

Khandesh College Education Society's
Institute of Management & Research, Jalgaon

Master Of Computer Application (MCA)

Program Outcomes

After completion of MCA program the students will be able to:

PO1	Develop software solutions to problems across a broad range of application domains through analysis and design.
PO2	Contribute to research in their chosen field and function and communicate effectively, to perform both individually and in a multi-disciplinary team
PO3	Continue the process of life-long learning through professional activities; adapt themselves with ease to new technologies, while exhibiting ethical and professional standards and will be able to work collaboratively as a member or leader in multidisciplinary teams
PO4	Apply knowledge of computing fundamentals, computing specialization and domain knowledge for the abstraction and conceptualization of computing models from defined problems and requirements
PO5	Understand and analyze a given real-world problem and propose feasible computing solutions
PO6	Analyze customer requirements, create high level design, implement and document robust and reliable software systems
PO7	Transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies
PO8	Use the techniques, skills and modern hardware and software tools necessary for innovative software solutions
PO9	Possess leadership and managerial skills with best professional ethical practices and social concern and will be able to communicate technical information effectively, both orally and in writing.

First Year MCA - (Sem I & II)

Semester- I

CA 101	Computer Organization & Architecture
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Identify the elements of modern instructions sets, hardware components and their impact on processor design.
CO2	Solve arithmetic operations of binary number system and the elements of modern instructions sets, hardware components and their impact on processor design.
CO3	Perform computer arithmetic operations and control unit operations.
CO4	Conceptualize elements of a memory hierarchy, I/O organization and pipelining.
CO5	Measure the performance of CPU, memory and I/O operations.

CA 102	Database Management System (DBMS)
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Demonstrate the fundamentals of data models and conceptualize and depict a database system and Make use of ER diagram in developing ER Model
CO2	Summarize the SQL and relational database design.
CO3	Illustrate transaction processing, concurrency control techniques and recovery
CO4	Inference the database design in the real world entities.

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CA 103	Mathematical Foundations of Computer Science
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Use the logical notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.
CO2	Calculate numbers of possible outcomes of elementary combinatorial processes such as permutations and combinations.
CO3	Calculate probabilities and discrete distributions for simple combinatorial processes; calculate expectations.
CO4	Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.

CA 104	OOPs Concepts using C++
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Apply C++ features to program design and implementation.
CO2	Use C++ to demonstrate practical experience in developing object-oriented solutions.
CO3	Analyze a problem description and build object-oriented software using good coding practices and techniques.
CO4	Implement an achievable practical application and analyze issues related to object-oriented techniques in the C++ programming language.

CA 105	System Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Understand the introductory concepts of system software.
CO2	Understand the design and implementation of Assemblers with implementation examples.
CO3	Design and implement the linkers and loaders, macro processors and respective implementation examples.
CO4	Understands about basics of compilers.

CA 106	CA-Lab-I Lab on C++ Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Conceptualize the class and member concepts as to implement them using different access modifiers.
CO2	Implement programs using mathematical operator overloading.
CO3	Implement different file handling operations and pointers manipulation programs.
CO4	Implement templates and Exception handling concept

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CA 107	CA-Lab-II Lab on DBMS
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Understand, appreciate the underlying concepts of database technologies
CO2	Able to create database with different types of integrity constraints and use the SQL commands such as DDL, DML, DCL, TCL to access data from database objects.
CO3	Design and implement a database schema for a given problem domain.
CO4	Perform embedded and nested queries

Semester –II	
CA 201	Accounting and Management Control
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Use accounting functions as an information development and communication system that supports economic decision making and provides value to entities and society.
CO2	Prepare the financial statements and related information and apply analytical tools in making both business and financial decisions.
CO3	Analyze the impact of accounting system on several business functions and managers' decision making.
CO4	Analyze and use financial statements; prepare budgets and investment options; assess risks and the rewards involved in firm's financial decisions.

CA 202	Data Structures and Algorithms
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Explore concept and innovative applications of various data structures.
CO2	Conceptualize optimal techniques in storing, searching and sorting.
CO3	Implement binary tree traversals and operations on binary search trees to design applications like directory structure management and expression trees.

