

Vidya Academy of Science & Technology

(A unit of Vidya International Charitable Trust)

Thalakkottukara PO, Thrissur, Kerala, India, Pin- 680 501

Phone: +91-4885-287751, 287752, Fax: 288366

COURSE OUTCOMES				
Branch: DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS				
2019 SCHEME				
After the completion of the course the Students will be able to				
S. No.	SEM	Subject	CO	CO Statement
1	S1	MATHEMATICAL FOUNDATIONS FOR COMPUTING 20MCA101	MCA101.1	understand mathematical reasoning in order to read, comprehend and construct mathematical arguments
			MCA101.2	count or enumerate objects and solve counting problems and analyze algorithms
			MCA101.3	solve problems in almost every conceivable discipline using graph models
			MCA101.4	solve the linear system of equations and Calculate the eigen values and eigen vectors of matrices.
			MCA101.5	apply the principles of correlation and regression in practical problems.
2	S1	DIGITAL FUNDAMENTALS & COMPUTER ARCHITECTURE 20MCA103	MCA103.1	apply the basics of digital electronics to design and realize simple combinational logic circuits
			MCA103.2	apply the digital electronics principles to design sequential logic circuits.
			MCA103.3	understand the different design features of computer architecture, Five key components of a computer, processor and memory making technologies, addressing modes & instruction formats.
			MCA103.4	understand Processor logic design conventions and data path, pipelining and hazards, I/O organization, Interrupts and direct memory access
			MCA103.5	understand and different types of memories - RAM, ROM, Cache memory,

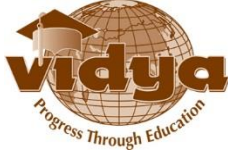


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				virtual memory etc. Apply the different memory design techniques.
3	S1	ADVANCED DATA STRUCTURES 20MCA105	MCA105.1	remember the Basic Data Structures and understand the Set Data Structure and its implementation.
			MCA105.2	understand Advanced Tree Structures for the design of efficient algorithms
			MCA105.3	understand Advanced Heap Structures suitable for solving Computational problems involving Optimisation and analysing these data structures using amortised analysis.
			MCA105.4	understand Advanced Graph algorithms suitable for solving advanced computational problems
			MCA105.5	understand the basic operation of Blockchaining along with the data structures used in it and the challenges in Blockchain data
5	S1	ADVANCED SOFTWARE ENGINEERING 20MCA107	MCA107.1	get a full view of the Software life cycle
			MCA107.2	gain a deep knowledge of Software Planning, Analysis and Design and SoftwareEngineering Models
			MCA107.3	gave a great comprehension of Coding Practices, Version Control using 'git' and Software Quality
			MCA107.4	acquire ample grasp of Design Patterns
			MCA107.5	get deeply familiarised with Software Testing and its automation
6	S1	PROGRAMMING LAB 20MCA131	MCA131.1	understands basics of Python Programming language including input/output functions, operators, basic and collection data types



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			MCA131.2	implement decision making, looping constructs and functions
			MCA131.3	design modules and packages - built in and user defined packages
			MCA131.4	implement object-oriented programming and exception handling
			MCA131.5	create files and form regular expressions for effective search operations on strings and files.
7	S1	WEB PROGRAMMING LAB 20MCA133	MCA133.1	explore markup languages features and create interactive web pages using them.
			MCA133.2	learn and design client-side validation using scripting languages.
			MCA133.3	design front end web page and connect to the back-end databases.
			MCA133.4	do Client-side & Server-side scripting
			MCA133.5	do Client-side & Server-side scripting
8	S1	DATA STRUCTURES LAB 20MCA135	MCA135.1	use Debuggers, Profilers and advanced Compiler options.
			MCA135.2	implement the Set and Disjoint Set Data Structures.
			MCA135.3	understand the practical aspects of Advanced Tree Structures.
			MCA135.4	realise Modern Heap Structures for effectively solving advanced Computational problems
			MCA135.5	implement Advanced Graph algorithms suitable for solving advanced computational problems.
9	S2	ADVANCED DATABASE MANAGEMENT SYSTEMS 20MCA102	MCA102.1	understand the fundamentals of relational database systems including: data models, database architectures and ER features.
			MCA102.2	analyze and apply the different normalization techniques.

