FATIMA COLLEGE

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Mary Land, Madurai - 625018, Tamil Nadu

AQAR – QUALITATIVE METRIC

2023 - 2024

Criterion 1 - Curricular Aspects

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme specific outcomes (PSOs) and Course Outcomes (COs), of the Programmes offered by the Institution.

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.
PO 5	Create, select and apply modern computing tools by understanding the limitations, with dexterity.

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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 context of technological change.

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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

Course Outcomes:

Course Code	Course Title	Nature Of The Course (Local/National/Regional/G	Course Description	Course Outcomes

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		lobal)		
20MCA101	Mathematical Foundation Of Computer Science	National	This course provides the logical, analytical and mathematical concepts that are fundamental for 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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22MCA102	Relational Database Management Systems	Global	This course provides knowledge on different issues involved in the design of a database system and it Provide strong foundation of database concepts and to introduce students to application development in DBMS.	CO 1: Understand the basic concepts of Relational Data Model, Entity Relationship Model and process of Normalization.. CO 2: Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML) CO 3: Understand and construct database using Structured Query Language (SQL) in Oracle9i environment. CO 4 Learn basics of PL/SQL and develop Programs using Cursors, Exceptions, Procedures and Functions

				CO 5: Understand and use built-in functions and enhance the knowledge of handling multiple tables.
20MCA103	Operating Systems	Global	This course provides knowledge on the concepts of abstraction, scheduling mechanisms, implementations and manages a computer's resources, especially the allocation of those resources among other programmes	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 techniques. CO 5: Analyze on the distributed systems and

				security issues.
20MCA104	Progtramming In Python	Global	This course provides the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with OOPs concept and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output	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

			formatting	programming concepts to develop dynamic interactive Python applications
20MCA105	Lab Ii – Rdbms	Global	This course provides practical knowledge in PL/SQL programming, utilizing the services provided by Oracle database in a stored procedure perspective. This also includes implementation of Subprograms, Triggers, and Cursors concepts in depth.	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.
20MCA106	Lab I – Python Programming	Global	This course provides the practical knowledge of	CO 1: Implement Math functions, Strings, List and

			implementing Python programs with loops, functions and represent compound data using lists, tuples and dictionaries.	Tuple in Python programs. CO 2: Express different Decision Making statements and Functions. CO 3: Interpret Object oriented programming in Python & File handling operations.
29MCA107	Skill Based Lab I – Linux	Global	This course provides focus on the fundamental tools and concepts of Linux and Unix OS. It gives practical exposure on topics such as LINUX environment, commands, file system, processes and	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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			utilities. Specific emphasis is given to the bash shell and user environment with several flavours of UNIX/Linux using a version of Red Hat Linux.	
20MCA108	Soft Skills I – Professional Communication	National	This course provides skills of oral and written communication to work in different environments, develop emotional sensitivity and an awareness of how to work and negotiate with people.	CO 1: Display competence in oral and written communication. CO 2: Use current technology related to the communication.

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20MCA201	Data Structures And Algorithms	Global	This course provides knowledge on several fundamental algorithms and data structures and to implement them in C++ to be an effective designer, developer, or customer for new applications.	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. CO 5: Determine and analyze the complexity of graph Algorithms.

23MCA202	Computer Networks & Communication	Global	This course provides the basic concepts, design principles and underlying technologies of 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 Internet protocols and Routing algorithm. Predict the TCP and UDP related procedures CO 4: Outline the Application layer protocols. CO 5: Examine and Explore Network Security Protocols.
20MCA203	Programming In Java	Global	This course provides an exhaustive coverage of Core Java	CO 1: Analyse the hierarchy of java classes to develop object

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| | | | programming language features like OOPS and GUI programming. | oriented programs.

CO 2: Design software in Java using Packages and Interfaces.

CO 3: Develop programs for handling Exceptions & implementing Multithreading concepts.

CO 4: Implement Concepts of AWT for Creating GUI and JDBC connectivity.

