Fatima College

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College with Potential for Excellence (2004 - 2019)
101 - 150 Rank Band in India Ranking 2021 (NIRF)
Mary Land, Madurai - 625018, Tamil Nadu.

FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

2020 - 2021

NAME OF THE PROGRAMME: MCA   **PROGRAMME CODE : MCA**

PROGRAMME OUTCOMES:

PO 1	Apply the knowledge of computing maths and science for the solution of problems and requirements
PO 2	Identify, critically analyze, formulate and develop computer applications using fundamental principles of relevant domain disciplines
PO 3	Design and evaluate solutions for computer based problems to meet the desired needs within realistic constraints such as safety, security and applicability
PO 4	Use research based knowledge to conduct experiments and interpret data to attain well-defined conclusions.

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PO 5	Create, select and apply modern computing tools by understanding the limitations, with dexterity.
PO6	Demonstrate the competency in programming skills as per industry expectations.
PO7	Understand the impact of system solutions in societal, environmental and cultural issues within local and global contexts for sustainable development
PO8	Commit to professional ethics and cyber regulations, responsibilities & norms.
PO9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary environment to manage projects.
PO10	Communicate effectively with the society about computing technologies.
PO11	Demonstrate knowledge and understanding of the management principles and apply these to manage projects.
PO12	Appreciate the importance of goal setting and to recognize the need for life-long learning in the broadest

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	context of technological change.

PROGRAMME SPECIFIC OUTCOMES:

PSO 1	Ability to design and develop applications in the computing discipline to meet the customer's business objectives.
PSO 2	Ability to Integrate various system components to provide user interactive solutions for various challenges
PSO 3	Ability to test and maintain the software applications with latest computing tools and technologies.
PSO 4	Ability to understand the evolutionary changes in the practices and strategies in software project development.
PSO 5	Ability to enhance teamwork and leadership skills to solve time critical problems

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Course Code	Course Title	Course Outcomes
20MCA101	MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE	**CO 1:** Perform Logical operations and predicate calculus needed for computing skill. **CO2:** Analyze and Compare the various techniques for solving numerical equations. **CO3:** Apply the techniques of statistics and numerical methods to unravel problems by computers. **CO4:** Explain the set theory logic. **CO 5:** Utilize the Knowledge of matrices for designing and solving problems

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20MCA202	SOFTWARE ENGINEERING	**CO 1:** Compare the different domains and process models.
		CO 2: Identify the data, class and flow oriented modelling concepts.
		CO 3: Analyze on the design oriented concepts.
		CO 4: Identify the managerial aspects of software development.
		CO 5: Generate project schedule for different activities of software development
20MCA103	OPERATING SYSTEMS	**CO 1:** Identify the components and processes.
		CO 2: Analyze on scheduling algorithms and deadlocks.
		CO 3: Demonstrate the mapping between the physical memory and virtual memory.
		CO 4: Identify the secondary memory management

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		techniques.
		CO 5: Analyze on the distributed systems and security issues.
20MCA104	PROGTRAMMING IN PYTHON	**CO 1:** Predict the basics of Python programming. **CO 2:** Solve problems requiring the writing of well-documented programs in the Python language, including use of the logical constructs of that language. **CO 3:** Use and manipulate Lists and python exception handling model to develop robust programs. **CO 4:** Formulate solutions for String, tuples and File operations. **CO 5:** Apply object-oriented programming concepts to develop dynamic interactive Python applications
20MCA105	LAB I – PYTHON PROGRAMMING	**CO 1:** Implement Math functions, Strings, List and Tuple in Python programs.

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		CO 2: Express different Decision Making statements and Functions.
		CO 3: Interpret Object oriented programming in Python & File handling operations
20MCA106	LAB II – RDBMS	**CO 1:** Enhance Programming skills and techniques.
		CO 2: Formulate complex queries using SQL
		CO 3: Use the PL/SQL code constructs of IF-THEN-ELSE and LOOP types as well as syntax and command functions.
29MCA107	SKILL BASED LAB I – LINUX	**CO 1:** Use Linux utilities and develop shell scripts to perform tasks.
		CO 2: Effectively use Linux environment to accomplish software development tasks.
		CO 3: Monitor system performance and network activities.