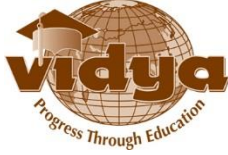


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			MCA102.3	assess the basic issues of transaction processing and concurrency control.
			MCA102.4	understand the roles that databases play in organizations and familiarize with basic database storage, file organization, database accessing techniques
			MCA102.5	understand the basics of query processing, object-oriented, distributed databases.
10	S2	ADVANCED COMPUTER NETWORKS 20MCA104	MCA104.1	comprehend the terminology and concepts of basic communication model, analyse the protocol layers and design application layer protocols
			MCA104.2	understand and analyse the various transport layer protocols
			MCA104.3	compare and contrast various routing algorithms in the network layer.
			MCA104.4	understand and analyse the concepts of link layer and physical layer.
			MCA104.5	understand how modern cellular and wireless networks work
11	S2	VIRTUALISATION AND CONTAINERS 20MCA168	MCA168.1	understand the basics of virtualization technology, architecture, limitations and applications.
			MCA168.2	apply Networking Principles to setup virtual machines and connect to the network
			MCA168.3	understand the basics of VM life cycle, VM migrations, VM scheduling and load balancing
			MCA168.4	understand Container fundamentals including how to configure and set up a container
			MCA168.5	understand the basics of security, troubleshooting and monitoring aspects in container technology

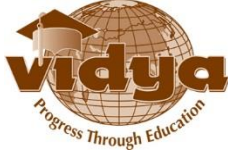


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12	S2	ADVANCED OPERATING SYSTEMS 20MCA172	MCA172.1	identify synchronization problems in operating systems and issues in distributed systems
			MCA172.2	explain classification of mutual exclusion algorithms and security violations.
			MCA172.3	explain the design of distributed shared memory and issues in load distribution.
			MCA172.4	explain design issues and synchronization in multiprocessor systems.
			MCA172.5	explain synchronization and concurrency control in database systems.
13	S2	EMBEDDED SYSTEMS 20MCA184	MCA184.1	understand the basic concepts of Embedded Systems and its Applications.
			MCA184.2	demonstrate the role of individual components involved in a typical embedded system
			MCA184.3	learn about the co-design approach for embedded hardware and firmware development.
			MCA184.4	understand the concepts involved in Embedded System Design and development Process.
			MCA184.5	learn about techniques used in the Integration and Testing of Embedded Hardware and Firmware
14	S2	ARTIFICIAL INTELLIGENCE 20MCA188	MCA188.1	apply the steps needed to provide a formal specification for solving the problem.
			MCA188.2	apply and analyze the different types of control and heuristic search methods to solve problems
			MCA188.3	understand various Game theory problems & Knowledge structures
			MCA188.4	formulate knowledge representation and examine resolution in predicate and propositional logic



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			MCA188.5	apply feasible planning and learning techniques to solve non-trial problems
15	S2	OBJECT ORIENTED PROGRAMMING LAB 20MCA132	MCA132.1	understand object-oriented concepts and design classes and objects to solve problems
			MCA132.2	implement arrays and strings.
			MCA132.3	implement object-oriented concepts like inheritance, overloading and interfaces
			MCA132.4	implement packages, exception handling, multithreading and generic programming. Use java.util package and Collection framework
			MCA132.5	develop applications to handle events using applets
16	S2	ADVANCED DBMS LAB 20MCA134	MCA134.1	design and build a simple relational database system and demonstrate competence with the fundamentals tasks involved with modelling, designing and implementing a database.
			MCA134.2	apply PL/SQL for processing databases
			MCA134.3	comparison between relational and non-relational (NoSQL) databases and the configuration of NoSQL Databases.
			MCA134.4	apply CRUD operations and retrieve data in a NoSQL environment.
			MCA134.5	understand the basic storage architecture of distributed file systems
17	S2	NETWORKING & SYSTEM ADMINISTRATION LAB	MCA136.1	install and configure common operating systems.
			MCA136.2	perform system administration tasks.
			MCA136.3	install and manage servers for web applications
			MCA136.4	

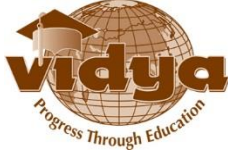


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				write shell scripts required for system administration.
			MCA136.5	acquire skill sets required for a DevOps.
18	S3	DATA SCIENCE & MACHINE LEARNING 20MCA201	MCA201.1	discuss the fundamental concepts of data science and data visualization techniques.
			MCA201.2	Explain the basics of machine learning and use lazy learning and probabilistic learning algorithms to solve data science problems.
			MCA201.3	Explain the basics of machine learning and use lazy learning and probabilistic learning algorithms to solve data science problems.
			MCA201.4	Solve data science problems using neural networks and support vector machines.
			MCA201.5	Discuss clustering using k-means algorithm and evaluate & improve the performance of machine learning classification models.
			19	S3
MCA203.2	explain the concepts of Greedy Strategy and Dynamic Programming to use it in solving real world problems.			
MCA203.3				



