

Madhav Institute of Technology & Science, Gwalior- 474 005

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Computer Science Engineering

Year 2019-2023

Semester	Course Outcome
Semester 1 & II	100202:Energy, Environment, Ecology & Society
	C01 List and describe various energy resources, their conversion to electrical power and role in technological & economic development
	C02 Update themselves with national/international power status and renewable power development targets & missions
	C03 Understand the impact of pollution on the ecosystem and control policies adopted at national/international levels
	C04 Illustrate the concepts of ecosystems and their conservation
	C05 Solve practical problems of society in a sustainable and ethical manner
	C06 Fulfill their professional duties keeping in mind the environmental safety, health, and welfare of public.
	100203: Basic Computer Engineering
	C01 Define the fundamentals of computer system.
	C02 Outline the various components of computer system.
	C03 Design, implement, test and debug the computer programs using programming language.
	C04 Analyze the usage of various system & application softwares to manage computer system and data.
	C05 Develop the ability to design computer programs to solve real world problems.
	C06 Elaborate the working of Internet.
	150211: Data Structures
	C01 Outline the basics of algorithms and their performance criteria's
	C02 Explain the working of linear / Non linear data structures
	C03 Identify the appropriate data structure to solve specific problems
	C04 Analyze the performance of various data structures & their applications
	C05 Evaluate the time/ space complexities of various data structures & their applications
	C06 Design the optimal algorithmic solutions for various problems
	150212:Object Oriented Programming & Methodology
	C01 Relate the concepts and significance of OOPs in real world.
	C02 Demonstrate adeptness of object oriented programming to solve problems using Object oriented concepts
	C03 Apply object oriented programming to develop solutions of problems using standard language constructs.
	C04 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.
	C06 Develop software using concepts of objects, associations and integrity constraint.
	150213:Digital Electronics
	C01 Illustrate various number systems, