program Elective-II	3	1	-	4	4	20	20	10	50	--	--	100
5	01MCP114	Mini Project	--	--	6	6	3	--	--	--		50	50	100
6	01MCP115	Web Technology	--	--	2	2	1	--	--	--	--	50	50	100
7	01MCP116	Java Programming	--	--	4	4	2					50	50	100
8	01MCP117	Professional Communication	1	--	2	2	2	--	--	--	--	50	50	100
9	01MCL118	Audit Course – II	2	--	--	2	Audit	--	--	--	50	--	--	50
		Total	15	02	14	30	22	80	80	40	250	200	200	850

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

Program Elective -II

Sr. No.	Course Code	Courses
01	01MCL119	Internet of Things
02	01MCL120	Cyber Security

COURSE DETAILS/SYLLABUS

01MCL111: Data communication and Network

Course Details:

Course Details Class	First Year M.C.A. Sem-II
Course Code and Course Title	01MCL111: Data communication and Network
Prerequisites	Basics of Computer Network
Teaching scheme: Lectures	3 Hrs. + 1Tut
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: --NA	TW: NA

Course Outcomes:

1. Student will able to understand the basic concepts of data communication and Networking.
2. Student will able to evaluate the performance of various networking models.
3. Student will able to analyze the performance of network on the basis of different services provided by it.
4. Student will able to identify security threats to network and tools to control network security.

UNIT 1: Introduction to Networking and Data communication   (12 HOURS)

Introduction to Networking and Data communication: Need of Networking, Components of Data communication - sender, receiver, message, transmission media, Network Architecture-Client-Server and Peer to peer, Categories of Networks- LAN, WAN. MAN, Network topologies Bus, Ring, Star, Mesh, Transmission Media - Guided Media -Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable, Unguided Media: Radio Waves, Microwaves, Infrared, and satellite communication

UNIT 2: Network Models and Services   (12 HOURS)

Network Models and Services: OSI reference model, TCP/IP reference model, Comparison of OSI and TCP/IP reference model, Protocol Standards, Introduction to Application Layer: Domain name system (DNS), Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), Telnet, File Transfer Protocol (FTP), Introduction to Presentation Layer, Services of Presentation Layer: Data encoding, Data encryption and data compression. Introduction to Session Layer, Services of session layer: Data Flow control, simplex, half-duplex, or full-duplex, Token Management, Synchronization.

UNIT 3: Network Performance   (12 HOURS)

Network Performance: Transport layer - Transport Layer Primitives: listen, connect, send, receive, disconnect, Protocols: TCP, UDP, Network layer- IP Protocol and IP addressing, Connection oriented and connectionless services, Routing algorithm: Shortest path, Flooding, distance vector, Congestion control, Data link Layer- Data Link Layer protocols: Stop and Wait protocol, Sliding window protocol, Services of Data Link Layer: Framing, Error detection and correction, Flow control.

UNIT 4: Network Vulnerabilities   (12 HOURS)

Network Vulnerabilities: Introduction to Vulnerabilities and Threats, Threats intransit, Protocol flaws, Impersonation, Active/Passive and Passive attacks: Virus, Worm. Malware, Hacking, Cracking, Sniffing,

Spoofing, Dos, DDos, Masquerade, Trojan Horse. Ransomware, Logic bombs, Botnets, Key oggers, Rootkits, Identification of Network vulnerabilities. Network security controls: Authentication, Access Controls, Basic Cryptography terminologies.

Text Books:

1. Andrew S. Tanenbaum: Computer Networks, 4th Edition, PHI.

2. Computer Networks – Protocols, Standards, and Interfaces, 2nd Edition by Uyless Black.

Reference Books:

1. Computer Networking - A Top-Down Approach Featuring the Internet, 5th Edition, J. F. Kurose and K. W. Ross, Pearson Education, 2009.

2. Computer Networks: An Open Source Approach, 1st Edition, R2. Y. D Lin, R. H Hwang, and F.Baker, McGraw- Hill, 2011.

3. Bernard Menezes, ‗Network Security and Cryptography', Cengage Learning, ISBN: 978-81-315-1349—1.

01MCL112: Web Technology

Course Details:

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

Course Outcomes:

1. Student will able to familiarize a student with Client-side and Server-side Programming.
2. Student will able to understand the website development using ASP.NET.
3. Student will able to inculcate skills pertaining to data access technology geared to facilitate the development of disconnected systems using .NET platform.
4. Student will able to familiarize the student with the development of N-tier web-based application.

UNIT 1 : Overview of HTML   (12 HOURS)

Overview of HTML, Structure of HTML document. Formatting text with HTML, adding local and remote links, adding graphics, creating lists in HTML, creating tables in HTML, Dividing the window with frames, Building interactivity with forms, Formatting site with cascading style sheets. Image maps – creating client-side and server-side image maps, Various HTML Editors JavaScript Overview, Data types, variables, scope of variables, casting, data type conversion rules, Expressions and operators. Arrays. Built-in functions, and Built-in objects- String, Date, Math, Types of dialog boxes-alert, prompt, confirm. Custom Functions. Working with Frames, Forms, Form elements and Form validation

UNIT 2 : ADO and ADO.NET   (12 HOURS)

Comparison between ADO and ADO.NET and benefits offered by ADO.NET, ADO.NET managed providers, SQL managed providers, ADO.NET, OLED Bmanaged providers, creating, Data binding in ADO.NET. Introduction to SQL Server, Creatingtables, Views and stored procedure.

UNIT 3 : Understanding ASP.NET   (12 HOURS)

Architecture of ASP.NET web application. Understanding ASP.NET page structure. Page level events. Using standard controls, validation controls, Rich controls. Designing web sites with master pages and themes. ASP.NET folder structure, Validation process. Validation controls. Validation Groups and Custom Validation, Performing data access – Using Sql Data Sourcecontrol, using Grid View control, Form View, Repeater, Data List and ListView Developing 3-tier application using Object Data source.

UNIT 4: Introduction to CSS   (12 HOURS)

State management, Caching, AJAX, AJAX Extenders. Building and understanding web services, anatomy of a web service, overview of web service namespaces, building a simple web service, Introduction to CSS, Types of CSS, Applying CSS to Master pages in ASP.NET.

The laboratory course should consist of 10 to 12 programming exercises with focus oncovering the hands-on aspects covered in theory course.

Books:

1. The Complete Reference HTML- Thomas A.Powell
2. The ABC's of JavaScript – Lee Purcell & May Jane Mara
3. ASP.NET Unleashed – Stephen Walther - Sams Publishing
4. The Complete Reference ASP.NET - Matthew Macdonald
5. Designing Microsoft ASP.Net Applications (Microsoft Press) – Jonathan Goodyear,Brian Peek, Brad Fox.
6. Microsoft ASP.NET – Step by Step (Microsoft Press) - G. Andrew Duthie
7. Programming ASP .NET - Jesse Liberty, Dan Hurwitz, Publisher: O'Reilly Media

01MCL113: Java Programming

Course Details:

Course Details Class	First Year M.C.A. Sem-II
Course Code and Course Title	01MCL113: Java Programming
Prerequisites	Basic understanding of C++ and html.
Teaching scheme: Lectures + Practical	3Hrs. + 4 Hr.
Credits	3 + 2
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 , (CIE): 50 Marks

Course Outcomes:

1. Students will be able to articulate the principle of object-oriented problem solving &programming**.**

2. Students will be able to program using multithreading, networking concept & develop web applicationsusing servlet and jsp.