CA 203	Operating Systems
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Identify various elements of operating system and concurrent processes problems.
CO2	Analyze various memory management, deadlock avoidance and prevention techniques.
CO3	Understand different protection and security concerns of operating systems.
CO4	Understand core functionalities of different operating system like windows / UNIX.

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CA 204	Java Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Implement Object Oriented Programming concepts.
CO2	Design a GUI using Java programs and Applets.
CO3	Implement Network based applications using I/O Streams.
CO4	Develop Multithreaded Applications.
CO5	Creating Custom Packages and Interfaces.

CA 205	Computer Networks
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Understand the functions of various layers of a data communication model like OSI & TCP/IP.
CO2	Know the usage of different protocols at different layers of a data communication model.
CO3	Apply suitable congestion control algorithms and routing algorithms for effective communication in a Network.
CO4	Apply security mechanisms in data communication

CA 206	CA-Lab-III Lab on Data Structures and Algorithms
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Write programs to implement stacks and queues using Arrays and Linked List.
CO2	Implement various searching and sorting techniques.
CO3	Implement programs using trees and graphs.

CA 207	CA-Lab-IV Lab on Java Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Get the idea of java language fundamentals and run time environment
CO2	Acquire the knowledge and skill necessary to write a program in java.
CO3	Learn the object oriented concepts and its Implementation in Java
CO4	Solve the run time problems encountered during the excution
CO5	Implement the multithreading and client side programming, the basics GUI using swings and network programming

Second Year MCA - (Sem III & IV)	
Semester- III	
CA 301	Internet Computing - I
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Acquire knowledge about functionality of world wide web
CO2	Develop web based applications using HTML, PHP nad Mysql.
CO3	Design and develop dynamic web sites.

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CA 302	Design and Analysis of Algorithms
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Categorize problems based on their characteristics and practical importance.
CO2	Develop Algorithms using iterative/recursive approach
CO3	Compute the efficiency of algorithms in terms of asymptotic notations
CO4	Design algorithm using an appropriate design paradigm for solving a given problem.
CO5	Classify problems as P, NP or NP Complete
CO6	Implement algorithms using various design strategies and determine their order of growth.

CA 303	Automata Theory and Computability
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Learn notion of a regular set and its representation by DFA's, NFA's, and regular expressions
CO2	Understand context-free language and its representation by context-free grammars and push-down automata.
CO3	Implement universal model of computation and its representation by a Turing machine.
CO4	Analyze an unsolvable & undecidable decision problem.

CA 304	Artificial Intelligence
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Use the heuristic search techniques for AI related problems.
CO2	Represent knowledge in suitable forms for computer processing.
CO3	Apply the natural language processing techniques to computer.
CO4	Apply the learning techniques to computer.

CA 305	Data Mining and Warehousing
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Design a data mart or data warehouse for any organization
CO2	Develop skills to write queries using DMQL
CO3	Extract knowledge using data mining techniques
CO4	Adapt to new data mining tools.
CO5	Explore recent trends in data mining such as web mining, spatial-temporal mining

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CA 306	CA-Lab-V Lab on Design and Analysis of Algorithm
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Design and implement appropriate data structures for computation
CO2	Demonstrate algorithms using divide and conquer approach
CO3	Solve problems using greedy method.
CO4	Employ dynamic programming techniques.
CO5	Problem solving Using backtracking techniques

CA 307	CA-Lab-VI Lab on IC - I
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Explore different technology like HTML, PHP & MySQL with different packages.
CO2	Design HTML web pages using HTML and CSS.
CO3	Execute programs of PHP with MySQL connection

Semester IV	
CA 401	System Analysis and Designing
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Define various systems analysis and design concepts and terminologies,
CO2	Describe the stages of the system development life cycle model,
CO3	Describe different methodologies and state-of-the-art developments in SA&D techniques and methods,
CO4	Compare, use and synthesize different conceptual modelling techniques for systems analysis (including ERDs, DFDs and UML)
CO5	Address the managerial issues involved in SA&D,

CA 402	Internet Computing - II
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Build web applications
CO2	Create web forms
CO3	Validate form data using server-side Validation controls
CO4	Create dynamic Web applications that interact with a database using server-side programming.
CO5	Use Microsoft Visual Studio.Net® products to implement and connect the automated system to a database stored on a web server.
CO6	Link and publish Visual Studio.Net® applications to reflect a web application

