MCA : I Semester		
S.No.	**Course Code**	**Course Outcome**
1.	MCAT 101	1. The student will learn to formulate simple algorithms for arithmetic and logical problems. 2. To analyze and understand the fundamentals of C programming 3. Demonstrate the concept of pointers and function 4. To analysis the concepts of structures and unions, bit wise operators, files, command line arguments. 5. To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.
2.	MCAT 102	1. **Apply** different type of codes and number systems which are used in digital communication and computer systems. 2. **Analyse**, design and implement combinational logic circuits. 3. **Analyse** Sequential Devices General model of sequential circuits 4. **Apply** the different type of instruction set on hardwired and micro-programmed control unit of the CPU. 5. **Distinguish** the organization of various parts of a system memory hierarchy
3.	MCAT 103	1. To prepare the student to solve algebraic and transcendental equation by the numerical method. 2. To prepare the student to use interpolation techniques for a given tabulation data 3. To prepare the students to use numerical techniques to solve ordinary differential equation and integration 4. To prepare the student to curve fit data using several types of curves. 5. To prepare the student to Time series and forecasting methods, Statistical Quality Controls methods.
4.	MCAT 104	1. To apply the basic mathematical techniques to solve combinatorial problems. 2. To apply the basic concepts of recurrence relation. 3. To apply the basic concepts of graph theory to model real world problems. 4. Evaluate cut-sets and apply the concepts of matrix. 5. To apply the concepts of graph coloring 6. To apply the basic mathematical techniques to solve combinatorial problems.

5.	MCAT105	1. Identify various types of information systems concepts and terminologies 2. Discuss and apply the initial phases of the System Development Life Cycle (SDLC) using analytical tools and quantitative techniques used to identify problems 3. Analysis of various information gathering methods. 4. Analysis information systems projects to identify various aspects of feasibility of these projects. 5. Analyses and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.
6.	MCAT 106	1. To Understand and analyse the different types of number systems which are used in computer systems. 2. To Understand and analyse the digital logic circuits with its truth table 3. To Understand the basic concepts of information and processing in information technology. 4. To Understand and analyse the computers and communications and also understand the concept programming language and its translator. 5. Understand and analysis the applications of information technology
7.	MCAP101	1. The student will learn to formulate simple algorithms for arithmetic and logical problems. 2. Demonstrate the concept of pointer and perform I/O operations 3. Design and develop C program to evaluate simple expressions and logical operations 4. To analysis the concepts of structures and unions, bit wise operators, files, command line arguments.
8.	MCAP102	1. Identify the working of working of various flip-flop using digital circuits &IC's 2. Illustrate the use of multiplexer , decoders/ Encoders, adders/subtrator using various IC's 3. Test the working of counter ,shiftregister &delay cycle clock using capacitors &digital circuits 4. Evaluate the output of various primary &secondary logic gates using different IC's

9.	MCAP103	1. Students will be able to understand about different methods to solve algebraic and transcendental equations and interpolation methods 2. Apply numerical methods to obtain approximate solutions to mathematical problems 3. Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations 4. Analyze and evaluate the accuracy of common numerical methods.
MCA: II Semester		
S.No.	**Course Code**	**Course Outcome**
10.	MCAT 201	1. Understand the difference between the top-down and bottom-up approach 2. Describe the object-oriented programming approach in connection with C++ 3. Apply the concepts of object-oriented programming 4. Illustrate the process of data file manipulations using C++ 5. Apply virtual and pure virtual function & complex programming situations
11.	MCAT 202	1. To analyze algorithms and algorithm correctness. 2. To describe stack, queue and linked list operation. 3. To have knowledge of tree and graphs concepts. 4. To summarize searching and sorting techniques. 5. To analyze the file structure and physical storage media file organization.
12.	MCAT 203	1. Analyze sets and its countability using Venn diagrams, examine relations and functions and evaluate daily life problems using Pigeonhole principle 2. Analyze and classify groups and rings and their types 3. Distinguish posets and lattices and justify complemented and bounded lattices with their properties. 4. Create a logical statement for a given sentence using logical operators and quantifiers 5. Evaluate daily life problems using permutations and combinations and evaluate recurrence relation using generating functions
13.	MCAT 204	1. Analyze the structure of OS and basic architectural components involved in OS design 2. To differentiate among the cooperating and concurrent processes and implement CPU scheduling. 3. Examine the concept of deadlock and resource management. 4. Describe and analyze the memory management and its allocation policies. 5. Demonstrate the role and architecture of the LINUX OS.