3. Students will be able to applications using database concepts
4. Students will be able to understand Advanced Java Concepts like Spring Boot,Micro services, Web services

UNIT 1   (12 HOURS)

Introduction to Java Programming: Java Features, JVM, JIT Compiler, Java Programing Basics, Data Types, Control Flow, Arrays, Jagged Array.

OOPS: Introduction, Class, Object, Static Keywords, Constructors, this keyword, Inheritance, Inner class, Anonymous Inner class, super keyword, Polymorphis (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces, Packages.

UNIT 2   (12 HOURS)

Multithreading & Servlet, JSP:

Multithreading and Concurrency in Java Networking, Socket Programming, Exception Handling, Logging Generics and Collections Framework classes, Servlet Filters, JSP Syntax and Scripting Elements, Expression Language (EL) and JSP Standard Tag Library (JSTL), Model View Controller (MVC) architecture using Servlets and JSP

UNIT 3   (12HOURS)

Java Database Connectivity (JDBC) & Hibernate:JDBC overview, Architecture, Steps to create JDBC Application, Drivers, Database connection statements, Resultsets,

Hibernate framework application, Introduction Working on Hibernate framework and its advantage and disadvantage, Introduction to Using Hibernate framework in a live application.

UNIT 4   (12 HOURS)

Advanced Java Concepts

Types of software architectures, SOA and Monolith Architecture, Why Micro services. Detailed Micro Service Architecture, App Layer, Business Layer, Enteprise Layer, Infra Layer, Need of Spring Boot, Difference between Spring & Spring Boot, Advantages with Micro Services

Web Services: Introduction to REST ful Web Services Building and Consuming REST ful APIs using JAX-RS SOAP Web Services with JAX-WS

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

Text Books:
1. Cay Horstmann and Gary Cornell - Core Java- Volume I Fundamentals, Pearson, Eight edition
2. Cay Horstmann and Gary Cornell - Core Java- Volume II - Advanced Features, Pearson, Eight edition Bryan Basham, Kathy Sierra Head First Servlets and JSP, O'Reilly

01MCL119: Internet of Things

Course Details:

Course Details Class	First Year M.C.A. Sem-II
Course Code and Course Title	**01MCL119: Internet of Things**
Prerequisites	**Computer Fundamentals.**
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. 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 OperationalView, Various platforms of IoT, Real time examples of IoT, Challenges of IoT.

Unit 2: Arduino Environment   (12 HOURS)
Introduction to Arduino Uno, 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.

Unit 3: RFID Technology and Communication Technologies: (12 HOURS)
RFID, IoT objects and services, principles of RFID, Components of an RFID system, RFID reader,Tags, middleware, Sensor nodes, connecting nodes, networking nodes. WPAN Technologies:Introduction to IEEE 802.15.4 standard, Bluetooth, Zigbee, IEEE 802.15.6; WBANS, NFC, IEEE 802.11 WLAN, Cellular and mobile technologies.

Unit 4: RaspberryPi and Emerging Trends in IoT   (12 HOURS)
Introduction to RaspberryPi, Introduction to board of RaspberryPi, Operating systems on RaspberryPi, Configuring RaspberryPi, Programming 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, 1stedition,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.

01MCL120: Cyber Security

Course Details:

Course Details Class	Second Year M.C.A. Semester II
Course Code and Course Title	01MCL120: Cyber Security
Prerequisites	Computer Fundamentals
Teaching scheme: Lectures + Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	50 (ESE) + 50 (CIE)

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

Course Outcomes:

After completion of this course student should be able to
1. Understand the fundamentals of Cyber security vulnerabilities.
2. Demonstrate different Cyber Security techniques.
3. Apply different Internet and Cyber Security Controls.
4. Describe Information Technology Act 2000.

Unit 1: Introduction to Cyber Security Vulnerabilities (12 HOURS)

Introduction to Cyber space and security, Internet Security, Cloud Computing &Security, Social Network sites security, Cyber Security Vulnerabilities-Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Authorization, Unprotected Broadband communications, Cyber Security Awareness.

Unit 2: Cyber Security Techniques (12 HOURS)

Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography . Overview of Firewalls Types of Firewalls. Intrusion detection system: Types of Intrusion Detection System, Features and limitations. Intrusion prevention system: Honeypots, Types of Honeypots, Introduction to Honeynets.

Unit 3: Internet Security Controls (12 HOURS)

Internet Security: Secure Socket Layer (SSL), Secure Hypertext Transfer Protocol(S/HTTP), IPSec, Secure Multipurpose Internet Mail 15Periods 6 Extensions(S/MIME). Web browser security: Filtering services in web browser. E-mail Security:, Encryption for Secure E-Mail, Secure E- Mail System: PGP (Pretty Good Privacy), S/MIME (Secure Multipurpose Internet Mail Extensions); Cyber Security Standards: ISO/IEC 27032, NIST- CSF

Unit 4: Cyber Law (12 HOURS)

Introduction to Cyber Laws, Why do we need Cyber law: The Indian Context, Three Bodies of Law, Types, Levels, Computers Related Laws, Cybercrime and the Indian ITA 2000 and amendments, Honeypots, The Indian Penal Code (IPC) 1860, Mapping of Cybercrime with IT Act, Technology and

Students: Indian Scenario.

Reference Books:-

1. Charlie Kaufman and Radia Perlman, Mike Speciner, ―Network Security, Second Edition,
2. Private Communication in Public World‖, PHI 2002.
3. Tony Bradley, ―Essential Computer Security: Everyone's Guide to Email, Internet and
4. Wireless security‖, Syngress Publication 2006.
5. Behrouz A. Ferouzan, ―Cryptography & Network Security‖, Tata McGraw Hill, 2007.
6. Information & Network Security for GTU, I. A. Dhotre V. S. Bagad, Technical publication

01MCP114: Mini Project

Course Details:

Course Details Class	Second Year M.C.A. Semester II
Course Code and Course Title	01MCP114: Mini Project
Prerequisites	Computer Fundamentals
Teaching scheme: Practical	6 Hrs.
Credits	3
Evaluation Scheme ESE + CIE for Theory	-

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

Course Outcomes:

After completion of this course student should be able to

1. Identify the problem in existing system.
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.

01MCP117: Professional Communication

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCP117: Professional Communication
Prerequisites	Business Management
Teaching scheme: Practical + Theory	1Hr. +1 Hr
Credits	1 + 1
Evaluation Scheme ESE + CIE for Theory	NA

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

Course Outcomes:
To empower the students towards general and technical writing, oral communications and listening skills: letter writing, technical report writing, and business communication.

UNIT 1   (9 HOURS)
Expression: Practical communication skill development, business presentation with multimedia, speaking skill, prepared speech, extempore speech.

UNIT 2   (9 HOURS)
Writing: Technical/business letter, Resume Preparation, organization of writing material, poster presentation, writing technical document, preparing software user manual, preparing project documentation.