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20MCA108	SOFT SKILLS I – PROFESSIONAL COMMUNICATION	**CO 1:** Display competence in oral and written communication. **CO 2:** Use current technology related to the communication.
20MCA201	DATA STRUCTURES AND ALGORITHMS	**CO 1:** Select appropriate data structures as applied to specified problem definition. **CO 2:** Implement operations like searching, insertion, deletion and traversing in trees. **CO 3:** Compare the data structures of advanced search trees. **CO 4:** Implement appropriate heap operations, sorting, searching techniques for a given problem.

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		CO 5: Determine and analyze the complexity of graph Algorithms.
20MCA202	WEB TECHNOLOGIES	**CO 1:** Use knowledge of HTML and CSS to create personal and/or business websites **CO 2:** Create effective scripts using JavaScript and jQuery to enhance the end user experience. **CO 3:** Write PHP scripts to handle HTML forms. **CO 4:** Test, debug, and deploy web pages containing PHP and MySQL. **CO 5:** Implement SQL language, JavaScript, Ajax, Jquery, PHP and CSS in the project.
20MCA203	PROGRAMMING IN JAVA	**CO 1:** Apply the basic Java constructs to develop solutions to real time problems. **CO 2:** Analyze the hierarchy of java classes to develop object

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		oriented programs. **CO 3:** Design software in Java using Packages and Threads. **CO 4:** Implement Concepts of AWT for creating GUI. **CO 5:** Design a Software using JDBC.
20MCA204	LAB III – WEB TECHNOLOGIES	**CO 1:** Design WebPages using server side scripting. **CO 2:** Use PHP built-in functions and custom functions for processing. **CO 3:** Create various interactive and dynamic websites
20MCA205	LAB IV – JAVA PROGRAMMING	**CO 1:** Apply the basic Java constructs to develop solutions to real time problems. **CO 2:** Analyze the hierarchy of java classes to develop object oriented programs. **CO 3:** Design software in Java using Packages and Threads.

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		CO 4: Implement Concepts of AWT for creating GUI. **CO 5:** Design a Software using JDBC.
20MCA206	SKILL BASED LAB II – R PROGRAMMING	**CO 1:** Demonstrate the practical application of R programming tool. **CO 2:** Emphasize the implementation of statistical operations in R
20MCA207	SOFT SKILLS II – APTITUDE TRAINING	**CO 1:** Apply quantitative techniques to solve variety of problems. **CO 2:** Enhance the technical skills for employability.
19MCA301	GRAPH THEORY	**CO 1:** Write precise & accurate mathematical definitions of graph theory **CO 2:** Apply the principles and concepts of graph theory in practical situations.

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		CO 3: Solve the problems using the concepts of Graphs and trees. **CO 4:** Validate and critically assess a mathematical proof. **CO 5:** Explore the modern applications of graph theory
19MCA302	DATA COMMUNICATION AND NETWORKING	**CO 1:** Identify the functionalities of Networking layers of both OSI and TCP/IP reference models. **CO 2:** Analyze the design issues of Datalink layer and techniques to resolve it. **CO 3:** Compare the principles of Switching and Routing algorithm. **CO 4:** Predict the TCP and UDP related procedures. **CO 5:** Outline the Application layer protocols.
19MCA303	PROGRAMMING IN JAVA	**CO 1:** Apply the basic Java constructs to develop solutions to

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		real time problems. **CO 2:** Analyze the hierarchy of java classes to develop object oriented programs. **CO 3:** Design software in Java using Packages and Threads. **CO 4:** Implement Concepts of AWT for creating GUI. **CO 5:** Design a Software using JDBC.
19MCA304	LAB V – PHP & MYSQL	**CO 1:** Design WebPages using server side scripting. **CO 2:** Use PHP built-in functions and custom functions for processing. **CO 3:** Create various interactive and dynamic websites
19MCA305	LAB VI – JAVA PROGRAMMING	**CO 1:** Apply the basic Java constructs to develop solutions to real time problems.