14.	MCAT 205	1. To analyze the basics of E-governance and different type of platform of e-governance 2. To understand the basic technologies and policies used in e-governance. 3. To analyze the flow models used in e-governance. 4. To understand the public information infrastructure and other government policies 5. To study the challenges and initiatives of e-governance in Indian scenario. 6. To analyze the basics of E-governance and different type of platform of e-governance
15.	MCAT 206	1. Describe the architecture and features of UNIX Operating System and distinguish it from other Operating System 2. Demonstrate UNIX commands for file handling and process control 3. Write Regular expressions for pattern matching and apply them to various filters for a specific task 4. Analyze a given problem and apply requisite facets of SHELL programming in order to devise a SHELL script to solve the problem 5. Demonstrate the role and architecture of the LINUX OS.
16.	MCAP 201	1. Students will be able to create simple programs using classes and objects in C++. 2. Implement Object Oriented Programming Concepts in C++. 3. Implement Object Oriented Programs using templates and exceptional handling concepts. 4. Develop applications using stream I/O and file I/O.
17.	MCAP 202	1. Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures. 2. Students will be able to implement linear and Non-Linear data structures. 3. Implement appropriate sorting/searching technique for given problem. 4. Design advance data structure using Non-Linear data structure.
18.	MCAP206	1. Identify and use UNIX/Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and develop shell scripts to perform more complex tasks. 2. Effectively use the UNIX/Linux system to accomplish typical personal, office, technical, and software development tasks Monitor system performance and network activities. 3. Effectively use software development tools including libraries, preprocessors, compilers, linkers, and make files. 4. Comprehend technical documentation, prepare simple readable user documentation and adhere to style

		guidelines. Collaborate in teams on system tasks.
MCA : III Semester		
S.No.	**Course Code**	**Course Outcome**
19.	MCAT 301	1. Prepare the basics of Internet, Internet Services and E-Mail Concepts. 2. Evaluate the object oriented programming concepts using java as well as the purpose and usage principles of inheritance, polymorphism, encapsulation and method overloading 3. able to apply object oriented programming features and concepts for solving given problem 4. Create Java application programs using sound OOP practices (e.g., interfaces and APIs) and proper program structuring (e.g., by using access control identifies, automatic documentation through comments, error exception handling) 5. Able to develop interactive programs using applets and swings
20.	MCAT 302	1. Explain the basic concepts of time and space complexity, divide-and-conquer Strategy, dynamic programming, greedy and approximate algorithms 2. Describe the methodologies of how to analyze an algorithm 3. Understands the data structures of graph coloring and back tracking 4. Design a better algorithm to solve the problems 5. To differentiate between tractable and intractable problems

21.	MCAT 303	1. To identify the basic concepts and importance of DBMS and to conclude and design DBMS models by learning E-R model concepts. 2. To be able to develop and analyse DBMS models by learning SQL and RDBMS basics 3. To be able to synthesise and review DBMS systems by the means of finding functional dependencies and by learning and implementing the concepts Normalization. 4. To be able to analyse and modify the existing Transaction Management systems and to employ TMS models. 5. To discover distributed database applications and to analyse and judge their applicability.
22.	MCAT 304	1. Differentiate the different methods of random number generation. 2. Analyze how simulation is useful in research. 3. Able to create the simulation model the system for different fields. 4. Analyze the role of probability and different probability distribution in simulation. 5. Analyze how queuing system is useful in simulation.
23.	MCAT 305	1. To analyze the role and requirements of a website. 2. To design and create dynamic html pages using Javascript. 3. To construct the MVC architecture using java beans and servlet. 4. To be able to do sharing of data among JSP pages. 5. To establish database connectivity using JDBC.
24.	MCAT 306	1. Analyze the role of different protocols and tools needed for the web development process. 2. Analyze the use of different HTML tags and web layout for website development. 3. Analyze the use of JavaScript, JSP in the dynamic web page creation. 4. Design interactive web page(s) using HTML, CSS and JavaScript, DHTML. 5. Analyze the Data Base related operations and its use in web development and Analyze therole of XML, DHTML in web development process.
25.	MCAT 311	1. To examine the various synchronization, scheduling and memory management issues. 2. Demonstrate the Mutual exclusion, Deadlock detection and agreement protocols of Distributed Operating System. 3. To describe the various resource management techniques for distributed systems. 4. Identify the different features of real time and mobile operating system.

26.	MCAT312	1. Illustrate channels of E Commerce and M Commerce & use of different technology 2. Elaborate security issues exists in electronic payment system 3. Explain knowledge management processes, its technology and system 4. Comprehend Practical implications of KM tools and techniques
27.	MCAT313	1. Able to recognize evolving role of software project management 2. Understand and estimate cost for software project. 3. Identify &analyze aspect in s/w to manage time, process & recourses effectively with quality concept. 4. Estimate software productivity using metrics and indicator & identify important issues for planning a project.
28.	MCAP 301	1. Identify classes, objects, members of a class and the relationships among them needed for a Finding the solution to specific problem 2. Demonstrates how to achieve reusability using inheritance, interfaces and packages and Describes faster application development can be achieved. 3. Demonstrate understanding and use of different exception handling mechanisms and 4. Concept of multithreading for robust faster and efficient application development. 5. Identify and describe common abstract user interface components to design GUI in Java Using Applet & AWT along with response to events
30.	MCAP 303	1. Students will be able to develop and design Databases by applying SQL queries. 2. Students will be able to apply basic programming skill by using PL/SQL and will be able to create simple DB. 3. Students will be able to perform basic transaction operations.
MCA: IV Semester		
S.No.	**Course Code**	**Course Outcome**
31.	MCAT 401	1. Learn the Internet Programming, using Java Applets. 2. Create a full set of UI widgets and other components, including windows, menus, buttons. 3. Apply event handling on AWT and Swing components. 4. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC) 5. Create dynamic web pages, using Servlets and JSP.

32.	MCAT 402	1. Recognize and Describe about the working of Computer Networks. 2. Illustrate reference models with layers, protocols and interfaces. 3. Summarize functionalities of different Layers. 4. Combine and distinguish functionalities of different Layers. 5. Model the LAN and WAN configuration using different media.
33.	MCAT 403	1. To broaden your knowledge of Software Process Models. 2. To become aware of the Software Product. 3. To increase your proficiency in Software Project Management. 4. To gain practical experience in Requirements Engineering. 5. To acquire the background of Software Architecture.
34.	MCAT 404	1. Understand the basic concepts of Computer Graphics. 2. Demonstrate various algorithms for scan conversion and filling of basic objects and their comparative analysis. 3. Apply geometric transformations, viewing and clipping on graphical objects. 4. Explore solid model representation techniques and projections. 5. Understand visible surface detection techniques and illumination models.
35.	MCAT 405	1. To analyze the role and requirements of a website. 2. To design and create dynamic html pages using Javascript. 3. To construct the MVC architecture using java beans and servlet. 4. To be able to do sharing of data among JSP pages. 5. To establish database connectivity using JDBC.
36.	MCAT 421	1. Build indexing mechanisms for efficient retrieval of information from databases. 2. Measure query cost and optimize query execution. 3. Design distributed database for better resource management. 4. Demonstrate the understanding of the concepts of document oriented databases. 5. Apply appropriate security techniques database systems

37.	MCAT 422	1. Demonstrate understanding of the basic concepts of two-dimensional signal acquisition, sampling, and quantization. 2. Demonstrate understanding of 2D Fourier transform concepts, including the 2D DFT and FF, and their use in frequency domain filtering. 3. Demonstrate understanding of spatial filtering techniques, including linear and nonlinear methods. 4. Demonstrate understanding of the fundamental image enhancement algorithms such as histogram modification, contrast manipulation, and edge detection. 5. Demonstrate programming skills in digital image processing related problems
38.	MCAT 423	1. Understand the concepts of Artificial intelligence 2. Understand the concepts of Intelligent Agents and issues in the design of search programs. 3. Know various AI search algorithms (uninformed, informed, heuristic, constraint satisfaction, genetic algorithms). 4. Understand the concepts of and Knowledge & reasoning of predicate logic and Representing knowledge using rules, Probabilistic reasoning. 5. Have working knowledge in Prolog in order to write simple Prolog programs and explore more sophisticated Prolog code on their own.
39.	MCAT 431	1. Identify different media; representations of different multimedia data and data formats. 2. Analyze various compression techniques. 3. Compare various audio and video file formats. 4. Apply different coding technique for solving real world problems. 5. Choose optical storage media suitable for multimedia applications.
40.	MCAT 432	1. Implement solutions to basic bioinformatics problems. 2. Discuss the use of bioinformatics in addressing arrange of biological questions. 3. Describe how bioinformatics methods can be used to relate sequence, structure and function. 4. Discuss the technologies for modern high-through put DNA sequencing and their applications. 5. Use and describe some central bioinformatics data and information resources.