Text Books:
1. Business Correspondence & Report Writing, Sharma, TMH
2. Business Communication Strategies, Monipally, TMH

References:
1. English for Technical communication,Laxminarayanan,Scitech
2. Business Communication, Kaul,PHI
3. Communication Skill for Effective Mgmt., Ghanekar,EPH

01MCL118: Audit Course – II
VALUE EDUCATION

Course Details:

Course Details Class	First Year M.C.A. Sem-I
Course Code and Course Title	01MCL118: Audit Course-II
Prerequisites	Value Education
Teaching scheme: Lectures	2 Hrs.
Credits	--
Evaluation Scheme CIE for Theory	50 (ESE)

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

Course Outcomes:
1. Understand the significance of ethical human conduct and self-development
2. Adopt value-based living and holistic technologies to save nature
3. Practice Self-control. Honesty through Studying effectively all religious messages

UNIT 1. VALUES AND SELF-DEVELOPMENT   (4 HOURS)
Values and self-development. Social values and individual attitudes. Work ethics, Indian vision of humanism. Moral and non- moral valuation. Standards and principles. Value judgments.

UNIT 2. CULTIVATION OF VALUES   (4 HOURS)
Importance of cultivation of values. Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness. Honesty, Humanity. Power of faith, National Unity. Patriotism. Love for nature, Discipline.

UNIT 3. PERSONALITY AND BEHAVIOR DEVELOPMENT   (4 HOURS)
Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline. Punctuality, Love and Kindness. Avoid fault Thinking. Free from anger, Dignity of labor. Universal brotherhood and religious tolerance. True friendship. Happiness vs suffering, love for truth. Aware of self-destructive habits. Association and Cooperation. Doing best for saving nature.

UNIT 4. CHARACTER AND COMPETENC   (4 HOURS)
Character and Competence –Holy books vs Blind faith. Self-management and Good health. Science of reincarnation. Equality, Nonviolence, Humility, Role of Women.

UNIT 5. SELF CONTROL   (4 HOURS)
All religions and same message. Mind your Mind, Self-control. Honesty, Studying effectively.

Text Books:
1. Chakroborty, S.K. ―Values and Ethics for organizations Theory and practice‖, Oxford University Press, New Delhi.

References:

1. R.P. Shukla, ―Value education and human rights

TEACHING PLAN

Dept. of Master of Computer Application (MCA - I Sem II 2024-25)
Lecture Plan: Design and Analysis of Algorithms

Lecture No	Unit 1
01	Introduction to algorithms
02	Analyzing and designing algorithms
03	Growth functions, asymptotic notations
04	Recursive algorithm complexity
05	Solving recurrences: Substitution method
06	Master method.
07	Binary search
08	Quick sort
09	Recursion tree method
10	Counting sort
11	Merge sort
12	Heap sort, Radix sort
13	Insertion sort and selection sort
	Unit 2
14	Linked Representation in memory
15	Traversing and searching a linked list
16	Insertion and deletion from a linked list
17	Singly
18	Stack - Definition, array and linked representation of stacks
19	Arithmetic expression
20	Polish notation
21	Application of stack
22	Queue - Definition, array and linked representation of Queue.
23	Array and linked representation of Queue.
	Unit 3
24	General tree, Binary tree
25	Binary search tree
26	Operations on binary search tree
27	AVL tree
28	Red-Black Trees
29	B-trees
30	Representations of graph
31	Traversing Graphs
32	Breadth-first search
33	Depth-First Search
34	Topological sort
	Unit 4
35	General Characteristics of greedy algorithms
36	Elements of Greedy Strategy
37	Huffman code
38	Job Scheduling Problem
39	Branch and Bound – Introduction
40	Travelling Salesman problem
41	Backtracking – Introduction
42	N Queen Problem
43	N Queen Problems1

Department Of Master of Computer Application (MCA - II Semester II 2024-25) Lecture Plan: Web Technology	
Lecture No	**Unit 1**
01	Overview of HTML, Structure of HTML document.
02	Formatting text with HTML, adding local and remote links, adding graphics, creating lists in HTML.
03	Creating tables in HTML.
04	Dividing the window with frames, Building interactivity with forms.
05	Formatting site with cascading style sheets.
06	Image maps, creating client-side and server-side image maps.
07	Various HTML Editors JavaScript Overview, Data types, variables, scope of variables.
08	Casting, data type conversion rules, Expressions and operators.
09	Arrays. Built-in functions, and Built-in objects- String, Date, Math.
10	Types of dialog boxes-alert, prompt, confirm.
11	Custom Functions.
12	Working with Frames, Forms, Form elements and Form validation.
	Unit 2
13	Comparison between ADO and ADO.NET.
14	Comparison between ADO and ADO.NET.
15	Benefits offered by ADO.NET.
16	ADO.NET managed providers.
17	SQL managed providers.
18	ADO.NET, OLEDB managed providers.
19	Creating Data binding in ADO.NET.
20	Introduction to SQL Server.
21	Introduction to SQL Server.
22	Creating tables, Views.
23	Creating stored procedure.
24	Creating stored procedure.
	Unit 3
25	Architecture of ASP.NET web application.
26	Understanding ASP.NET page structure.
27	Page level events.
28	Using standard controls, validation controls, Rich controls.
29	Designing web sites with master pages and themes.
30	ASP.NET folder structure.
31	Validation process. Validation controls. Validation Groups and Custom Validation.
32	Performing data access using SqlDataSource control.
33	Performing data access using GridView control.
34	Performing data access using Repeater.
35	Performing data access using DataList and ListView.
36	Developing 3-tier application using Object Data source.
	Unit 4
37	State management.
38	Caching.
39	AJAX and AJAX Extenders.
40	AJAX and AJAX Extenders.
41	Building and understanding web services.
42	Building and understanding web services.
43	Anatomy of a web service.
44	Overview of web service namespaces.
45	Building a simple web service.
46	Introduction to CSS.

47	Types of CSS.	
48	Applying CSS to Master pages in ASP.NET.	

Dept. of Master of Computer Application (MCA –I Sem II 2024-25)	
Lecture Plan - JAVA Programming	
Lecture No	**Unit 1**
1	OOP in Java, Objects and classes, Inheritance, Polymorphism, Interfaces
2	inner classes, Constructor
3	Garbage collector
4	Method Overloading Method Overriding
5	Packages
6	Understanding Class path
7	Introduction to Java Utility classes and collection classes
8	Date, DateFormat and Gregorian calendar classes
9	A Simple Java Program
10	Object Creation, Using Java.lang
11	Object class in program
12	programs using inheritance
	Unit 2
13	JDBC overview, Architecture
14	Steps to create JDBC Application
15	Drivers, database connection statements
16	Resultsets, transaction
17	Metadata and Aggregate functions, callable statements
18	Connection pooling
19	Java Servlets, Servlet vs. CGI
20	CGI, Servlet life cycle, Servlets basics
21	Generic Servlets, HTTP Servlet, The Servlets
22	Cookies, session tracking
23	databases and non-HTML content , request dispatching
24	shared attributes, resource abstraction
	Unit 3
25	Introduction & Architecture of RMI
26	Stubs & skeleton,Java RMI classes and interfaces
27	Writing simple RMI application
28	Parameter passing in remote methods (marshalling and unmarshalling)
29	Java Beans Introduction, design pattern
30	Beans persistence & introspection
31	writing simple bean
32	JSP(Java Server Pages: Introduction to JSP, Use of JSP
33	JSP Architecture, JSP tags
34	Implicit and Explicit objects
35	Request forward
36	Request –time include, use of Beans in JSP and their scopes.
	Unit 4
37	Hibernate framework application
38	Introduction Working on Hibernate framework
39	Introduction Hibernate framework
40	Hibernate framework advantage and disadvantage
41	Introduction Using Hibernate framework in a live application
42	Struts framework Architecture and details
43	Struts frameworks Components

Dept. of Master of Computer Application (MCA - I Sem II 2024-25)
Lecture Plan: Internet of Things