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		CO 2: Analyze the hierarchy of java classes to develop object oriented programs. **CO 3:** Design software in Java using Packages and Threads. **CO 4:** Implement Concepts of AWT for creating GUI. **CO 5:** Design a Software using JDBC.
19MCA306	NETWORKING TOOLS	**CO1:** To implement wired and wireless networks. **CO2:** To analyze various protocols in wired and wireless environment
19MCA307	QUANTITATIVE APTITUDE	**CO 1:** Apply quantitative techniques to solve variety of problems. **CO 2:** Perform statistical analysis to interpret information
19MCA401	COMPILER DESIGN	**CO1:** To analyze the basic concepts and applications of

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		Compiler Design
		CO2: To compare various lexical analysers and grammars
		CO3: To formulate the conversion process between finite automata, regular grammars with the transition and transformation methods
		CO4: To demonstrate the knowledge of formal connection and relationship to expressions and languages
		CO5: To identify if a language is regular, context-free, unambiguous after reducing it to normal forms
19MCA402	MOBILE COMMUNICATION & APPLICATION DEVELOPMENT	**C01:** Identify, Predict and Evaluate Wireless Communication Protocols
		C02: Compare and analyze various multiplexing techniques in mobile environment.
		C03: Demonstrate the architectures, challenges and solutions of Wireless communication.

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		C04: Assess the role of Wireless Networks in shaping the future internet. **C05:** Design and develop apps for mobiles using Android. **C06:** Apply Location Based Services of Android for ensuring women's safety and security
19MCA403	PROGRAMMING IN PYTHON	**CO 1:** Predict the basics of Python programming. **CO 2:** Solve problems requiring the writing of well-documented programs in the Python language, including use of the logical constructs of that language. **CO 3:** Use and manipulate Lists and python exception handling model to develop robust programs. **CO 4:** Formulate solutions for String, tuples and File operations. **CO 5:** Apply object-oriented programming concepts to develop

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		dynamic interactive Python applications
MCA404	LAB VII - MOBILE APPLICATION DEVELOPMENT	**CO 1:** Install and configure Android application development tools. **CO 2:** Design and develop user Interfaces for the Android platform. **CO 3:** Apply Java programming concepts to Android application development. **CO 4:** Familiar with technology and business trends impacting mobile applications.
MCA405	LAB VIII – PYTHON PROGRAMMING	**CO 1:** Implement Math functions, Strings, List and Tuple in Python programs. **CO 2:** Express different Decision Making statements and Functions.

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		CO 3: Interpret Object oriented programming in Python & File handling operations
19MCA406	SOFTWARE TESTING TOOLS	**CO 1:**Finding defects in the programs while developing the software. **CO 2:**Able to write test cases and test scenarios. **CO 3:**Develop the scripts for finding the defects and preventing them. **CO 4:**Understand the automated testing tools available
19MCA407	TECHNICAL APTITUDE	**CO 1:**Enhance the technical skills for employability. **CO 2:**Improve the proficiency of participation in competitive examinations
19MCA501	SOFTWARE PROJECT	**CO 1:**Deliver successful software projects that support

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	MANAGEMENT	organization's strategic goals
		CO 2: Match organizational needs to the most effective software development model
		CO 3: Plan and manage projects at each stage of the software development life cycle
		CO 4: Create project plans that address real-world management challenges
		CO 5: Develop the skills for tracking and controlling software deliverables
		CO 6: Predict the behavior of people working in teams and to explore the ways of Managing people in Software Environments.
19MCA502	MACHINE LEARNING	**CO1:** Identify the concepts of machine learning.
		CO2: Demonstrate the supervised and unsupervised learning

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		algorithms for classification, prediction and clustering. **CO3:** Analyze the logic behind the execution of various classifiers. **CO4:** Compare the performance of different algorithms available for mining data. **CO5:** Propose solution for real world problems
19MCA503	ENTERPRISE APPLICATION DEVELOPMENT	**CO1:** Develop dynamic web applications using MVC **CO2:** Use dependency injection & inversion of control in developing Spring project **CO3:** Create the Struts classes and use MVC design pattern for creating large web applications **CO4:** Map Java classes and object associations to relational database tables with Hibernate mapping files **CO5:** Use Django for rapid development, pragmatic,

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		maintainable, clean design, and secures websites.
19MCA504	LAB –IX- MACHINE LEARNING WITH PYTHON	**CO1:** Demonstrate the concept of classification & clustering in Python **CO2:** Analyse and Evaluate the models built. **CO3:** Create classification and clustering models using sci-kit learn**.**
19MCA505	LAB X – ENTERPRISE APPLICATION DEVELOPMENT	**CO 1:** Perform Database operations for web applications using MVC **CO 2:** Develop database application using Spring JDBC/Struts with CURD functionality. **CO 3:** Enable multilingual websites by using its built-in internationalization system
19MCA506	R PROGRAMMING	**CO 1:** Demonstrate the practical application of R

