YEAR BRANCH	COURSE CODE	COURSE NAME	COURSE OBJECTIVES	COURSE OUTCOME'S
MCA I-I	**MCA111**	**DATA STRUCTURES USIG C**	1. To understand the concept of Dynamic memory management, data types, algorithms,asymptotic notations. 2. To understand basic data structures such as arrays linked lists. 3. To understand & Describe Stack, queues and their applications. 4. To Solve problem involving graphs and trees. 5. Apply Algorithm for solving problems like sorting, searching, insertion and deletion ofdata.	Upon completion of this course, the student will be able to… 1. Identify various types of Data Structures, Dynamic memory allocation and asymptoticnotations. 2. Write sequence of data using single linked lists, double linked lists and circular linkedlists. 3. Design memory organization using Stack, Queue and their applications. 4. Analyze tree traversal techniques, DFS and BFS. 5. Describes searching techniques and analyze various types of sorting.
MCA I-I	**MCA112**	**OPERATING SYSTEM**	1. To make aware of different types of Operating System and their services. 2. To learn different process scheduling algorithms and process scheduling. 3. To understand process synchronization and deadlocks. 4. To know storage memory management and virtual memory concepts. 5. To learn file system implementation, mass storage structure and protection.	Upon completion of this course, the student will be able to 1. Understand the objectives of operating system and services. 2. Understand the CPU Scheduling and process scheduling. 3. Synchronizes the processes and deadlocks. 4. Manages the virtual memory and storage techniques. 5. Implement the file system , mass storage structure and protection.

MCA I-I	**MCA113**	**OOPS THROUGH JAVA**	1.To understand the basic concepts of programming paradigms and java programming. 2.To know the concepts of classes, methods and strings. 3. To learn different types of inheritance, interfaces. 4. To understand the concepts of packages, streams (I/O), exceptional handling and multithreading. 5.To understand Applet Programming and Swings .	Upon completion of this course, the student will be able to… 1. Distinguish various programming paradigms and implement java fundamental programs. 2. Implement classes, constructors, and strings. 3. Apply reusability concepts like inheritance, dynamic method dispatch, and interfaces. 4. Implement packages, apply streams (I/O), exception handling, and multithreading. 5. Implement Applets, AWT and Swings.
MCA I-I	**MCA114**	**COMPUTER NETWORKS**	1. To familiar with Computer network architecture and OSI and TCP/IP reference models 2.To know different types of data link and medium access control protocols 3.To understand routing algorithms and internet working. 4 To understand Transport layer protocols 5. To understand different application layer protocols,Network security algorithms	Upon completion of this course, the student will be able to… 1 Demonstrate computer network architecture, OSI and TCP/IP reference models. 2. Determine types of data link and medium access control protocols. 3. Use Routing algorithms and internet working. 4. Design network different protocols used at transport layer. 5. Design application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET and VPN and also design network layer.

MCA I-I	**MCA116**	**DATA STRUCTURES USIG C LAB**	1. To understand the concept of Dynamic memory management, data types, algorithms, asymptotic notations. 2. To understand basic data structures such as arrays linked lists. 3. To Describe Stack, queues and their applications. 4. To Solve problem involving graphs and trees. 5.Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data	Upon completion of this course, the student will be able to… 1. Implementing array operations and its application sparse matrix transpose and addition. 2. Write sequence of data using single linked lists, double linked lists and circular linkedlists. 3. Design programs using Stack, Queue, conversion of infix expression to post/prefix andevaluation of postfix expression. 4. Implement tree traversal techniques, DFS and BFS. 5.Develop Linear and Binary search techniques, Bubble sort, selection sort, Insertion sort,Quick sort and Merge sort
MCA I-I	**MCA117**	**OPERATING SYSTEMS LABORATORY**	1. To Analyze the working of an operating system, its programming interface and file system. 2. To learn & develop algorithms for process scheduling, memory management. 3. To understand page replacement algorithms 4. To learn disk scheduling 5. To understand file access methods, allocation methods and access matrix.	Upon completion of this course, the student will be able to… 1. Recognize the importance of various categories of UNIX commands. 2. Apply shell programming concepts for developing applications 3. Implement different scheduling algorithms and compare their performance and apply the Banker's algorithm solving the deadlock avoidance problem. 4. Implement different scheduling algorithm and compare their performance and apply the Banker's for solving the deadlock avoidance problem. 5. Implement disk scheduling algorithm.
MCA I-I	**MCA118**	**OBJECT ORIENTED PROGRAMMING THROUGH JAVA**	1. To understand the basic concepts of java programming and to find the difference from	Upon completion of this course, the student will be able to… 1. Distinguish various programming paradigms and