Lecture No	Unit 1
1	Fundamentals of IoT
2	IOT Architecture
3	Design principle of IOT architecture
4	outline of IOT architecture
5	IOT(RAM) Architecture Reference Model
6	Functional view
7	Information view
8	Deployment View
9	Operational view
10	various platform to IOT
11	Realtime examples of IOT
12	challenges of IOT
	Unit 2
13	Arduino Uno Architecture
14	Arduino IDE
15	software and libraries
16	Basic of Embedded
17	C Programming for Arduino
18	Interfacing basic hardware component with Arduino
19	types of sensors
20	working of sensors
21	interfacing sensors with sensors
22	IOT communication technologies
23	Bluetooth
24	RFID, WiFi
	Unit 3
25	Introduction to ESP8266 WiFi module
26	WiFi libraries
27	Configuring ESP8266 with Arduino
28	setting up web client for IOT
29	Interfacing ESP8266 with web services
30	Introduction to web server
31	web server for IOT
32	Installation of web server for IOT
33	Configuration of web
34	server for IOT
35	posting data
36	web server
	Unit 4
37	Introduction to RaspberryPi
38	Introduction to board of RaspberryPi
39	Operating system on RaspberryPi
40	configuring RaspberryPi
41	Programming RaspberryPi with python
42	Accessing RaspberryPi
43	other IOT devices
44	Role of big data
45	Machine learning
46	Cloud Computing in IOT

Dept. Of Master of Computer Application (MCA - II Sem IV 2024-25)	
Lecture Plan: Cyber Security	
Lecture No	Unit 1
01	Introduction to Cyber space and security
02	Internet Security
03	Cloud Computing &Security
04	Social Network sites security
05	Social Network sites security's
06	vulnerabilities in software
07	System administration
08	Complex Network Architectures
09	Open Access to Organizational Data
10	Weak Authentication, Authorization
11	Unprotected Broadband communications
12	Cyber Security Awareness
	Unit 2
13	Introduction to Cryptography
14	Symmetric key Cryptography, Asymmetric key Cryptography
15	Message Authentication
16	Digital Signatures, Applications of Cryptography
17	Overview of Firewalls, Types of Firewalls
18	Types of Intrusion Detection System
19	Features and limitations
20	Intrusion prevention system: Honeypots
21	Introduction to Honeypots
22	Types of Honeypots
	Unit 3
23	Internet Security: Secure Socket Layer (SSL)
24	Secure Hypertext Transfer Protocol(S/HTTP)
25	IPSec
26	Secure Multipurpose Internet Mail 15Periods 6 Extensions(S/MIME)
27	Web browser security
28	Filtering services in web browser
29	E-mail Security, Encryption for Secure E-Mail
30	Secure E- Mail System- PGP (Pretty Good Privacy)
31	S/MIME (Secure Multipurpose Internet Mail Extensions)
32	Cyber Security Standards: ISO/IEC 27032
33	NIST- CSF
	Unit 4
34	Introduction to Cyber Laws, Why do we need Cyber law
35	The Indian Context, Three Bodies of Law
36	Types, Levels
37	Computers Related Laws
38	Cybercrime and the Indian ITA 2000 and amendments
39	Honeypots
40	The Indian Penal Code (IPC) 1860
41	Mapping of Cybercrime with IT Act
42	Technology and Students: Indian Scenario

EXPERIMENT LIST
AND
ASSIGNMENT LIST

Data communication and Network (01MCL111)

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

Class	MCA I	Sem.: II
Course	Data communication and Network	

Tutorial No.	Name of the Tutorial Data Communication and Network
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
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3

Java Programming (01MCL113)

Lecture		Practical	Tutorial		Total Hr/Wk
4		2	NA		6
Theory	CIE	T/W	OE	POE	Total Marks
70	30	50	--	50	200

Class	MCA I	Sem.: II
Course	Java Programming	

Tutorial No.	Name of the Tutorial Java Programming
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3
4	Assignment No. 4

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

Department of Master of Computer Application

Class: FY MCASEM- II

Subject: Web Technologies

Name of Faculty: Prof. P. N. Patil

Laboratory Name: Python lab

Lecture	Practical	Tutorial		Total Hrs/Wk.
3	2	---		05
Theory	Term work	OE	POE	Total Marks
100	50	-	50	200

Experiment List

Expt. No.	Name of Experiment	Nature of Experiment	CO
1	Exploring the Functionality of HTML Tags	Non-Performing	1
2	Demonstrating the Use of HTML Tags	Performing	1
3	Demonstrate use of tables in HTML	Performing	1
4	Apply and design the created HTML pages using CSS	Performing	1
5	Create html pages for website like login, registration and about us pages.	Performing	1
6	Demonstrate the use of JavaScript functions and input validation	Performing	1
7	Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient	Performing	1
8	Demonstrate the use of frames and iframes in HTML	Performing	1
9	Create ASP.NET Web Application	Performing	2, 3
10	Create Asp.net Web Form with Required Field, Regular Expression & Range Validation with Drag and Drop	Performing	2, 3
11	Design a Horizontal Dropdown menu inside Navigation bar by using CSS	Performing	4

Java Programming (01MCP116)

Lecture		Practical	Tutorial		Total Hr/Wk
3		2	NA		5
Theory	CIE	T/W	OE	POE	Total Marks
50	50	50	--	50	200

Class	MCA I Sem.: II
Course	Java Programming

Expt. No.	Name of the Experiment	Nature of Experiment
1	Control Statement in Java	Performing
2	Inheritance in Java	Performing
3	Abstract Class Abstract Method	Performing
4	Java Database Connectivity	Performing
5	Meta Data in Java	Performing
6	Servlet in Java	Performing
7	JDBC in Java	Performing
8	RIM in Java	Performing
9	Jsp Action Tag	Performing
10	Framework in Java	Non- Performing

Professional Communication (01MCP117)

Lecture		Practical	Tutorial		Total Hr/Wk
1		2	0		3
Theory	CIE	T/W	OE	POE	Total Marks
0	0	25	50	0	75

Class	MCA I Sem.: II
Course	Professional Communication

Tutorial No.	Name of the Assignment **Professional Communication**
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3

4	Assignment No. 4
5	Assignment No. 5
6	Assignment No. 6
7	Assignment No. 7

Internet of Things (01MCL119)

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

Class	MCA II	Sem.: II
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

Cyber Security (01MCL120)

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

Class	MCA II	Sem.: II
Course	Cyber Security	

Tutorial No.	Name of the Tutorial CS
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
9	Assignment No. 1
10	Assignment No. 2

FACULTY LIST

DEPARTMENT FACULTY LIST

Academic Year- 2024-2025 SEM- II

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- II

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

2024-25 Sem – IV

Student Information Manual

MCA

Student Information Manual (SIM)

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INSTITUTE INFORMATION

Dr. J. J. Magdum College of Engineering was established by Dr. J. J. Magdum Trust, Jaysingpur in 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 Government of Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech programs in Mechanical, Civil, and Computer Science Engineering, IT and Electronics and Master of Computer Application.

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

Graduates will be able to,
1.   Understand the structure, development methodologies of software systems, possess professional skills and obtain competency with a broad range of programming languages and platforms.
2.   Apply principles of analysis, design and development to provide user interactive solutions for various challenges.