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		programming tool. **CO 2:** Emphasize the implementation of statistical operations in R
19MCA507	INTERPERSONAL SKILLS FOR CORPORATE READINESS	**CO 1:** Outline the roles played in workgroups and teams **CO 2:** Describe how good communication influences working relationship.
19MCA602	INTERNET OF THINGS	**CO 1:** Identify the Fundamentals of Internet of Things. **CO 2:** Design a portable IoT using relevant protocols. **CO 3:** Analyze applications of IoT in real time scenario. **CO 4:** Develop web services to access/control IoT devices. **CO 5:** Deploy an IoT application and connect to the cloud
19MCADS01	BIG DATA ANALYTICS	**CO 1:** Work with big data platform and Understand the fundamentals of various big data analysis techniques

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		CO 2: Analyze the big data analytic techniques for useful business applications.
		CO 3: Design efficient algorithms for mining the data from large volumes.
		CO 4: Examine the HADOOP and Map Reduce technologies associated with big data analytics
		CO 5: Explore the applications of Big Data
19MCADS02	BIG DATA SECURITY	**CO 1:** Identify the need for security and best practices in a big data environment
		CO 2: Analyze the steps to secure big data
		CO 3: Build security in hadoop eco system
		CO 4: Assess the sensitivity of data in Hadoop
		CO 5: Outline data security and event logging

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19MCADS03	DATA ANALYTICS USING PIG AND HIVE	**CO 1:** Outline the programming constructs of Pig and database management using HiveQL **CO 2:** Write scripts using Pig latin and perform various HiveQLqueries by applying RDBMS concepts **CO 3:** Apply the concepts of Pig and Hive in simple tasks **CO 4:** Formulate and analyse different databases for different situations **CO 5:** Create real time applications
19MCANW01	CRYPTOGRAPHY AND NETWORK SECURITY	**CO 1:** Evaluate the fundamentals of networks security, security architecture, threats and vulnerabilities. **CO 2:** Compare Stream ciphers and block ciphers. **CO 3:** Apply the different cryptographic operations of public key cryptography. **CO 4:** Pertain the various Authentication schemes to simulate

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		different applications.
		CO 5: Analyze various Security practices and System security standards
19MCANW02	WIRELESS SENSOR NETWORKS	**CO 1:** Formulate the basic standardization of wireless networks.
		CO 2: Analyze the implementation of technologies related to WSN.
		CO 3: Identify and understand the security issues in ad hoc and sensor networks.
		CO 4: Compare the protocols and to promote the research work in this area.
		CO 5: Apply and solve problems in the applications of Wireless Networking Area.

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19MCANW03	HIGH SPEED NETWORKS	**CO 1:** Identify the building blocks and operation of high speed networking and ATM.
		CO 2: Analyze the cause of congestion, traffic slow down and related factors for Quality of Service Identify.
		CO 3: Apply the concepts learnt in this course to optimize performance of high-speed networks using Flow Control.
		CO 4: Compare the different architectures used for HSN.
		CO 5: Describe the protocols that are used to design high speed networks.
19MCAAD01	WEB PROGRAMMING TECHNIQUES	**CO 1:** Understand the basics of HTML tags.
		CO 2: Analyze the advanced features of HTML5.
		CO 3: Implement the use of internal and external Cascading Style Sheets (CSS) to format elements

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		on single or group of pages. **CO 4:** Compose programs for the web and other contexts using the JavaScript programming language. **CO 5:** Apply various ECMAScript 6 methods in building interactive websites.
19MCAAD02	INTERNET PROGRAMMING FRAMEWORKS	**CO 1:** Analyze React Components, the building blocks and its interaction with other web applications. **CO 2:** Design websites using various Angular features including directives, components and services. **CO 3:** Compute and build applications using Node.JS along with the combination of Bootstrap. **CO 4:** Apply the concepts of MongoDB & MySQL, the back-end databases.