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				explain the Branch & Bound technique, Backtracking technique and Lower bounds.
			MCA203.4	explain the Branch & Bound technique, Backtracking technique and Lower bounds.
			MCA203.5	discuss the concepts of Approximation and Randomised Algorithms.
20	S3	CYBER SECURITY AND CRYPTOGRAPHY 20MCA263	MCA263.1	Explain various types of security attacks, security mechanisms, security services and classical encryption techniques
			MCA263.2	make use of Symmetric and Asymmetric encryption techniques to solve cryptographic problems.
			MCA263.3	Describe the concepts of message authentication codes, hash functions and digital signing techniques for ensuring secure transactions.
			MCA263.4	discuss security services in Application, Transport and Network layers.
			MCA263.5	explain common web application security vulnerabilities and various prevention mechanisms.
21	S3	COMPILER DESIGN 20MCA269	MCA269.2	



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				develop top down and bottom-up parsers to perform syntax analysis using context free grammar.
			MCA269.3	explain syntax directed translation schemes and type checking for a given grammar.
			MCA269.4	distinguish different intermediate code representations and generate intermediate code for statements in high level languages.
			MCA269.5	describe various code optimization techniques and generate machine dependent code.
22	S3	INTERNET OF THINGS 20MCA 281	MCA281.1	describe the main concepts and features of the IOT paradigm.
			MCA281.2	discuss Fog computing, TinyOS - nesC and programming frameworks for IOT
			MCA281.3	describe the data management techniques applied to the IOT environment.
			MCA281.4	explain security, and privacy in IOT environments
			MCA281.5	discuss key enablers and solutions to enable practical IoT systems
23	S3	SOCIAL NETWORK ANALYSIS- 20MCA289	MCA289.1	explain the basic concepts of semantic web and social network analysis.
			MCA289.2	describe the ontology-based knowledge representation techniques in social network.
			MCA289.3	discuss aggregation of social network information and

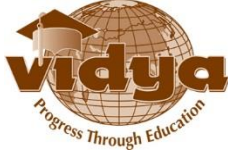


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				representation of social individuals and social relationships.
			MCA289.4	describe the structure of the Web and Facebook as a graph and the algorithms for searching and community discovery
			MCA289.5	explain the general architecture of a search engine and specifically the Google search engine architecture.
24	S3	MOBILE APPLICATION DEVELOPMENT LAB 20MCA243	MCA243.1	Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator
			MCA243.2	write simple programs and develop small applications using the concepts of UI design, layouts and preferences
			MCA243.3	develop applications with multiple activities using intents, array adapter, exceptions and options menu.
			MCA243.4	implement activities with dialogs, spinner, fragments and navigation drawer by applying themes
			MCA243.5	develop mobile applications using SQLite.
25	S3	DATA SCIENCE LAB 20MCA241	MCA241.1	use different python packages to perform numerical calculations, statistical computations and data visualization
			MCA241.2	use different packages and frameworks to implement regression and classification algorithms



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			MCA241.3	use different packages and frameworks to implement text classification using SVM and clustering using k-means
			MCA241.4	use different packages and frameworks to implement text classification using SVM and clustering using k-means
			MCA241.5	implement programs for web data mining and natural language processing using NLTK
26	S3	MINI PROJECT 20MCA245	MCA245.1	identify a real-life project which is useful to society / industry
			MCA245.2	interact with people to identify the project requirements
			MCA245.3	apply suitable development methodology for the development of the product / project
			MCA245.4	analyse and design a software product / project Level 4:
			MCA245.5	test the modules at various stages of project development
27	S4	SEMINAR 20MCA244	MCA244.1	annotate the ideas presented in technical papers
			MCA244.2	comprehend a concept by referring different technical documents
			MCA244.3	prepare technical documents
			MCA244.4	resent a topic before an audience
			MCA244.5	interact with the audience

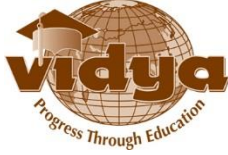


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28	S4	MAIN PROJECT 20MCA246	MCA246.1	identify a real-life project which is useful to society / industry
			MCA246.2	interact with people to identify the project requirements
			MCA246.3	apply suitable development methodology for the development of the product / project
			MCA246.4	analyse and design a software product / project Level 4:
			MCA246.5	test the modules at various stages of project development
29	S4	COMPREHENSIVE VIVA 20MCA242	MCA242.1	articulate the concepts in the core courses learned through this programme.
			MCA242.2	attend technical interviews with confidence.
			MCA242.3	interpret questions and answer them with clarity
			MCA242.4	make use of the concepts learned through this programme in future
			MCA242.5	apply the technologies and coding knowledge used in the project work in future.



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