41.	MCAT 433	1. Understand need for ad hoc networks. 2. Explain the constraints of physical layer that affect the design and performance of ad hoc network. 3. Have gained an understanding of the current topics in WSNs. 4. Understand security issues and QoS requirements 5. To understand how proactive routing protocols function and their implications on data transmission delay and band width consumption.
42.	MCAT 434	1. Understand the key issues in big data management and its associated applications in intelligent business and scientific computing. 2. Acquire fundamental enabling techniques and scalable algorithms for Hadoop. 3. To acquire fundamental enabling techniques and scalable algorithms Map Reduce and NO SQL in big data analytics. 4. Interpret business models and scientific computing paradigms, and apply software tools for big data analytics. 5. Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.
43.	MCAP 405	1. Understand computer network basics, network architecture, TCP/IP and OSI reference models 2. Identify and understand various techniques and modes of transmission 3. Understand data link protocols, multi-channel access protocols and IEEE 802 standards for LAN 4. Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme
44.	MCAP403	1. Problem Analysis and Project Planning Thorough study of the problem- identify project scope, infrastructure. 2. Software Requirement Analysis- Describe the individual Phases/modules of the project deliverables. 3. Data Modeling Use work products – data dictionary, use case diagrams and activity diagrams, build and test lass diagrams, sequence diagrams and add interface to class diagrams. 4. Software Developments and Debugging.
MCA: V Semester		
S.No	**Course Code**	**Course Outcome**
45.	MCAT-501	1. To know about basic goals of the .NET Framework. 2. A working knowledge of the C# programming language. 3. An understanding of how to use forms to develop GUI programs under .NET 4. Knowledge of some of the tools available in the .NET Framework class library

46.	MCAT-502	1. To be able to analyze the concept, basic structure of data warehouse and multidimensional databases of data warehouse 2. To analyze the mapping of information of data warehouse to a multiprocessor architecture and its tools. 3. To be able to analyze the working of OLAP and AI. 4. To analyze data mining methods like clustering, classification and association mining. 5. To be able to analyze data visualization and multimedia data mining
47.	MCAT 503	1. To analyze the working e-governance services 2. To analyze the role of different models in e-governance policies. 3. To analyze the core concept of public key encryption mechanism and their application in network security. 4. To analyze the applicability of Hash function, Digital Signature and other security algorithms in network security. 5. To analyze some advanced network security algorithms and their working principle
48.	MCAT 504	1. Analyze different approaches to software quality assurance 2. Apply software quality assurance knowledge in practice 3. Evaluate software metrics results 4. Analyze different approaches to software testing and quality assurance, and select optimal solutions for different situations and projects; 5. Evaluate the work of peers constructively by following proven methods of peer review, and by using the principles of ethics
49.	MCAT 543	1. To analyze the client and server architecture and development tools. 2. Analyze client server component like OLE, CORBA, and DDE. 3. Analyze various networking standards for data transmission in a network. 4. To analyze different data storage techniques and functions in client server system. 5. To analyze network and system administrative tools in a LAN.
50.	MCAT 553	1. Ability to understand various service delivery models of a cloud computing architecture. 2. Ability to understand the ways in which the cloud can be programmed and deployed. 3. Understanding cloud service providers.

51.	MCAT 554	1. Interpret the impact and challenges posed by IoT networks leading to new architectural models. 2. Compare and contrast the deployment of smart objects and the technologies to connect them to network. 3. Appraise the role of IoT protocols for efficient network communication. 4. Elaborate the need for Data Analytics and Security in IoT. 5. Illustrate different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.
52.	MCAP 504	1. Distinguish characteristics of structural testing methods. 2. Design and conduct a software test process for a software testing project. 3. Understand and identify various software testing problems and able to solve these problems by designing and selecting software test models, criteria, strategies, and methods.