CO 5: Explore the frameworks in Java and develop applications for the basic CRUD operation using frameworks. |
| 20MCA204 | Lab Iii – Web | Global | This course provides | CO 1: Design WebPages using |

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	Technologies		information about two powerful technologies. Together, these two technologies provide a powerful platform for building database-driven Web applications.	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	Global	This course provides experiential learning in the implementation of Core 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	Global	This course provides an in-depth knowledge on the basic constructs and statistical analysis in R.	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	National	This course provides gamut of skills which facilitate the students to enhance their employability quotient	CO1: Apply quantitative techniques to solve variety of problems. CO 2: Enhance the reasoning skills for employability.

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			and to establish a stronger connect with the technical environment in which they operate. It makes them think critically and apply basic mathematics skills to interpret data, draw conclusions and solve problems.	
22MCA302	Software Engineering Principles	Global	This course provides the fundamental perception of Software Engineering which includes system requirements, finding	CO 1: Understand basic software engineering methods and practices CO 2: Analyse on software requirements and the SRS documents.

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			the effective methods to analyze, design, code, test and implement the full application with appropriate tools	CO 3: Identify the data, class and flow oriented modelling concepts. CO 4: Analyse on the design oriented concepts. CO 5: Identify the managerial aspects of Software development.
20MCA303	Full Stack Development	Global	This course gives an Overview on complete designing of both websites and applications where the developers need to work from frontend to backend development.	CO 1: Understand how to use Tailwind's responsive design utilities. CO 2: Master the creation and composition of React components CO 3: Gain proficiency in using React hooks

				CO 4: Learn to create RESTful APIs, handle middleware and manage routes. CO 5: Master the fundamental CRUD (Create, Read, Update, Delete) operations in MongoDB.
20MCA304	Application Development Frameworks	Global	This course provides an in depth understanding of application development frameworks, focusing on the essential tools and techniques required to build efficient, scalable and responsive applications. ASP.NET	CO 1: Develop responsive and interactive applications using ASP.NET frameworks. CO 2: Identify and utilize various ASP.NET controls including validation and navigation controls. CO 3: Create and manage a consistent layout across multiple pages using master pages

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			MVC gives a powerful, patterns-based way to build dynamic websites that gives full control over markup for application development	CO 4: Deploying and configuring ASP.Net MVC Applications CO 5: Apply the concept of view and models
20MCA305	Lab V - Full Stack Development	Global	This course gives overview on end-to-end development of applications. It includes both the front end and back end of an application. The front end is usually accessed by a client, and the back end forms the core of	CO 1: Develop front end and back end website applications. CO 2: Effectively manage website projects using available resources. CO 3: Apply basic design principles to present ideas, information, products, and services on websites.

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			the application where all the business logic is applied	.
20MCA306	Lab Vi – Application Development Frameworks	Global	This lab course provides the experience in creating, debugging, testing & deploying dynamic web applications. It also gives thorough coverage of the use of MVC for creating web applications.	CO 1: Create user interactive web pages using ASP.Net. CO 2: Create data binding applications using ADO.Net connectivity. CO 3: Performing Database operations for web applications using MVC.
20MCA307	Skill Based Lab Iii – Mobile Application Development	Global	This course provides knowledge of developing applications for mobiles using native	CO 1: Install and configure Android application development tools.. CO 2: Design and develop user Interfaces for the Android

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			and hybrid frameworks.	platform
				CO 3: Apply Java programming concepts to Android application development
				CO 4: Familiarise the technology and business trends impacting mobile applications.
				CO 5: Include database and maps in apps to facilitate societal centric applications
20MCA308	Soft Skill Iii- Interpersonal Skills For Corporate Readiness	Global	This course provides the skills needed to find a job and also the skills needed to excel at the time of entering a career.	CO1: Develop skills for producing high quality etiquettes at the time of interviews.
				CO2: Exhibit competencies expected by employers.
				CO 3: Demonstrate emotional intelligence and inter cultural competencies and to be ready