		LABORATORY	procedural programmingapproach to object oriented programming approach. 2. To build fundamental java programs related to classes, methods and strings. 3. To familiar with designing java programs effectively with the help of inheritance and interfaces concepts. 4. To study packages, I/O, exceptional handling and multithread programming using java. 5. To learn Applet programming and AWT.	implement java fundamental programs. 2. Implement classes, constructors, and strings. 3. Construct reusability concepts like inheritance, dynamic method dispatch, and interfaces. 4. Implement packages, apply streams (I/O), exception handling, and multithreading. 5. Develop web based applications using Applets, AWT and Swings.
MCA I-II	**MCA121**	**PYTHON PROGRAMMING**	1.To learn handling of variables and performing arithmetic, logical and relational operations. 2.To learn control structures and developing user defined functions. 3.To understand how to handle the various data structures like List, Tuple Set and Dictionaries. 4. To learn how to handle strings, files and develop modules **5.To learn how to handle python object oriented programming and creating GUI**	After completing this course, the student will be able to: 1. Handle different Data types and operation on them. 2. Apply the control structures and function whenever required in programs. 3. Use various data structures like List, Tuple, Set and Dictionaries at appropriate place. 4. Develop application requires file handling. 5. Develop GUI applications and use the object oriented features.
MCA I-II	**MCA122**	**DATABASE MANAGEMENT SYSTEMS**	1. To know the importance and evolution of Data base Management. 2. To introduce various Data models and how	After completing this course, the student will be able to: 1. Represent the data of specific application using various Data models.

			they will be used in implementing data base management systems. 3. To get knowledge of commercial query languages to interact DBMS 4. To Study data organization at physical storage level. 5. To familiarize with theoretical concepts Transaction processing, concurrency control andrecovery.	2. Convert the data base represented at logical level to implementation level. 3. Write queries to retrieve specific information from Data base. 4. Select the appropriate file organization technique for given Data Base application. 5. Explore the concepts of concurrency control and recovery mechanisms in RDBMS
MCA I-II	**MCA123**	**SOFTWARE ENGINEERING**	1.To familiar with fundamental concepts of software and the different types of software models 2. To identify correct and robust software products by gathering requirements. 3. To design architectural design and user interface design. 4. To gain the knowledge of Software testing techniques and strategies and analyzing the appropriate test methods for given software 5. To understand different metrics for different software and analyze the quality of a software	After successful completion of course the student should be able to 1. Learn the concepts of software development life cycle models. 2. Develop correct and robust software products by gathering requirements. 3. Create an architectural design and user interface design. 4. Identify different Software testing techniques and strategies also Manages and maintains Software Project to ensure good quality software with high reliability. 5. Analyse various metrics for estimation of software products also analyses risk management and quality management.
MCA I-II	**MCA124**	**CRYPTOGRAPHY &NETWORK SECURITY**	1.To know about various encryption techniques. 2.To understand the concept of Public key cryptography.	After successful completion of the course the students should be able to 1. Identify the security issues in the network and resolve it. 2. Analyse the vulnerabilities in any computing system and

			3.To study about message authentication and hash functions 4.To impart knowledge on Network security applications, about IPSec, Email Security. 5.To know about Firewall, IDS, Web Security, and Malicious software etc.,	hence be able to design a security solution. 3. Evaluate security mechanisms using rigorous approaches by key ciphers and Hash functions. 4. Demonstrate various network security applications, IPSec, and Email Security 5.Firewall, IDS, Web Security, and Malicious software etc.,
MCA I-II	**MCA125**	**PRINCIPLES AND PRACTICE OF MANAGEMENT**		
MCA I-II	**MCA126**	**PYTHON PROGRAMMING LAB**	1.To learn writing simple programs involves usage of different data types and its operations. 2.To learn writing programs required to use control structures and function 3.To learn writing programs using all types' data structures. 4.To learn implementing object oriented features and developing simple GUI applications	After completing this course, the student will be able to: 1. Develop programs handling verity of data types. 2. Develop application involving searching, sorting and ranking of different data. 3. Develop programs handling of strings 4. Develop application involving file processing. 5. Develop simple GUI Interfaces.
MCA I-II	**MCA127**	**DATABASE MANAGEMENT SYSTEMS LABORATORY**	1.To understand data definitions and data manipulations commands 2. To understand the use nested and join queries 3. To practice various types commands in SQL. 4. To write simple and complex queries in	After the completion of the course, the student will be able to: 1. Design basic data definitions and data manipulations commands and implement a database schema for a given problem. 2. Implement various types of constraints. 3. Write and execute Queries using SQL.

