Madhav Institute of Technology & Science, Gwalior- 474 005 (A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

		Computer Science Engineering Year 2018-2022
Semester		Course Outcome
		100203: Basic Computer Engineering
	CO1	Define the fundamentals of computer system.
	CO2	Outline the various components of computer system.
	CO3	Design, implement, test and debug the computer programs using programming language.
	CO4 CO5	Analyze the usage of various system & application softwares to manage computer system and data. Develop the ability to design computer programs to solve real world problems.
	CO5	Elaborate the working of Internet.
		100202:Energy, Environment, Ecology & Society
_	CO1	List and describe various energy resources, their conversion to electrical power and role in technological & amp; economic development
Semester 1	CO2	Update themselves with national/international power status and renewable power development targets & amp; missions
nes	CO3	Understand the impact of pollution on the ecosystem and control policies adopted atnational/international levels
Sei	CO4	Illustrate the concepts of ecosystems and their conservation
	CO5 CO6	Solve practical problems of society in a sustainable and ethical manner Fulfill their professional duties keeping in mind the environmental safety, health, and welfare of public.
		1100001:Engineering Mathematics-II
	CO1	Retrieve the engineering application problems to related course content
	CO2	Describe the basic concept of Complex Variable, Linear Programming Problem and Numerical Methods
	CO3	Classify Complex Variable, Linear Programming Problem and Numerical Methods so as to apply the knowledge in solving routine problems
	CO4	Inculcate analytical and computational skill to interpret the topics for engineering problems
	CO5	Analyze the Complex Variable, Linear Programming Problem and Numerical Methods to examine the real world problem
	CO6	Evaluate and Implement suitable techniques relevant for industries and contribute to the society
	CO1	150301:Digital Electronics Illustrate various number systems, Binay codes and its application in digital design.
	CO1 CO2	Identify the logic functions, circuits, truth tables and also apply the laws of Boolean algebra to simplify circuits and expressions.
	CO2	Develop the formal procedures for the analysis and design of combinational circuits.
	CO4	Analyse sequential circuit's components and their usability in digital circuits.
	CO5	Compare the concept of memories, programmable devices and digital ICs.
	C06	Design and analyze circuits for digital arithmetic.
		150302: Data Structures
	C01	Outline the basics of algorithms and their performance criteria.
	CO2 CO3	Explain the working of linear and non-linear data structures. Identify the appropriate data structure to solve the specific problems.
	C03	Analyse the performance of various data structures and their applications.
	C04	Evaluate the time and space complexities of various data structures and their applications.
	C06	Design the optimal algorithmic solutions for various problems
		150303:Computer Graphics
	CO1	Illustrate the fundamental concepts of Computer Graphics, hardware & software components and its applications.
	CO2	Explain various graphical image genration & manipulation methods and algorithms.
	CO3	Apply various methods of generation & manipulation of images for creating graphical images and color models.
	CO4 CO5	Explain various rendering, illumination and color models of realistic image or pictures using image processing techniques. Discuss various methods to create natural seen & realistic images in 2D & 3D space.
ter	CO5	Design & analysis of various graphical image processing techniques and animation.
Semester 3	200	150304: Object Oriented Programming & Methodology
Sei	CO1	Relate the concepts and significance of OOPs in real world.
	CO2	Demonstrate adeptness of object oriented programming to solve problems using Object oriented concepts
	CO3	Apply object oriented programming to develop solutions of problems using standard language constructs.
	CO4	Analyze data flow diagrams and flow charts for small/ moderate problems
	C05	Determine how to simulate the problem in field of Operating system, Computer networks and real world problems.
	CO6	Develop software using concepts of objects, associations and integrity constraint. 150305: Hardware LAB
	C01	Explain basics of different computer peripherals and interfaces.
	CO2	Demonstrate architecture of various computer hardware devices and their functioning.
	CO3	Demonstrate the details of system buses, memory system, and I/O interfaces.
	CO4	Identify the existing configuration of the computers peripherals and creating wireless network through the access point.
	CO5	Analyze progress in contemporary peripherals and bus systems.
	CO6	construct a networking based on IPv4 address scheme.
	COL	100004:Cyber Security Tall the basic terminologies of other security
	CO1 CO2	Tell the basic terminologies of cyber security Explain the basic concepts of Networking and Internet
	CO2 CO3	Apply various methods used to protect data in the internet environment in real world situations
	CO4	Discover the Concepts of IP security and Architecture
	C05	Compare various types of Cyber Security Threats/ Vulnerabilities
	CO6	Develop the understanding of Cyber Crime Investigation and IT Act 2000
		150401:Design & Analysis of Algorithms
	C01	Define the basic properties of algorithm.
	CO2	Analyze the complexity of an algorithm.
	CO3	Apply mathematical preliminaries to analyse and design stages of different types of algorithms.

	CO4	Examine algorithms for a number of important computational problems.
	CO5	Compare different design techniques to develop algorithms for various computational problems.
	CO6	Build the general principles and good algorithm design techniques to develop efficient computer algorithms.
		150402:Database Management System
	CO1	Demonstrate the concepts of different type of database system.
	CO2	Apply Relational algebra concepts to design database system.
	CO3	Make use of queries to design and access database system.
	CO4	Analyze the evaluation of transaction processing and concurrency control.
	CO5	Determine the optimize database for real world applications.
	CO6	Design a database system for a real world application.
		150403:Operating System
	C01	Outline the basic concept of operating systems
	CO2	Analyze the working of operating system
	CO3	Examine the working of various scheduling/allocation approaches
•	CO4	Measure the performance of various scheduling/allocation approaches
	C05	Compare the various operating system problems/issues
2	CO6	Develop the Solution of various operating system problems/issues
5		150404:Computer System Organization
2	C01	Demonstrate the computer architecture for defining basic component and functional unit.
	CO2	Recall different number system and solve the basic arithmetic operations of signed and unsigned numbers.
	CO3	Develop the fundamental concept to understand the working of microprocessor.
	C03	Explain the basic concept of input output organization.
	<u>CO5</u>	Compare various memory and mapping techniques.
	CO6	Develop the skill of writing assembly language programming.
		150405:Programming Lab
	CO1	Demonstrate the fundamentals of computer programming
	CO2	Read, understand and trace the execution of program
	CO3	Develop Conditional and Iterative Statements
	CO4	Design the program using functions
	CO5	Implement the programs using Derived and User defined data types
	CO6	Design program for a given problem using computer programming
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		100005:Project Management & Financing
	CO1	Know the attributes of project and its different phases.
	CO2	Develop the project network based on work breakdown structure and esimation of activity durations
	CO3	Analyze the project network and make decide the various alternates.
	CO4	Evaluate the optimum cost of project for assigned deadlines.
	CO5	Understand the different options to arrange the finances to complete it within stipulated time
		1000006:Disaster Management
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Semester-4

Semester 5

	CO1	Design solutions to real world problems
	CO1 CO2	Express the technical ideas, strategies and methodologies
	CO2 CO3	Utilize new tools, algorithms, techniques to obtain solution of the project
	CO4	Evaluate the performance of the prototype/ results
	CO5	Able to locate and use technical information from multiple sources.
	CO6	Demonstrate the ability to communicate effectively in speech and writing
		100007:Disaster Management
(C01	CO1: Identify disaster prevention and mitigation approaches
	CO2	CO2: Classify global and national disasters, their trends and profiles
	CO3	CO3: Determine the impacts of various disasters
	CO4	CO4: Apply Disaster Risk Reduction in management
	CO5	CO5: Infer the linkage between disasters, environment and development
		150601: Compiler Design
	CO1	Recall the concepts of finite automata and context free grammar
	CO2	Build the concept of working of compiler
	CO3	Examine various parsing techniques and their comparison
	CO4	Compare various code generation and code optimization techniques.
	CO5	Analyze different tools and techniques for designing a compiler
	<u>CO6</u>	Design various phases of compiler
	CO1	150602: Computer Networks
	C01	Explain the fundamental concepts of Computer Networks. Illustrate the basic taxonomy & terminologies of computer network protocols.
	CO2 CO3	Develop a concept for understanding advance computer network.
	C03	Build the skill of IP addressing and routing mechanism
	C04 C05	Predict the performance of computer network in congestion and Internet.
	C05 C06	Construct the network environment for implementation of computer networking concept.
		150603:Minor Project - II
	CO1	Able to formulate a real problem
	CO2	Express the technical ideas, strategies and methodologies
	CO3	Utilize the new tools, algorithms, techniques to obtain solution of the project
	CO4	Test and validate the develop the prototype/results
	CO5	Write a project report
	CO6	Present the oral demonstration
		(DE-1)150611:Network & Web Security
	CO1	Explain cryptographic algorithms, hash algorithms and authentication mechanisms.
Semester 6	CO2	Illustrate fundamentals of number theory, attacks and security principles.
este	CO3	Apply number theory and various algorithms to achieve principles of security.
ый Б	CO4	Analyze the cause for various existing network attacks and describe the working of available security controls
ň	CO5	Examine the vulnerabilities in IT infrastructure.
	<u>CO6</u>	Predict the attacks and controls associated with IP, transport-level, web and e-mail security.
	COL	(DE-1)150612: Image Processing Explain different modalities and current techniques in image acquisition.
	CO1 CO2	Classify spatial and fequency domain techniques in image processing.
	CO2	Apply image processing techniques to enhance visual images.
	CO4	Analyze the constraints in image processing when dealing with real problems
	C05	
		Evaluate various enhancement, restoration and retrieval techniques of image processing
	ICO6	Evaluate various enhancement, restoration and retrieval techniques of image processing Design a system using mathematical models and principle of digital image processing for real world problems
	<u>CO6</u>	Evaluate various enhancement, restoration and retrieval techniques of image processing Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing
	CO6 CO1	Design a system using mathematical models and principle of digital image processing for real world problems
		Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing
	CO1 CO2 CO3	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications.
	CO1 CO2 CO3 CO4	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology.
	CO1 CO2 CO3 CO4 CO5	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system elassify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications.
	CO1 CO2 CO3 CO4	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication fechnology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks.
	CO1 CO2 CO3 CO4 CO5 CO6	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures
	CO1 CO2 CO3 CO4 CO5 CO6 CO1	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's
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	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system elassify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Evaluate the time/ space complexities of various data structures & their applications
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	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO6	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communication technology. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Evaluate the time/ space complexities of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Evaluate the time/ space complexities of various data structures & their applications Design the optimal algorithmic solutions, for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python apply different Decision-Making statements and Functions
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication of mobile and wireless communications. examine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO1 CO2 CO3 CO4	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. demonstrate the infrastructure to develop mobile communications system classify the different generations and technology for mobile communication technology. determine the working of different protocols of wireless mobile communication of mobile and wireless communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structures & their applications Evaluate the time/ space complexities of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python analyze the different File handling operations
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO3 CO4 CO5 CO6	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python analyze the different File handling operations develop Client-Server network applications using Python I00008:Intellectual Property Rights
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO2 CO3 CO4 CO5 CO6 CO4 CO5 CO6 CO6	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. elassify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. examine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. COC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python analyze the different File handling operations develop Client-Server network applications in Python and evaluate different database operations develop Client-Server network applications in Python and evaluate different database operations develop Client-Server network applications in python analyze the knowledge of Intellectual Property and its protection through various laws
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO3 CO4 CO5 CO5 CO6 CO5 CO6 CO6 CO6 CO1 CO2	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. classify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication of mobile and wireless communications. examine the working of different protocols of wireless mobile communication of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. (OC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Evaluate the time/ space complexities of various data structures & their applications Design to potimal algorithmic solutions, for yaious data structures in Python apply different Decision-Making statements and Functions identify the Object-oriented programming in Python analyze the different fiel handling operations design GUI Applications in Python and evaluate different database operations develop Client-Server network applications using Python I00008:Intellectual Property Rights Imbibe the knowledge of IPR for professional development
	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO2 CO3 CO4 CO5 CO6 CO4 CO5 CO6 CO6	Design a system using mathematical models and principle of digital image processing for real world problems (DE-1)150613:Mobile Computing explain the basic concepts of mobile telecommunications system. elassify the different generations and technology for mobile communications. examine the working of different protocols of wireless mobile communication technology. determine the importance of each technology suitable for different situation of mobile and wireless communications. examine the importance of each technology suitable for different situation of mobile and wireless communications. develop protocols for Adhoc and infrastructure based wireless networks. COC-1) 900106: Data Structures Outline the basics of algorithms and their performance criteria's Explain the working of linear / Non linear data structures Identify the appropriate data structure to solve specific problems Analyze the performance of various data structures & their applications Design the optimal algorithmic solutions for various problems (OC-1) 900107:Python Programming explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python analyze the different File handling operations develop Client-Server network applications in Python and evaluate different database operations develop Client-Server network applications in Python and evaluate different database operations develop Client-Server network applications in python analyze the knowledge of Intellectual Property and its protection through various laws

Semester 6

C O 5	create awareness amidst academia and industry of IPR and Copyright compliance
CO6	deliver the purpose and function of IPR and patenting
	170703: Creative Problem Solving
C O1	Define a Structured Problem Solving Process
C O2	Understand Cause-Effect- Symptom-Problem Relationships in Problem Definition
C O3	Apply Cause-Effect Tools and Techniques and Develop Root- Cause Analysis
C O 4	Apply Idea Generation Tools and Techniques in Formulating Creative Solutions
C O 5	Apply Evaluative Tools and Techniques for Decision Making Process
C O 6	Identify Strategic Considerations in Evaluating Risks and Implementing Solutions
	(DE-3) 150711: Networking with TCP/IP
C O1	define the concept of computer network and various layered architecture.