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,

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 behaviors

DEPARTMENT ACADEMIC PLANNER

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

Departmental Calendar of Events for the Academic Year 2024-25 (Odd Semester)
F.Y MCA & SY MCA – IInd Sem & IVth Sem

Week No.	Month	Weekdays							No of working days	Events
		MON	TUE	WED	THU	FRI	SAT	SUN		
1	January					3	4	5	2	Commencement of SY MCA- 1st January Load distribution – 3rd January
2	January	6	7	8	9	10	11	12	5	Subject Choice – 6th January Time Table – 9th January
3	January	13	14	15	16	17	18	19	6	CO by individual faculty lecture plan duly signed by HOD – 15th January
4	January	20	21	22	23	24	25	26	5	Dept. Academic Planner Submission - 20th January Alumni Meet – 26th January
5	January February	27	28	29	30	31	1	2	6	Syllabus Completion Report, Monthly Report – 30th January Project Seminar 1 – 31st January Commencement of FY MCA - (Autonomous) - 1st February
6	February	3	4	5	6	7	8	9	5	Expert Lecture – 5th February VAC – 7th, 8th, 9th February Annual Sports (Rana Bhoomi) – 1st to 8th February
7	February	10	11	12	13	14	15	16	6	FDP – 10th to 14th February Formative Feedback (SY MCA) – 10th to 14th February, Industrial Visit – 12th February MCASA Activity – 15th February
8	February	17	18	19	20	21	22	23	4	Expert Lecture – 17th February Shiv Jayanti celebrations – 19th February Annual Social Gathering – 20th and 21st February
9	February March	24	25	26	27	28	1	2	5	Syllabus Completion Report, Monthly Report – 27th February Augmentation Non-Technical – 28th February CIE – I (SY MCA) – 1st & 3rd March
10	March	3	4	5	6	7	8	9	5	Project Seminar 2 – 4th March Community Service – 7th March
11	March	10	11	12	13	14	15	16	5	UT – I (FY MCA) – 13th & 15th March
12	March	17	18	19	20	21	22	23	5	Summative Feedback (SY MCA) – 17th to 21st March Formative Feedback (FY MCA) – 17th to 21st March Technical Fest (Ashwamedh) – 20th and 21st March
13	March	24	25	26	27	28	29	30	6	Guest Lecture – 25th March Syllabus Completion Report, Monthly Report – 29th March
14	March April	31	1	2	3	4	5	6	5	VAC – 1st April Project Seminar 3 – 4th April Parents Meet (SY MCA) – 01st to 05th April
15	April	7	8	9	10	11	12	13	4	Summative Feedback (FY MCA) – 7th to 11th April
16	April	14	15	16	17	18	19	20	4	CIE – II (SY MCA) – 19th & 21st April
17	April	21	22	23	24	25	26	27	5	UT – II (FY MCA) – 22nd & 23rd April 25th April Last day of Academics (SY MCA)
18	April May	28	29	30	1	2	3	4	5	Syllabus Completion Report, Monthly Report, CMC Report Submission – 30th April Parents Meet (FY) – 28th to 30th April

9

** CMC meeting of all classes is to be conducted last week of every month

** Proctor Meeting – In 1st and 3rd week of every month

Academic Coordinator   HOD-MCA   Dean Academics   Principal

DEPARTMENTAL TIME TABLE

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◈

Date: 04/01/2025

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

Class Coordinator: Prof. S. N. Wadkar

Semester: IV
Class: SY
Class Room No.: Online
W.e.f.:03/01/2024

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
09.30 am – 10.30 am	DF	S4(SR) S7(SR)	DF	S6(SR) S8(SR)	S1(SR) S9(SR)	
10.30 am – 11.30 am						
11.40 am – 12.40 pm				S2(SR) S5(SR)	S3(SR) S10(SR)	
40 pm – 01.40 pm						
03.30 pm – 04.30 pm	CS	ERP	ERP	ERP	CS	
03.30 pm – 04.30 pm	IS	BI	BI	BI	IS	
04.30 pm– 05.30 pm	DF(TUT)	IS(TUT)	ERP(TUT)	CS	DF	
04.30 pm– 05.30 pm		CS(TUT)	BI(TUT)	IS		

STRUCTURE OF SYLLABUS

SEMESTER IV																		
1	**Elective 02** PCC-MCA-C17 OR PCC-MCA-C18 OR PCC-MCA-C19	3	3	3	1	1	1	-	-	-	CIE	30	100	12	-	-	25	10
											ESE	70		28				
2	**Elective 03** PCC-MCA-C20 OR PCC-MCA-C21 OR PCC-MCA-C22	3	3	3	1	1	1	-	-	-	CIE	30	100	12	-	-	25	10
											ESE	70		28				
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**	

CIE: Continuous Internal Evaluation

ESE: End Semester Examination

Candidate contact hours per week : 30 Hours (Minimum)	Total Marks for MCA Semester III & IV : **500 + 500 + 500 = 1500**
Theory and Practical Lectures : 60 Minutes Each	Total Credits for MCA Semester III & IV : **48 (SEM-III: 24 + SEM–IV: 24)**

In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.

There shall be separate passing for theory and practical (term work) courses.

 ** Indicates that the theory examination is of 04 hours duration.

Note:

PCC-MCA: Professional Core Course (Master in Computer Applications).

Semester III and Semester IV

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)

Note: The award of the final Grade for the degree of Master of Computer Application shall be based on CGPA calculated for two years.

COURSE DETAILS/SYLLABUS

Master of Computer Application Sem – IV

Paper MCA-C17: Cyber Security
(Choice Based Credit System)

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	**PCC- MCA-C17: Cyber Security**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Tutorial	**3 Hrs. + 1 Hr.**
Credits	**3 + 1**
Evaluation Scheme ESE + CIE for Theory	**70 (ESE) + 30 (CIE)**

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	**Theory: 100 Marks, 70 (ESE) +30 (CIE)**
Tutorial: 1 Hr./Week	**TW: 25 Marks**

Course Outcomes:
After completion of this course student should be able to
1. Understand the fundamentals of Cyber security vulnerabilities.
2. Demonstrate different Cyber Security techniques.
3. Apply different Internet and Cyber Security Controls.
4. Describe Information Technology Act 2000.

Unit 1: Introduction to Cyber Security Vulnerabilities 　　　　　　　　**12 HOURS**
Introduction to Cyber space and security, Internet Security, Cloud Computing &Security, Social Network sites security, Cyber Security Vulnerabilities-Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak
Authentication, Authorization, Unprotected Broadband communications, Cyber Security Awareness.

Unit 2: Cyber Security Techniques 　　　　　　　　　　　　　　　　　**12 HOURS**
Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography . Overview of Firewalls Types of Firewalls. Intrusion detection system: Types of Intrusion Detection System, Features and limitations. Intrusion prevention system: Honeypots, Types of Honeypots, Introduction to Honey nets.

Unit 3: Internet Security Controls 　　　　　　　　　　　　　　　　　**12 HOURS**
Internet Security: Secure Socket Layer (SSL), Secure Hypertext Transfer Protocol(S/HTTP), IPSec, and Secure Multipurpose Internet Mail 15Periods 6 Extensions (S/MIME). Web browser security: Filtering services in web browser. E-mail Security:, Encryption for Secure E-Mail, Secure E- Mail System: PGP (Pretty Good Privacy), S/MIME (Secure Multipurpose Internet Mail Extensions); Cyber Security Standards: ISO/IEC
27032, NIST- CSF

Unit 4: Cyber Law 　　　　　　　　　　　　　　　　　　　　　　　**12 HOURS**
Introduction to Cyber Laws, Why do we need Cyber law: The Indian Context, Three Bodies of Law, Types, Levels, Computers Related Laws, Cybercrime and the Indian ITA 2000 and amendments, Honeypots, The Indian Penal Code (IPC) 1860, Mapping of Cybercrime with IT Act, Technology and Students: Indian Scenario.

Reference Books:-
1. Charlie Kaufman and Radia Perlman, Mike Speciner, "Network Security, Second Edition,
2. Private Communication in Public World", PHI 2002.
3. Tony Bradley, "Essential Computer Security: Everyone's Guide to Email, Internet and
4. Wireless security", Syngress Publication 2006.
5. Behrouz A. Ferouzan, "Cryptography & Network Security", Tata McGraw Hill, 2007

Paper MCA-C19: Information Security
(Choice Based Credit System)

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	PCC- MCA-C19: Information Security
Prerequisites	Computer Fundamentals
Teaching scheme: Lectures + Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	70 (ESE) + 30 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 70 (ESE) +30 (CIE)
Tutorial: 1 Hr./Week	TW: 25 Marks

Course Outcomes:
1. After completion of this course student should be able to
2. Understand various concepts of Cryptography and authentication.
3. Explain Digital certificates and Cryptography standards.
4. Get awareness of Internet and Web Security.
5. Get awareness of Database and OS Security.

Unit 1: Introduction to Information Security   **12 HOURS**
Introduction to Information Security, principles, services and attacks, functional requirements of security, current trends in security. Need for security, Security approaches.

Unit 2: Cryptography and Authentication   **12 HOURS**
Concept: Symmetric and Asymmetric Cryptography. Mathematics of cryptography: Modular Arithmetic Additive Inverse, Multiplicative Inverse, Euclidean Algorithm and Extended Euclidean Algorithm, Stream Cipher and Block Cipher, Concept of Confusion and Diffusion. Modes of Operation of Block Cipher: ECB, CBC, OFB, CFB, DES, RSA.
Authentication: Types of authentication, Biometric Authentication and Third Party Authentication using KDC and Kerberos Version 5, Mutual authentication, reflection attack.

Unit 3: Digital certificates and integrity   **12 HOURS**
Concept, Compare Digital Signature with Public Key Cryptography, Digital Signature Schema, Public Key Infrastructure (PKI): Private key management, Public Key Cryptography Standards (PKCS). Digital Certificate Creation Steps, X.509 Certificate, Certificate Revocation. Message Integrity, Hash functions Properties Algorithm: MDC, MAC, HMAC, MD5, and SHA - 512

Unit 4: Internet security, web security, database security and OS Security   **12 HOURS**
SSL, IPSec, Email Security- PGP, Email attacks Web services Security: web app versus web service concept, WS-Security, SOAP web service, SAML assertion, Browser attacks, web attacks targeting users, obtaining user or website data. Introduction to database, Security requirements of database, sensitive data, Database access control, inference, Security in operating systems: Operating System Structure,
Security Features of Ordinary Operating Systems, Operating System Tools to Implement Security
Functions, Rootkit: Phone Rootkit, Sony XCP Rootkit, TDSS Rootkits

Reference Books:-
1. Principles of Information Security by Michael E. Whitman and Herbert J. Mattord
2. Elementary Information Security by Richard E. Smith
3. Fundamentals of Information Systems Security By David Kim and Michael G. Solomon
4. Information Security: Principles and Practice By Mark Stamp

Paper MCA-C22: Business Intelligence
(Choice Based Credit System)

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	PCC- MCA-C22: Business Intelligence
Prerequisites	Computer Fundamentals
Teaching scheme: Lectures + Tutorial	3 Hrs. + 1 Hr.
Credits	3 + 1
Evaluation Scheme ESE + CIE for Theory	70 (ESE) + 30 (CIE)

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	Theory: 100 Marks, 70 (ESE) +30 (CIE)
Tutorial: 1 Hr./Week	TW: 25 Marks

Course Outcomes:

After completion of this course student should be able to
1. Use BI systems and technology to support decision making.
2. Design and build BI applications based on user's needs
3. Identify business and technical requirements for a BI solution

Unit 1: Introduction   **12 HOURS**

Effective and timely decisions – Data, information and knowledge – Role of mathematical models – Business intelligence architectures: Cycle of a business intelligence analysis – Enabling factors in business intelligence projects – Development of a business intelligence system – Ethics and business intelligence.

Unit 2: Knowledge Delivery and Efficiency   **12 HOURS**

The business intelligence user types, Standard reports, Interactive Analysis and Ad Hoc Querying, Parameterized Reports and Self-Service Reporting, Visualization: Charts, Graphs, Widgets, Scorecards and Dashboards, Geographic Visualization. Efficiency measures – The CCR model: Definition of target objectives- Peer groups – Identification of good operating practices; cross efficiency analysis – virtual inputs and outputs – Other models. Pattern matching – cluster analysis, outlier analysis

Unit 3: Mathematical models for decision making   **12 HOURS**

Structure of mathematical models, Development of a model, Classes of models, Notes and readings. Introduction to m-commerce: Emerging applications, different players in mcommerce, m-commerce life cycle Mobile financial services, mobile entertainment services, and proactive service management

Unit 4: Business Intelligence Applications   **12 HOURS**

Marketing models – Logistic and Production models – Case studies.

Reference Books:
1. David Loshin Morgan, Kaufman, "Business Intelligence: The Savvy Manager's Guide", Second Edition, 2012.
2. Cindi Howson, "Successful Business Intelligence: Secrets to Making BI a Killer App", 1st edition, McGrawHill, 2007

M.C.A. Part-
Paper MCA-C20: Enterprise Resource Planning
(Choice Based Credit System)

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	**PCC- MCA-C20: Enterprise Resource Planning**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Lectures + Tutorial	**3 Hrs. + 1 Hr.**
Credits	**3 + 1**
Evaluation Scheme ESE + CIE for Theory	**70 (ESE) + 30 (CIE)**

Teaching scheme	Examination scheme
Lectures: 3 Hrs. /Week	**Theory: 100 Marks, 70 (ESE) +30 (CIE)**
Tutorial: 1 Hr./Week	**TW: 25 Marks**

Course Outcomes:

After completion of this course student should be able to
1. Make basic use of Enterprise software, and its role in integrating business functions
2. Analyze the strategic options for ERP identification and adoption.
3. Design the ERP implementation strategies.
4. Create reengineered business processes for successful ERP implementation.

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

What is ERP, Why ERP, Need for Enterprise Resource Planning, Definition of ERP, Evolution of Enterprise Resource Planning, Pre material requirement planning (MRP stage) Material requirement planning, MRP- II, ERP, Extended ERP, ERP Planning –II, ERP-A manufacturing perspective, Risks and benefits – Risk implementation, Fundamental technology of ERP Issues to be consider in planning design and, implementation of cross functional integrated ERP systems.

Unit 2: ERP Solution and Functional Modules **12 HOURS**

Overview of ERP software solutions, Small, medium and large enterprise vendor solutions, Business process Reengineering, Business process Management, Steps of BPM, Functional Modules, ERP Production planning module, ERP purchasing module, ERP Inventory control module, ERP Sales module, ERP Marketing module, ERP Financial module, ERP HR module

Unit 3: ERP Implementation **12 HOURS**

Planning Evaluation and selection of ERP systems, ERP Implementation life cycle, Pre-evaluation Screening, Package Evaluation, Project Planning Phase, Gap-Analysis, Reengineering, Configuration Implementation Team Training, Testing, Going Live, End-user training, Post – implementation, ERP implementation, Methodology and Frame work, Training, Data Migration, People Organization in implementation, Consultants and Vendors, Employees.