			SQL. 5. To write PL/SQL scripts.	4. Create stored procedures, triggers, cursers. 5. Write PL/SQL Scripts
MCA I-II	**MCA128**	**SOFTWARE ENGINEERING LAB**	1.To provide the idea of decomposing the given problem into Analysis, Desing, Implementation, Testing and Maintenance phases. 2. To provide an idea of using various process models in the software industry according to given circumstances. 3. To gain the knowledge of how Analysis, Design, Implementation, Testing and Maintenance processes are conducted in a software project.	Upon completion of this course, students will be able to… 1. Decompose the given project in various phases of a lifecycle. 2 Choose appropriate process model depending on the user requirements. 3 Perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance. Evaluate 4 Know various processes used in all the phases of the product 5 Apply the knowledge, techniques, and skills in the development of a software product.
MCA II-I	**MCA211**	**DATA MINING**	1.To introduce concepts and techniques of Data Mining. 2.To become familiar with regression methods, classification methods. 3.To become familiar with techniques such as decision tree learning,Bayesian learning etc. 4.To understand computational learning theory. 5.To study the pattern comparison techniques	After successful completion of course the student should be able to 1. Familiarize with various types of machine learning algorithms and solve it. 2. Articulate how these algorithms are fundamentally different from traditional programming algorithms. 3. Practice the Bayesian and computational algorithms related to the real time application. 4. Implement the effective of analytical concepts, inductive analytical approaches and reinforced learning algorithms. 5. Construct various instant based learning and learning set of rules.

MCA II-I	**MCA212**	**WEB TECHNOLOGIES**	1: Web development using HTML and Java Script 2: XML Technologies, XSLT, DTDs and servlet programming 3: Developing web based applications using JSP and servlets 4: Designing web pages using Facelets and PHP	After successful completion of course the student should be able to 1: design dynamic web pages using technical expertise in HTML and JavaScript 2: design web pages using servlets, XML and extensible style sheet language 3: develop web based applications using technologies like JSP and Servlet 4: design Java Server Face views using Facelets and develop web based applications using PHP
MCA II-I	**MCA213**	**THEORY OF COMPUTATION**	1.To familiar with basic mathematical concepts Construction of finite state machines DFA,NFA and its equivalence. 2. To design Moore and Melay machines and study regular grammar, and know given language is regular or not 3. To understand the concepts of Regular language, Context free Language and simplification. 4. To gt the knowledge of Designing pushdown automata and normal Forms 5. To study Designing Turing machines, decidability and undecidability of problems	After completing this course, the student will be able to: 1. Design finite state automata DFA and NFA and its equivalence. 2. Design Moore Melay machines, Regular grammar, regularexpression &representations for regular languages. 3. classify formal languages into regular, context-free, contextsensitive and unrestricted language 4. Design push-down automata and context-free grammar representations for context-free languages. 5. Design Turing Machines for accepting recursively enumerable languages and Notions of decidability and undecidability of problems,
MCA II-I	**MCA214**	**CLOUD COMPUTING**	1. Basic concepts of cloud, Features of cloud and computing environments 2. Principles of Parallel and Distributed Cloud	After successful Completion of course the students should be able to : 1. Reviews the basic concepts of cloud ,Features of cloud and computing environments

			Computing and virtualization techniques 3. To analyse Cloud Architecture & Cloud Deployment Models 4. To study Importance of security and federated cloud 5. Cloud platforms and real time applications used in industry	2. Analyzes the Principles of Parallel and Distributed Cloud Computing and virtualization techniques 3. Evaluate the Cloud Architecture & Cloud Deployment Models. 4. Categorize the Importance of security and federated cloud. 5. Interprets Cloud platforms and real time applications used in industry.
MCA II-I	**MCA215**	**MOBILE COMPUTING**	1: understanding cellular principles, signal propagation and data transmission for reliable communication 2: channel capacity allocation for satellite communication and various generations of cellular wireless networks 3: fixed wireless service, mobile wireless network and different wireless LAN technologies 4: wireless LAN standard for reliable communication and Bluetooth technology	After successful Completion of course the students should be able to : 1: describe cellular standards in mobile environment, two-way communication of antenna and apply error detection and control methods for reliable digital data communication 2: differentiate frequency and time division channel allocation methods used in satellite communication and compare the generations of cellular wireless networks 3: analyze radio based telecommunication technologies, information access over a mobile wireless network and use of wireless LANs 4: describe media access control layer and physical layer specifications of IEEE 802.11 wireless LAN and apply Bluetooth wireless technology in exchange of data over short distances
MCA II-I	**MCA216**	**DATA MINING LAB**	1.To introduce concepts and techniques of Data Mining. 2.To become familiar with regression methods, classification methods. 3.To become familiar with techniques such as	After successful completion of course the student should be able to 1. Familiarize with various types of machine learning algorithms and solve it. 2. Articulate how these algorithms are fundamentally different from traditional programming algorithms.