C O2	compare the classless and class full addressing of IPV4.
C O3	identify the different types of networking devices and their functions within a network.
C O 4	analyze various protocols of computer networks for assisting network design and implementation.
C O 5	design client server applications and communication model and protocols for communication.
C O 6	elaborate various TCP/IP protocol for achieving multimedia and security services.
	(DE-3) 150712: Data Mining & Warehousing
01	Illustrate various tools of Data Mining and their techniques to solve the real time problems
02	Apply data preprocessing and data quality for construction of data warehouse
C O3	Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data
C O 4	Develop various classification algorithms for data using data mining.
05	Make use of data mining methods for identification of association for transactional databases.
C O 6	Analyse data mining for knowledge discovery & prediction
001	(DE-3) 150713: Distributed Systems
CO1	tell the basic elements and concepts related to distributed system technologies
CO2	demonstrate knowledge of the core architectural aspects of distributed systems.
CO3	identify how the resources in a distributed system are managed by algorithm.
CO4	examine the concept of distributed file system and distributed shared memory.
C O 5	compare various distributed system algorithms for solving real world problems.
C O 6	develop application for achieving various services of distributed system
201	(DE-4) 150754: Cloud Computing
CO1	List various strengths and limitations of cloud computing.
C O2	Explain the architecture, infrastructure and delivery models of cloud computing
	Analy mitchle vistnelization concerts
C O3	Apply suitable virtualization concepts.
CO3 CO4	Analyse various programming models and approaches for cloud computing.
CO3 CO4 CO5	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment.
CO3 CO4	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing.
CO3 CO4 CO5 CO6	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security
CO3 CO4 CO5	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture.
CO3 CO4 CO5 CO6 CO1	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 .
CO3 CO4 CO5 CO6 CO1 CO2	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture.
CO3 CO4 CO5 CO6 CO1 CO2 CO3	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network.
CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation.
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CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO1 CO2 CO3	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data
CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO3 CO4	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining.
CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO3 CO4 CO3 CO4 CO5	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases.
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CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO6	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 900221 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications.
CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO5 CO6 CO1 CO2 CO6	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. [Ullustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery prediction (OC-3) 900221 Artificial Intelligence and its real-world applications.
C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C05 C06 C06 C06 C06 C06 C06 C06 C06 C06 C06	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate the various seraching algorithms used to solve AI problems. Utilize the several techniques of Knowledge Representation to deal with AI problems.
C03 C04 C05 C06 C01 C02 C03 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C06 C06 C06 C06 C06 C06 C06 C06 C06	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing environment. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 900221 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate the various seraching algorithms used to solve AI problems. Utilize the serveral techniques of various algorithm used in AI.
C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C02 C03 C04 C02 C03 C04 C02 C03 C04 C05 C06 C06 C06 C06 C06 C06 C06 C06 C06 C06	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 90021 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate the various seraching algorithms used to solve AI problems. Analyze the performance of various
C03 C04 C05 C06 C01 C02 C03 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C06 C06 C06 C06 C06 C06 C06 C06 C06	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 900211 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate twarious seraching algorithms used to solve AI problems. Analyze the performance of Various algorithm used in AI. Evaluate programming methods and algorithmic principles in puzzle solving techniques. Formulate an strategy to solve the real-world problems by various applications of AI.