CA 403	Network Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Get the concepts of Data Communication and Networking, Reference models
CO2	Get the concepts of error detection & correction methods
CO3	Get the concepts of Internetworking & devices, Routing techniques
CO4	Get the concepts of protocols like DNS, SMTP, SNMP, FTP, HTTP etc.
CO5	Get the concepts of Security
CO6	Get the concepts of some Modern topics(like ISDN services & ATM)

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CA 404	Computer Graphics
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Demonstrate the algorithms to implement output primitives of Computer Graphics.
CO2	Apply 2 D transformation techniques.
CO3	Analyze 3 D transformation techniques.
CO4	Apply image processing techniques.

CA 405	Optimization Algorithms
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Formulate optimization problems;
CO2	Understand and apply the concept of optimality criteria for various type of optimization problems;
CO3	Solve various constrained and unconstrained problems in single variable as well as multivariable;
CO4	Apply the methods of optimization in real life situation

CA 406	CA-Lab-VII Lab on Computer Graphics & Internet Computing -I
Course outcomes (CG):	
After undergoing the course, Students will be able to:	
CO1	Implement the algorithms to draw output primitives of Computer Graphics.
CO2	Implement 2D transformations
CO3	Implement 3D transformations
CO4	Implement various image processing techniques

Course outcomes (IC):	
After undergoing the course, Students will be able to:	
CO1	Understand C# and client-server concepts using .Net Frame Work Components.
CO2	Apply delegates, event and exception handling to incorporate with ASP, ADO.NET
CO3	Analyze the use of .Net Components depending on the problem statement
CO4	Implement & develop a web based and Console based application with Database connectivity

CA 407	CA-Lab-VIII Lab on Socket Programming using Linux
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Implement client server applications with TCP/UDP Socket Programming in a standalone machine
CO2	Implement client server applications with TCP/UDP Socket Programming in a network.
CO3	Implement various types of Servers
CO4	Implement a Prototype Multithreaded Server

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Third Year MCA - (Sem V & VI)	
Semester –V	
CA 501	Compiler Construction
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Get the concepts of Compilers
CO2	Get the concepts of The actual roles of the lexical analyzer
CO3	Get the concepts of different Parsing techniques and Construction of syntax trees
CO4	Get the concepts of Type checking
CO5	Get the concepts of Run time environments
CO6	Get the concepts of Intermediate code generation, Code optimization and Code generations.
CA 502	Drupal Framework (Website development framework)
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Construct site in Drupal.
CO2	Understand Drupal in the context of dynamic content and community engagement
CO3	Configure any site
CO4	Handle themes and contents
CO5	Handle user administration and its setup
CO6	Handle site structure and modules
CA 503	Python Programming
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Understand and comprehend the basics of python programming.
CO2	Apply knowledge in real time applications.
CO3	Understands about files and its applications.
CA 504	Mobile Computing
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Describe the basic components of an Android application
CO2	Define the lifecycle methods of Android application components
CO3	Describe the basics of event handling in Android
CO4	Describe the basics of graphics and multimedia support in Android
CA 505	Natural Language Processing
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Get acquainted with natural language processing and learn how to apply basic algorithms in this field.
CO2	Understand the algorithmic description of the main language levels: morphology, syntax, semantics, and pragmatics.
CO3	Grasp basics of knowledge representation, inference, and relations to the artificial intelligence.
CA 506	CA-Lab-IX Lab on Python Programming
Course outcomes:	

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After undergoing the course, Students will be able to:	
CO1	Know how to install python.
CO2	Understand and apply the basics of the Python programming language.
CO3	Understand and implement object oriented programs using Python.

CA 507	CA-Lab-X Lab on Mobile Computing & Lab on Drupal
Course outcomes:	
After undergoing the course, Students will be able to:	
CO1	Install and configure Android application development tools.
CO2	Design and develop user Interfaces for the Android platform.
CO3	Save state information across important operating system events.
CO4	Apply Java programming concepts to Android application development.

Semester –VI	
CA-601	Full time Industrial Training

The 6 Months industrial training enables students to get an exposure to industrial standards. Students are able to handle the online project developments in various platforms.