			decision tree learning,Bayesian learning etc. 4.To understand computational learning theory. 5.To study the pattern comparison techniques	3. Practice the Bayesian and computational algorithms related to the real time application. 4. Implement the effective of analytical concepts, inductive analytical approaches and reinforced learning algorithms. 5. Construct various instant based learning and learning set of rules.
MCA II-I	**MCA217**	**WEB TECHNOLOGIES LAB**	1: Web development using HTML and Java Script 2: XML Technologies, XSLT, DTDs and servlet programming 3: Developing web based applications using JSP and servlets 4: Designing web pages using Facelets and PHP	After successful completion of course the student should be able to 1: design dynamic web pages using technical expertise in HTML and JavaScript 2: design web pages using servlets, XML and extensible style sheet language 3: develop web based applications using technologies like JSP and Servlet 4: design Java Server Face views using Facelets and develop web based applications using PHP
MCA II-I	**MCA218**	**CLOUD COMPUTING LAB**	1. Basic concepts of cloud, Features of cloud and computing environments 2. Principles of Parallel and Distributed Cloud Computing and virtualization techniques 3. To analyse Cloud Architecture & Cloud Deployment Models 4. To study Importance of security and federated cloud 5. Cloud platforms and real time applications used in industry	After successful Completion of course the students should be able to : 1. Reviews the basic concepts of cloud ,Features of cloud and computing environments 2. Analyzes the Principles of Parallel and Distributed Cloud Computing and virtualization techniques 3. Evaluate the Cloud Architecture & Cloud Deployment Models. 4. Categorize the Importance of security and federated cloud. 5. Interprets Cloud platforms and real time applications used in industry.

MCA II-II	**MCA221**	**ARTIFICIAL INTELLIGENCE**	1.To understand the importance of the field of AI by discussing its history and various Application domains of AI. 2.To gain the knowledge of types of search strategies used in AI and representing problems in state spacesearch. 3.To Learn some standard search strategies and Understanding methods to represent knowledge. 4.To Learn how to perform reasoning based on the available knowledge of the problem. 5.To know the concepts of game playing, planning and NLP	Upon completion of the course, the students will be able to: 1. Analyze and represent the problem suitable for specific search method. 2. Select suitable state space search strategy in order to solve given problem. 3. Represents the knowledge available in the problem in various forms. 4. Answer the questions related to problems using reasoning. 5. Identify explore further scope of AI in gaming and NLP applications.
MCA II-II	**MCA222**	**E-COMMERCE**	1: Essentials and strategies of managing information systems 2:Iinformation technology impacts on society and decision making 3:Information system applications in manufacturing and service sectors 4:Iinformation systems in enterprise and supply chain management	After successful Completion of course the students should be able to : 1: Describe concepts of managing information systems in e-business enterprises 2: Evaluate privacy, security and quality of information management and decision making systems 3: Analyze systems for managing information in manufacturing and service sector 4: Asses effective of information systems which can be adopted in enterprise and supply chain management
MCA II-II	**MCA223**	**MACHINE LEARNING**	1.To introduce concepts and techniques of Machine Learning. 2.To become familiar with regression methods, classification methods.	After successful completion of course the student should be able to 1. Familiarize with various types of machine learning algorithms and solve it.

			3.To become familiar with techniques such as decision tree learning,Bayesian learning etc. 4.To understand computational learning theory. 5.To study the pattern comparison techniques	2. Articulate how these algorithms are fundamentally different from traditional programming algorithms. 3. Practice the Bayesian and computational algorithms related to the real time application. 4. Implement the effective of analytical concepts, inductive analytical approaches and reinforced learning algorithms. 5. Construct various instant based learning and learning set of rules.
MCA II-II	**MCA224**	**PROJECT**	1: problem based and project based learning 2: major project design in one of the selected areas of specialization with substantial multidisciplinary component 3: analytical and research skills 4: team work, leadership and interpersonal skills	After successful completion of course the student should be able to 1: demonstrate creativity in the design of components, systems or processes of their program of study 2: design an innovative product by applying current knowledge and adopt to emerging applications of engineering & technology 3: work cooperatively with others to achieve shared goal by motivating team-mates with a clear sense of direction, values and ethics, 4: write concisely & convey meaning in a manner appropriate to different readers and verbally express ideas easily understood by others who are unfamiliar with the topic