C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C01 C02 C03 C04 C02 C03 C04 C05 C04 C05 C06 C06 C06 C06 C06 C06 C06 C06 C06 C06	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing environment. Predict various practical applications of cloud computing environment. OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. Develop various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 900211 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate the various seraching algorithm used to solve AI problems. Analyze the performance of various algorithm used in AI. Evaluate programming methods and algorithm used in AI. Evaluate programming methods and algorithm used in AI. Evaluate programming methods and algorithm ic principles in puzzle solving techniques. Formulate an strategy to solve the real-world applications of AI. (OC-3) 900222 Computer Networks
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C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C05 C06 C05 C06 C07 C07 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various security mechanisms for cloud computing environment. Predict various security mechanisms for cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. delaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (OC-3) 900221 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate the various seraching algorithms used to solve AI problems. Analyze the performance of various algorithm used in AI. Evaluate programming methods and algorithms used in Sulve applications of AI. Evaluate programming methods and algorithms used in Sulve applications of AI. Evaluate programming methods and algorithms and authentication mechanisms. Illustrate fundamentals of number theory, attacks and security principles. Apply number theory and various algorithms to achieve p
C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C06 C05 C06 C07 C07 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various security mechanisms for cloud computing environment. Predict various security mechanisms for cloud computing environment. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warchousing (Develop various data bases and modeling of data warehouse definity avarious tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse (OC-3) 900221 Artificial Intelligence (OC-3) 900221 Artificial Intelligence (OC-3) 900221 Artificial Intelligence (OC-3) 900221 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and is real-world applications. Illustrate the various seraching algorithms used to solve AI problems. Unitize the serveral techniques of Knowledge Representation to deal with AI problems. Analyze the performance of various algorithm used in AI. Evaluate programming methods and algorithms used in solve and compares. Formulate an strategy to solve the real-world problems. (OC-3) 900222 Computer Networks Analyze the performance of various algorithms and authentication mechanisms. Illustrate fundamentals of number theory, attacks and security principles. Apply number theory and various algorithms and authentication mechanisms. Illustrate fundamentals of number theory, attacks and security principles. Apply number theory and va
C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C05 C06 C06 C07 C07 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing environment. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4 . identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. claborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (CC-3) 900221 Artificial Intelligence (CC-3) 900221 Computer Networks (CC-3) 900222 Computer
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C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C04 C05 C06 C06 C06 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various practical applications of cloud computing. (OC-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classes and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. elaborate various TCP/IP protocol for achieving multimedia and security services. Illustrate various to folta Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for knowledge discovery & prediction (UC-3) 900221 Artificial Intelligence Tell the fundamental concepts of Artificial Intelligence and its real-world applications. Ultize the several techniques
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C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C04 C05 C06 C04 C05 C06 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various spractical applications of cloud computing. (0C-2) 900209: Network Security define the concept of computer network and various layered architecture. compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. claborate various TCP/IP protocol for achieving multimedia and security services. (OC-2) 900210: Data Mining & Warehousing Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warehouse Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining for Knowledge discovery & prediction Illustrate the various seraching algorithms used to solve A I problems. Utilize the several techniques of Kno
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C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C05 C06 C01 C05 C06 C01 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C04 C05 C06 C07 C05 C06 C07 C07 C07 C07 C07 C07 C07 C07 C07 C07	Analyse various programming models and approaches for cloud computing. Elaborate various security mechanisms for cloud computing environment. Predict various spractical applications of cloud computing. Interventional environment of the concept of computer network and various layered architecture. Compare the classless and class full addressing of IPV4. identify the different types of networking devices and their functions within a network. analyze various protocols of computer networks for assisting network design and implementation. design client server applications and communication model and protocols for communication. claborate various TCPIP protocol for achieving multimedia and security services. Illustrate various tools of Data Mining and their techniques to solve the real time problems Apply data preprocessing and data quality for construction of data warchouse Identify various data bases and modeling of data warchouse and comparing various methods for storing & retrieving data from different data Develop various classification algorithms for data using data mining. Make use of data mining methods for identification of association for transactional databases. Analyse data mining methods for identification of association for transactional databases. Illustrate the various seraching algorithms used to solve AI problems. Utilize the several techniques of Knowledge Representation to deal with AI problems. Analyse the rearformance of various lagorithms used in oxil to real-world applications. Illustrate fundamental concepts of Artificial Intelligence and its real-world applications. Illustrate fundamental concepts of Artificial Intelligence and the problems. Analyze the cause for various algorithms and authentication mechanisms. Illustrate fundamental solution real-world problems by various applications of AI. Evaluate programming methods and algorithmic principles in puzzle solving techniques. Apply number theory and various algorithms to achiever principles of security. Analyze the cause for various algo
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Semester 7

Semester 8

CO1	Design solutions to real world problems
CO2	Express the technical ideas, strategies and methodologies
CO3	Utilize new tools, algorithms, techniques to obtain solution of the project
CO4	Evaluate the performance of the prototype/ results
CO5	Able to locate and use technical information from multiple sources.
CO6	Demonstrate the ability to communicate effectively in speech and writing
	900619: Introduction to Internet of Things
CO1	Explain internet of things, evolution of IoT, applications of IoT
CO2	classify IoT architecture, IoT service life cycle and application of device/cloud collaboration
CO3	Apply the concept of IoT in real world scenario
CO4	Analyse security and privacy in the IoT
CO5	choose appropriate framework for distributed data analysis for IoT and anomaly detection
CO6	develop small low cost embedded systems