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		CO 5: Utilize the conceptual and practical aspects of CSS Pre-processors and JSON
19MCAAD03	SOFTWARE DEVELOPMENT FRAMEWORKS	**CO1:** Explain the fundamental principles and practices of the agile development methods. **CO2:** Analyze the planning and execution of the agile manifesto **CO3:** Monitor the management to achieve complete product development. **CO4:** Practice the integration of development and operations in software projects. **CO5:** Present the software project by following the principles that best fit the technical and market demands
19MCAGE01	RESOURCE MANAGEMENT TECHNIQUES	**CO 1:** Identify the applications of Operations Research and methods to solve business problems**.**

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		CO 2: Apply linear programming to solve operational problem with constraints. **CO 3:** Apply transportation and assignment models to find optimal solution in warehousing and Travelling, **CO 4:** Prepare project scheduling using PERT and CPM. **CO 5:** Use optimization concepts in real world problems
19MCAGE02	FINANCIAL MANAGEMENT AND ACCOUNTING	**CO 1:** Preparation and analysis of balance sheet. **CO 2:** Predict the Classification of Costing. **CO 3:** Decide the budget preparation and control of a company. **CO 4:** Analyze the flow of funds. **CO 5:** Use Tally to implement the needs of financial accounting

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19MCAGE03	MANAGEMENT INFORMATION SYSTEMS	**CO 1:** Analyze and synthesize business information needs to facilitate evaluation of strategic alternatives.
		CO 2: Apply MIS knowledge and skills learned to facilitate development, deployment and management of information systems.
		CO 3: Predict the use of information technology for business processes.
		CO 4: Assess the use of technology of Information Systems for effective management.
		CO 5: Identify the security features and global issues in organization and society
19MCAGE04	E-COMMERCE	**CO 1:** Gain a comprehensive understanding of the E-Commerce landscape, current and emerging technology and infrastructure underpinnings of the

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		business. **CO 2:** Analyze the impact of E-commerce on business models and strategy. **CO 3:** Develop an understanding on how internet can help business grow/ Describe the infrastructure for E-commerce **CO 4:** Assess electronic payment systems **CO 5:** Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.
19MCAGE05	CYBER FORENSICS	**CO 1:** Predict the forensics fundamentals and the various technologies used to avoid computer crimes. **CO 2:** Illustrate different methods to collect and preserve digital evidence and Digital Crime Scene. **CO 3:** Identify and Analyze Forensic Technical Surveillance

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		Devices**.** **CO 4:** Evaluate the Various tools and tactics followed in military. **CO 5:** Demonstrate the Usage of surveillance tools for tracking cyber criminals
19MCAGE06	ETHICS IN COMPUTING	**CO 1:** Predict the relationship between the law, ethics and computer technology. **CO 2:** Outline the philosophical and ethical debates with the ideas and the nature of intellectual creativity. **CO 3:** Design the impact of computer technology on free speech. **CO 4:** Formulate the ethical and legal issues of the impact that computing technologies had on workplace. **CO 5:** Develop a personal standpoint in relation to Data Base

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		society and the usage of biometric data.
19MCAGE07	ENTREPRENEURSHIP DEVELOPMENT	**CO1:** Highlight the salient characteristics of successful entrepreneur **CO2:** Enumerate the competencies relevant for Entrepreneurial development. **CO3:** Delineate the growth of women Entrepreneurship in India. **CO4:** Identify the major problems faced in conducting EDPs. **CO5:** Discuss the methods of project appraisal used for small scale enterprises
19MCAGE21	RESEARCH METHODOLOGY	**CO 1:** Predict the different stages of research process. **CO 2:** Apply methods to collect best data. **CO 3:** Assess the suitable research design & work.

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		CO 4: Compare categorical and continuous measures.
		CO 5: Analyze the process of various reports writing.
19MCAGE22	DATA MINING AND DATA WAREHOUSING	**CO 1:** Practice the pre-processing operations of data.
		CO 2: Compare & contrast OLTP, OLAP and Data mining as techniques for extracting knowledge from a Data Warehouse.
		CO 3: Perform Association Rule Mining for Market Basket Analysis.
		CO 4: Design & deploy the appropriate Classification and Clustering techniques.
		CO 5: Explore the recent trends in data mining.
19MCAGE23	DIGITAL IMAGE PROCESSING	**CO 1:** To review the fundamental concepts of a digital image processing system.
		CO 2: To examine various types of images, their intensity

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		transformations and spatial filtering.
		CO 3: To analyze the different types of noises and the filters used to restore and reconstruct the images.
		CO 4: To create colour images and pseudo images with smoothening and sharpening techniques.
		CO 5: To compare the various lossy and lossless compression mechanisms.
19MCAGE24	ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS	**CO 1:** Identify problems that are amenable to solution by AI methods.
		CO 2: Formulate search problems and implement search algorithms using admissible heuristics.
		CO 3: Design and carry out an empirical evaluation of different algorithms on a predicate logic and state the conclusions that the evaluation supports.