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				to work in teams
20MCAAD01	Data Mining Techniques	Global	This course provides the basic concepts, principles, methods, implementation techniques and applications of data mining.	CO 1: Identify the functionalities of Data Mining and various techniques to extractknowledge. 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	Global	This course	CO 1: Ability to analyze

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	Visualization Using Spreadsheets		provides knowledge to perform data analysis using Excel's most popular features.	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 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.
20MCADA03	Big Data Analytics	Global	This course provides	CO 1: Understand the fundamentals of various big

			familiarization to the important information technologies used in manipulating, storing and analyzing big data	data analysis techniques CO 2: Analyze the big data analytic techniques for useful business applications CO3: Examine the HADOOP and Map Reduce technologies associated with big data analytics CO 4: Scrutinize the various storage architecture using HDFS and Map reducing techniques CO5: Understand, Explore and deploy Hbase
20MCADA04	Data Analytics Tools & Techniques	Global	This course provides knowledge on creating applications to analyze	CO 1: Examine the programming constructs of Pig and database management

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			big data.	using HiveQL
				CO 2: Write scripts using Pig latin and perform various HiveQL queries 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
20MCADA05	Business Analytics Using R	Global	This course provides a comprehensive study on business analytics that can be applied to	CO 1: Examine the concepts around Business analytics
				CO 2: Evaluate the process of analysing a business

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			many business settings and its practical implementation using a tool	descriptively using the tool CO 3: Explore data and business analytic process CO 4: Apply various supervised and un supervised Machine learning techniques CO 5: Learn to apply different algorithms of regression for business problems
20MCADA06	Big Data Security	Global	This course provides an overview of the cutting edge and new technologies in the area of 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

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				CO 4: Assess the sensitivity of data in Hadoop CO 5: Outline data security and event logging
20MCADS01	Distributed Systems	Global	This course will be on the techniques for creating functional, usable and high performance distributed systems. This course mainly focuses on distribution and communication, data distribution, concurrency, resource sharing and protection from accidental and	CO 1: Understand the design principles in distributed systems and the architectures for distributed systems. CO 2: Apply various distributed algorithms related to clock synchronization, concurrency control, deadlock detection, load balancing, voting etc. CO 3: Analyze fault tolerance and recovery in distributed systems and

			malicious form..	algorithms for the same. CO 4: Analyze the design and functioning of existing distributed systems and file systems. CO 5: Implement different distributed algorithms over current distributed platforms
20MCADS02	Secured Wireless Communication	Global	This course provides knowledge on wireless communication and its security implications.	CO 1: Identify, Predict and Evaluate the security features in wireless environment CO 2: Demonstrate the architectures, challenges and solutions of Wireless LAN CO 3: Assess the role of Bluetooth architecture & security in wireless

				communication. CO 4: Analyse the architecture, infrastructure and security conceptions of GSM & CDPD CO 5: Study the Design aspects of wireless application protocol
20MCADS03	Cryptography & Network Security	Global	This course provides basic understanding of previous attacks on cryptosystems with the aim of preventing future attacks and to provide security using various cryptographic tools	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.

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				CO 4 Pertain the various Authentication schemes to simulate different applications. CO 5 Applying CrypTool 2 to encrypt and decrypt texts using different ciphers.
20MCADS04	Cyber Forensics	National	This course provides the investigation of computer-related crimes with the goal of obtaining evidence to be presented in a court of law.	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 Devices.

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				CO 4 Evaluate the Various tools and tactics followed in military. CO 5 Demonstrate the Usage of surveillance tools for tracking cyber criminals
20MCADS05	Cloud Security	Global	This course provides a comprehensive study on the unique security challenges and opportunities in cloud platforms and guides through the security best practices for multivendor cloud environments	CO 1 Examine the security threats in cloud platforms CO 2 Evaluate Data Asset and Identity Access Management CO 3 Manage the vulnerable cloud environment CO 4 Understand the security issues that arises over a Network CO 5 Explore the security incidents by detecting,