Unit 4: Post Implementation **12 HOURS**

ERP Implementation, Maintenance of ERP, Organizational and Industrial impact, Success factors of ERP Implementation, Key success factors, Failure factors of ERP Implementation.

Reference Books:
1. Enterprise Resource Planning Systems, Daniel E.O'Leary, Cambridge University Press,2002
2. Concepts in Enterprise resource planning, Ellen Monk, Bret Wagner, Cengage learning, Third edition, 2009.
3. Essentials of Business Processes and Information Systems, by Simha R. Magal and Jeffrey Word ,2010,
4. ERP-A Managerial Perspective, S. Sadagopan, McGraw Hill

Paper MCA-C23: Major Project
(Choice Based Credit System)

Course Details:

Course Details Class	Second Year M.C.A. Semester IV
Course Code and Course Title	PCC- MCA-C23: Major Project
Prerequisites	Computer Fundamentals
Teaching scheme: Practical	20 Hrs.
Credits	10
Evaluation Scheme ESE + CIE for Theory	NA

Teaching scheme	Examination scheme
Lectures: NA	NA
Practical: 20 Hr./Week	POE: 200 Marks TW: 100 Marks

Course Outcomes:

After completion of this course student should be able to

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

Guide Lines for Projects:

A student has to take project work at the end of third semester of MCA

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

Following format for the submission of the Project Report.
a. Paper:
The Report shall be typed on white paper, A4 size, for the final submission. The report to be submitted must be original and subsequent copies may be photocopied on any paper.

b. Typing:
The typing shall be of standard letter size, 1.5 spaced and on both side of the paper. (Normal text should have Times New Roman, Font size 12. Headings can have bigger size)
c. Margins: The typing must be done in the following margins: Left -----1.5 inch, Right ----- 1 inch Top -----
1 inch, Bottom ----- 1 inch

d. Front Cover: The front cover should contain the following details: TOP: The title in block capitals of 6mm to 15mm letters.
CENTRE: Full name in block capitals of 6mm to 10mm letters.
BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing with center alignment.

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

Documentation Format

a) Cover Page

b) Institute/College Recommendation

c) Organization Certificate

d) Guide Certificate

e) Declaration

f) Acknowledgement

g) Index

Chapter Scheme

1)Introduction to Project

        -Introduction

        -Existing System

        -Need and scope of Computer System

        -Organization Profile (Optional & applicable for live project only)

2)Proposed System

        -Objectives

        -Requirement Engineering.

- Requirement Gathering
- Software Requirements

3)System Analysis

☐ System Diagram

- DFD
- ERD

Note: Use advanced tools and techniques as per requirement.

4)System Design

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

5) Implementation

        -System Requirement

        -Hardware

        -Software

        -Installation process

        -User Guideline

6)Reports (with validData)

        (Minimum 6-10 reports)

7)Conclusion and

Suggestions

- Conclusion
- Limitations
- Suggestion

Annexure

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

<p style="text-align:center">M.C.A. Part-II Semester IV
Paper MCA-C24: Seminar
(Choice Based Credit System)</p>

Course Details:

Course Details Class	**Second Year M.C.A. Semester IV**
Course Code and Course Title	**PCC- MCA-C24: Seminar**
Prerequisites	**Computer Fundamentals**
Teaching scheme: Practical	**12 Hrs.**
Credits	**6**
Evaluation Scheme ESE + CIE for Theory	**NA**

Teaching scheme	Examination scheme
Lectures: NA	**NA**
Practical: 12 Hr./Week	**POE: 100 Marks TW: 50 Marks**

Course Outcomes:

After completion of this course student should be able to

1. To develop and support a relevant and informed thesis, or point of view, that is appropriate for its audience, purpose, discipline, and theme.
2. To demonstrate effective writing skills and processes by employing the rhetorical techniques of academic writing, including invention, research, critical analysis and evaluation, and revision.
3. To incorporate and document appropriate sources in accordance with the formatting style proper for the discipline and effectively utilize the conventions of standard written English.

Nature of Seminar

1. The aim of this seminar is to make the students to study regarding industrial project. They are expected to go through the latest trend pertaining to computer and allied fields, to do the literature survey and deliver the seminar on their work done in an industrial project. The other important aim of the seminar is to encourage and develop the personality, aptitude and knowledge of the students
2. Seminar work should be continually evaluated based on the contributions of an individual student, originality of the work, innovations brought in, research and developmental efforts, depth and applicability, etc.
3. Three mid-term evaluations should be done, which includes presentations and demos of the work done.

Project Report Format:

1. Page Size: Trimmed A4   **2. Top Margin:** 1.00 Inch

3. Bottom Margin: 1.32 Inches   **4. Left Margin:** 1.5 Inches

5. Right Margin: 1.0 Inch   **6. Para Text:** Times New Roman 12 Point Font

7. Line Spacing: 1.5 Lines

8. Page Numbers: Right Aligned at Footer. Font 12 Point. Times New Roman   **9.Headings:** Times New Roman, 14 Point Bold Face   **10**.**Certificate:** All students should attach standard format of Certificate as described by the department. Certificate should be awarded to batch and not to individual student. Certificate should have signatures of Guide, Head of Department and Principal/ Director.

11. Index of Report:

    a. Title Sheet
    b. Certificate
    c. Acknowledgement
    d. Table of Contents
    e. List of Figures
    f. List of Tables

12. References:

    References should have the following format
    For Books: "Title of Book", Authors, Publisher, Edition
    For Papers: "Title of Paper", Authors, Journal/Conference Details, Year

TEACHING PLAN

Dept. Of Master of Computer Application (MCA - II Sem IV 2024-25)	
Lecture Plan: Cyber Security	
Lecture No	**Unit 1**
01	Introduction to Cyber space and security
02	Internet Security
03	Cloud Computing &Security
04	Social Network sites security
05	Social Network sites security's
06	vulnerabilities in software
07	System administration
08	Complex Network Architectures
09	Open Access to Organizational Data
10	Weak Authentication, Authorization
11	Unprotected Broadband communications
12	Cyber Security Awareness
	Unit 2
13	Introduction to Cryptography
14	Symmetric key Cryptography, Asymmetric key Cryptography
15	Message Authentication
16	Digital Signatures, Applications of Cryptography
17	Overview of Firewalls, Types of Firewalls
18	Types of Intrusion Detection System
19	Features and limitations
20	Intrusion prevention system: Honeypots
21	Introduction to Honeypots
22	Types of Honeypots
	Unit 3
23	Internet Security: Secure Socket Layer (SSL)
24	Secure Hypertext Transfer Protocol(S/HTTP)
25	IPSec
26	Secure Multipurpose Internet Mail 15Periods 6 Extensions(S/MIME)
27	Web browser security
28	Filtering services in web browser
29	E-mail Security, Encryption for Secure E-Mail
30	Secure E- Mail System- PGP (Pretty Good Privacy)
31	S/MIME (Secure Multipurpose Internet Mail Extensions)
32	Cyber Security Standards: ISO/IEC 27032
33	NIST- CSF
	Unit 4
34	Introduction to Cyber Laws, Why do we need Cyber law
35	The Indian Context, Three Bodies of Law
36	Types, Levels
37	Computers Related Laws
38	Cybercrime and the Indian ITA 2000 and amendments
39	Honeypots
40	The Indian Penal Code (IPC) 1860
41	Mapping of Cybercrime with IT Act
42	Technology and Students: Indian Scenario