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		CO 4: Analyze games playing as adversarial search problems and implement optimal and efficient solutions.
		CO 5: Apply the concepts of Expert Systems in machine learning
19MCAGE25	SOFT COMPUTING	**CO 1:** Explore the functional components of artificial neural networks.
		CO 2: Examine the principles of back propagation networks.
		CO 3: Expose the students to the concepts of predicting the functionalities of ART.
		CO 4: Analyze the logic principle of classical sets and fuzzy set operations in fuzzy set theory.
		CO 5: Identify the concept of fuzzification and defuzzification involved in various systems
19MCAGE26	CLOUD COMPUTING	**CO 1:** Compare the strengths and limitations of cloud

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		computing. **CO 2:** Identify the architecture, infrastructure and delivery models of cloud computing. **CO 3:** Apply suitable virtualization concept. **CO 4:** Choose the appropriate Cloud player, Programming Models and approach. **CO 5:** Address the core issues of cloud computing such as security, privacy and interoperability
19MCAGE27	ADVANCED DBMS TECHNIQUES	**CO 1:** Design the basic concepts of the advanced database design and dependencies. **CO 2:** Compare the different data models. **CO 3:** Compile the implementation concepts of storage structures. **CO 4:** Analyze on the advanced transaction management

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		techniques. **CO 5:** Discuss on the advanced databases
20MCAAD01	DATA MINING TECHNIQUES	**CO 1:** Identify the functionalities of Data Mining and various techniques to extract knowledge. **CO 2:** Analyze the methods to discover Association Rules **CO 3:** Design & deploy the appropriate Clustering techniques. **CO 4:** Outline web mining, temporal and spatial data mining **CO 5:** Examine and Explore weka techniques
20MCADA02	DATA ANALYTICS AND VISUALIZATION USING SPREADSHEETS	CO 1: Ability to analyze data is a powerful skill that helps you make better decisions CO 2: Identify the basic principles of a Pivot Table CO 3: Recognize how to use Pivot Table and Pivot chart CO 4: Use Excel's powerful functions to efficiently transform

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		mountains of raw data into clear insights
		CO 5: Use your new-found Excel skills like Descriptive Statistics and Inferential Statistics to analyze what makes a successful project.
20MCADS01	DATA COMMUNICATION & NETWORKING	CO 1: Identify the functionalities of Networking layers of both OSI and TCP/IP reference models.
		CO 2: Analyze the design issues of Datalink layer and techniques to resolve it.
		CO 3: Compare the principles of Switching and Routing algorithm.
		CO 4: Predict the TCP and UDP related procedures.
		CO 5: Outline the Application layer protocols.
20MCADS02	WIRELESS COMMUNICATION & SECURITY	**CO 1:** Identify, Predict and Evaluate MAC, SDMA, TDMA, FDMA, CDMA

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		CO 2: Demonstrate the architectures, challenges and solutions of Wireless communication **CO 3:** Assess the role of Wireless Networks in shaping the future internet. **CO 4:** Design Mobile IP to support seamless and continuous Internet connectivity **CO 5:** Design SIP to create, modify, and terminate a multimedia session over the Internet Protocol
20MCAAM01	ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS	**CO 1:** Identify problems that are amenable to solution by AI methods. **CO 2:** Formulate search problems and implement search algorithms using admissible heuristics. **CO 3:** Design and carry out an empirical evaluation of different algorithms on a predicate logic and state the

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		conclusions that the evaluation supports. **CO 4:** Analyze games playing as adversarial search problems and implement optimal and efficient solutions. **CO 5:** Apply the concepts of Expert Systems in machine learning, Examine and Explore scikit learn techniques
20MCAAM02	SOFT COMPUTING	**CO 1:** Explore the functional components of artificial neural networks.. **CO 2:** Examine the principles of back propagation networks. **CO 3:** Expose the students to the concepts of predicting the functionalities of ART. **CO 4:** Analyze the logic principle of classical sets and fuzzy set operations in fuzzy set theory. **CO 5:** Identify the concept of fuzzification and defuzzification involved in various systems.