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				responding and recovering
20MCADS06	Web Security	Global	The course enlightens on the security considerations in the web.	CO 1 Understand the Web architecture and applications CO 2 Ascertain the concept of digital identification. CO 3 Assess the threats on privacy in the web. CO 4 Demonstrate security solutions for web servers. CO 5 Analyse the common vulnerabilities towards content providers.
20MCAAM01	Artificial Intelligence & Expert Systems	Global	This course provides the basic principles of artificial intelligence. It will cover problem	CO 1: Identify problems that are amenable to solution by AI methods. CO 2: Formulate search

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			solving paradigms, constraint propagation and search strategies in the areas of applications including knowledge representation, natural language processing, expert systems, vision and robotics.	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. 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

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20MCAAM02	Soft Computing	Global	This course provides the principal constituents of soft computing that is fuzzy logic, neural network theory and probabilistic reasoning. The course explores the features that are employed in various associated techniques.	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.
20MCAAM03	Machine Learning	Global	This course provides	CO 1Identify the concepts of

			an introduction to learn Machine Intelligence and Machine Learning Applications algorithms to solve real world problems	machine learning CO 2 Demonstrate Decision Tree learning and Bayesian Learning for classification. CO 3 Analyze the logic behind Genetic Algorithms. CO 4 Compare various set of rules available for Learning. CO 5 Propose solution for real world problems based on Inductive and Analytical Learning.
20MCAAM04	Neural Networks	Global	This course provides the basic principles of Neural Networks. It will cover Neuro computing, Layer	CO 1 Identify problems that are amenable to solution by Neural networks methods. CO 2 Formulate searching rules

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| | | | Perceptron, Pattern Association, HopFiled Net, Back Propagation Network, Probabilistic Neural Network and Application of Neural Networks | and implement Single Layer Perceptron and Multilayer Perceptron Networks.

CO 3 Design and carry out an empirical evaluation of different algorithms on Pattern Association

CO 4 Analyze Feedback and Feed forward Network and implement optimal and efficient solutions.

CO 5 Apply the application of Neural Networks in Arts, Bioinformatics and use of Neural Networks in Knowledge Extraction. |
| 20MCAAM05 | Human Computer | Global | This course introduces | CO 1 Design effective dialog for |

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			the fundamental theories and concepts of human computer interaction. It provides knowledge on analyzing interaction problems from a technical, cognitive and functional perspective	HCI CO 2 Design effective HCI for individuals and persons with disabilities CO 3 Assess the importance of user feedback CO 4 Explain the HCI implications for designing websites CO 5 Develop meaningful user interface
	Interaction			
20MCAAM06	Deep Learning	Global	The course aims to provide an understanding of different types of Deep	CO 1 Identify problems that are amenable to solution by deep networks CO 2 Formulate convolutional

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			Architectures, including Convolutional Networks and Recurrent Networks.	networks and sequence modelling for problem solving CO 3 Design and carry out an empirical evaluation of autoencoders and representation learning CO 4 Analyze structured probabilistic and Monte Carlo Methods CO 5 Apply the applications of deep learning.
20MCAGE01	E Content Development	Global	This course helps to promote content generation, adaptation and distribution of e–content through electronic media.	CO 1: Understand E-Learning with respect to its needs, challenges and benefits CO 2: Explain the components of Authoring tools

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				and E-learning standards.
				CO 3: Apply Audio editing techniques for creating podcasts. CO 4: Understand the techniques of creating customized lessons CO 5: Create videos using online tools.
20MCAGE02	Financial Management And Accounting	National	This course provides an overview of financial concepts, process and operations from a managerial perspective.	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
20MCAGE03	Organizational Behaviour	Global	This course provides solution to learn challenges and opportunities in organizations from a behavioural perspective	CO 1: Develop an Organisational Behaviour model for any type of Organization CO 2: Understand the Ethics in Decision Making CO 3: Develop and improve the quality of Leadership. CO 4: Evaluate the Common biases and eradication in Decision Making Process. CO 5: Understand how to

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				manage the Stress during a job
20MCAGE04	E-Commerce	Global	This course provides information on the combination of Internet with E-Commerce, options available for doing business on the Internet, features that helps to build E-Commerce web sites, marketing issues, payment options, security issues and customer service.	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