Dept. of Master of Computer Application (MCA – II Sem IV 2024-25)	
Lecture Plan: Information Security	
Lecture No	Unit 1
1	Introduction to Information Security
2	principles
3	services and attacks
4	functional requirements of security
5	current trends in security
6	Need for security
7	Security approaches
	Unit 2
8	Concept: Symmetric and Asymmetric Cryptography
9	Mathematics of cryptography
10	Modular Arithmetic Additive Inverse
11	Multiplicative Inverse
12	Euclidean Algorithm and Extended Euclidean Algorithm
13	Stream Cipher and Block Cipher
14	Concept of Confusion and Diffusion
15	Modes of Operation of Block Cipher: ECB, CBC, OFB, CFB, DES, RSA
16	Authentication: Types of authentication
17	Biometric Authentication and Third Party Authentication using KDC and Kerberos Version 5
18	Mutual authentication
19	Reflection attack
	Unit 3
20	Concept
21	Compare Digital Signature with Public Key Cryptography
22	Digital Signature Schema
23	Public Key Infrastructure (PKI)
24	Private key management
25	Public Key Cryptography Standards (PKCS)
26	Digital Certificate Creation Steps
27	X.509 Certificate
28	Certificate Revocation
29	Message Integrity
30	Hash functions Properties Algorithm: MDC, MAC
31	HMAC, MD5, and SHA - 512
	Unit 4
32	SSL, IPSec, Email Security- PGP
33	Email attacks Web services Security
34	web app versus web service concept, WS-Security, SOAP web service
35	SAML assertion , Browser attacks
36	web attacks targeting users, obtaining user or website data
37	Introduction to database
38	Security requirements of database, sensitive data
39	Database access control, inference, Security in operating systems
40	Operating System Structure
41	Security Features of Ordinary Operating Systems
42	Operating System Tools to Implement Security Functions
43	Rootkit: Phone Rootkit, Sony XCP Rootkit, TDSS Rootkits

Lecture No.	Unit 1
1	What is ERP, Why ERP
2	Need for Enterprise Resource Planning
3	Definition of ERP, Evolution of Enterprise Resource Planning
4	Pre material requirement planning (MRP stage) Material requirement planning
5	MRP- II
6	ERP, Extended ERP
7	ERP-A manufacturing perspective
8	ERP Planning –II
9	Risks and benefits
10	Risk implementation
11	Fundamental technology of ERP Issues to be consider in planning design
12	Implementation of cross functional integrated ERP systems
	Unit 2
13	Overview of ERP software solutions
14	Small, medium and large enterprise vendor solutions
15	Business process Reengineering
16	Business process Management
17	Steps of BPM
18	Functional Modules
19	ERP
20	Production planning module
21	ERP purchasing module
22	ERP Inventory control module
23	ERP Sales module, ERP Marketing module
24	ERP Financial module, ERP HR module
	Unit 3
25	Planning Evaluation and selection of ERP systems
26	ERP Implementation life cycle
27	Pre-evaluation Screening
28	Project Planning Phase
29	Package Evaluation
30	Gap-Analysis, Reengineering & Configuration Implementation Team Training
31	Testing, Going Live
32	End-user training, Post – implementation
33	ERP implementation
34	Methodology and Frame work, Training & Data Migration
35	People Organization in implementation
36	Consultants and Vendors, Employees
	Unit 4
37	ERP Implementation
38	Maintenance of ERP
39	Organizational impact
40	Industrial impact
41	Success factors of ERP Implementation
42	Key success factors
43	Failure factors of ERP Implementation

Dept. Of Master of Computer Application (MCA - II Sem IV 2024-25)
Lecture Plan: Enterprise Resource Planning

Lecture No.	Unit 1
	Dept. Of Master of Computer Application (MCA - II Sem IV 2024-25) **Lecture Plan: Business Intelligence**
01	Effective and timely decisions.
02	Data, information and knowledge.
03	Role of mathematical models.
04	Business intelligence architectures.
05	Cycle of a business intelligence analysis.
06	Enabling factors in business intelligence projects.
07	Development of a business intelligence system.
08	Ethics and business intelligence.
	Unit 2
09	The business intelligence user types.
10	Standard reports, Interactive Analysis and Ad Hoc Querying.
11	Parameterized Reports
12	Self-Service Reporting
13	Visualization: Charts, Graphs, Widgets, Scorecards and Dashboards
14	Geographic Visualization.
15	Efficiency measures –The CCR model
16	Definition of target objectives- Peer groups
17	Identification of good operating practices
18	Cross efficiency analysis
19	Virtual inputs and outputs – other models
20	Pattern matching – cluster analysis, outlier analysis
	Unit 3
21	Structure of mathematical models
22	Development of a model
23	Classes of models
24	Notes and readings
25	Introduction to m-commerce
26	Emerging applications
27	Different players in m-commerce
28	M-commerce life cycle
29	Mobile financial services
30	Mobile entertainment services
31	Proactive service management
	Unit 4
32	Marketing models
33	Tools of Marketing models
34	Techniques of Marketing models
35	Predictive Analytics
36	Logistic and Production models
37	Optimization models for logistics planning
38	Tactical Planning
39	Case studies
40	Case studies with example
41	Case studies with solution

ASSIGNMENT LIST

Cyber Security (PCC- MCA-C17)

Lecture		Practical	Tutorial		Total Hr/Wk
3		0	1		4
Theory	CIE	T/W	OE	POE	Total Marks
70	30	25	--	0	125

Class	MCA II	Sem.: IV
Course	Cyber Security	

Tutorial No.	Name of the Tutorial CS
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
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3

Information Security (PCC- MCA-C19)

Lecture		Practical	Tutorial		Total Hr/Wk
3		0	1		4
Theory	CIE	T/W	OE	POE	Total Marks
70	30	25	--	0	125

Class	MCA II	Sem.: IV
Course	Information Security	

Tutorial No.	Name of the Tutorial IS
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

Enterprise Resource Planning (PCC- MCA-C20)

Lecture		Practical	Tutorial		Total Hr/ Wk
3		0	1		4
Theory	CIE	T/W	OE	POE	Total Marks
70	30	25	--	0	125

Class	MCA II Sem.: IV
Course	Enterprise Resource Planning

Tutorial No.	Name of the Tutorial ERP
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
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3

Business Intelligence (PCC- MCA-C22)

Lecture		Practical	Tutorial		Total Hr/Wk
3		0	1		4
Theory	CIE	T/W	OE	POE	Total Marks
70	30	25	--	0	125

Class	MCA II Sem.: IV
Course	Business Intelligence

Tutorial No.	Name of the Tutorial BI
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
1	Assignment No. 1
2	Assignment No. 2
3	Assignment No. 3

FACULTY LIST

DEPARTMENT FACULTY LIST

Academic Year- 2024-2025 SEM- IV

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02	Prof. Patil S. B.
03	Prof. Patil P. N.
04	Prof. Bhagwat S. A.
05	Prof. Wadkar S. N.

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DEPARTMENT STAFF LIST

Academic Year- 2024-2025SEM- IV

Sr. No.	Staff Name
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02	Mr. Suryvanshi D.S(Peon)