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20MCAGE01	OFFICE AUTOMATION TOOLS	**CO 1:** Identify current and emerging word processing technologies to produce organizational documents
		CO 2: Develop, open and explore the Microsoft office Excel environment
		CO 3: Design and edit charts and graphs with the use of functions and formulas.
		CO 4: Implement and query a database using different methods
		CO 5: Generate slide presentations that include text, graphics, animation, and transitions.
20MCAGE02	FINANCIAL MANAGEMENT AND ACCOUNTING	**CO 1:** Preparation and analysis of balance sheet.
		CO 2: Predict the Classification of Costing.
		CO 3: Decide the budget preparation and control of a company.

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		CO 4: Analyze the flow of funds. **CO 5:** Use Tally to implement the needs of financial accounting
20MCAGE04	E-COMMERCE	CO 1: Gain a comprehensive understanding of the E-Commerce landscape, current and emerging technology and infrastructure underpinnings of the business. CO 2: Analyze the impact of E-commerce on business models and strategy. CO 3: Develop an understanding on how internet can help business grow/ Describe the infrastructure for E-commerce CO 4: Assess electronic payment systems CO 5: Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-

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		Commerce.
20MCAGE05	ETHICS IN COMPUTING	**CO 1:** Predict the relationship between the law, ethics and computer technology. **CO 2:** Outline the philosophical and ethical debates with the ideas and the nature of intellectual creativity. **CO 3:** Design the impact of computer technology on free speech. **CO 4:** Formulate the ethical and legal issues of the impact that computing technologies had on workplace. **CO 5:** Develop a personal standpoint in relation to DataBase society and the usage of biometric data.
20MCAGE06	RESOURCE MANAGEMENT TECHNIQUES	**CO 1:** Identify the applications of Operations Research and methods to solve business problems. **CO 2:** Apply linear programming to solve operational problem

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		with constraints.
		CO 3: Apply transportation and assignment models to find optimal solution in warehousing and Travelling,
		CO 4: Prepare project scheduling using PERT and CPM.
		CO 5: Use optimization concepts in real world problems
20MCAGE07	ENTREPRENEURSHIP DEVELOPMENT	**CO1:** Highlight the salient characteristics of successful entrepreneur
		CO2: Enumerate the competencies relevant for Entrepreneurial development.
		CO3: Delineate the growth of women Entrepreneurship in India.
		CO4: Identify the major problems faced in conducting EDPs.
		CO5: Discuss the methods of project appraisal used for small scale enterprises

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20MCAGE08	WIRELESS SENSOR NETWORKS	**CO 1:** Formulate the basic standardization of wireless networks.
		CO 2: Analyze the implementation of technologies related to WSN.
		CO 3: Identify and understand the security issues in ad hoc and sensor networks.
		CO 4: Compare the protocols and to promote the research work in this area.
		CO 5: Apply and solve problems in the applications of Wireless Networking Area.
20MCAGE09	RESEARCH METHODOLOGY	**CO 1:** Predict the different stages of research process.
		CO 2: Apply methods to collect best data.
		CO 3: Assess the suitable research design & work.

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		CO 4: Compare categorical and continuous measures. **CO 5:** Analyze the process of various reports writing.
20MCAGE10	DIGITAL IMAGE PROCESSING	**CO 1:** To review the fundamental concepts of a digital image processing system. **CO 2:** To examine various types of images, their intensity transformations and spatial filtering. **CO 3:** To analyze the different types of noises and the filters used to restore and reconstruct the images. **CO 4:** To create color images and pseudo images with smoothening and sharpening techniques. **CO 5:** To compare the various lossy and lossless compression mechanisms.
20MCAGE11	CLOUD COMPUTING	**CO 1:** Compare the strengths and limitations of cloud computing.

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		CO 2: Identify the architecture, infrastructure and delivery models of cloud computing. **CO 3:** Apply suitable virtualization concept. **CO 4:** Choose the appropriate Cloud player, Programming Models and approach. **CO 5:** Address the core issues of cloud computing such as security, privacy and interoperability