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				payment systems
				CO 5: Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.
20MCAGE05	Ethics In Computing	Global	This course provides the basis for ethical decision-making and the methodology for reaching ethical decisions concerning computing matters	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

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				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	Global	This course provides solution to problems in different environment that needs decision making using optimization techniques.	CO 1: Identify the applications of Operations Research and methods to solve business problems. CO 2: Apply linear programming to solve operational problem with

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				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	Global	This course provides the skills necessary to succeed as an entrepreneur. It includes the fundamentals of	CO1: Highlight the salient characteristics of successful entrepreneur CO2: Enumerate the competencies relevant for

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			starting and operating a business, developing a business plan, obtaining financing, marketing a product or service and developing an effective accounting system	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
20MCAGE08	Principles Of Artificial Intelligence	Global	This course provides the basic concepts of artificial intelligence. It will cover different strategies in various knowledge representations. It	CO 1: Familiar with Artificial Intelligence, its foundation and principles. CO 2: Explore the characteristics of intelligent agents.

			also provides the concepts of Planning, uncertainty and learning in artificial intelligence.	CO 3: Formulate Informed search strategies and implement search algorithms. CO 4: Analyze the logic behind planning and uncertainty. CO 5: Identify the concepts of learning and decision trees.
20MCAGE09	Research Methodology	Global	This course provides an overview of various methods employed in quantitative and qualitative research.	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. CO 4: Compare categorical and continuous measures.

				CO 5: Analyze the process of various reports writing.
20MCAGE10	Digital Image Processing	Global	This course provides an introduction to the basic concepts, methodologies and algorithms of digital image processing focusing image enhancement, image analysis and object recognition	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 reconstructthe images. CO 4: To create color images and pseudo images with smoothening and sharpening techniques.

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				CO 5: To compare the various lossy and lossless compression mechanisms.
20MCAGE11	Cloud Services	Global	This course provides comprehensive study of cloud concepts and capabilities across the various Cloud service models including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Business Process as a Service (BPaaS).	CO 1: Examine the characteristics of Cloud Computing and the architecture. CO 2: Define Infrastructure and Identify service models. CO 3: Relate abstraction and virtualization and cloud computing frameworks . CO 4: Manage and administrate cloud. CO 5: Explore cloud based storage and collaboration

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				technologies.
20MCAGE12	Agile Software Engineering	Global	This course provides an immersive experience in the technical, cultural and social aspects of Agile and DevOps.	CO 1: Explain the fundamental principles and practices of the agile development methods. CO 2: Analyze the planning and execution of the agile manifesto CO 3: Monitor the management to achieve complete product development. CO 4: Practice the integration of development and operations in software projects. CO 5: Present the software project by following the principles that best fit the technical and market

				demands.
23MCAGE13	Internet & Web Designing	Global	This course provides the student with foundational programming knowledge and skills for application development on the Internet.	CO 1: Use knowledge of JavaScript to create personal and/or business websites CO 2: Create effective scripts using jQuery to enhance the end user experience CO 3: Write PHP scripts to handle HTML forms CO 4: Use PHP built-in functions and custom functions for processing CO 5: Test, debug, and deploy web pages containing PHP and MySQL
23MCAGE14	Foundation Of Data		This course provides	CO 1: Define the data science

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	Science	Global	basic knowledge about Data Science to succeed as a Data Analyst. It includes the fundamentals of modeling methods to model data and provides basic introduction to R Language & Probability distribution.	process CO 2: Understand different models for data description for data science process CO 3: Gain knowledge on R Language CO 4: Use different techniques in Probability Distribution CO 5: Discuss the methods available for Delivering results
23MCAGE15	High Speed Networking Principles		This course covers the basics, architectures, protocols and technologies for high-speed networks. It includes LANs,	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

		Global	Protocols, TCP/IP Suite, Data Networks, high speed LANs, link level flow and error control, transport level traffic control, routing, MPLS switching and Network security.	Service. 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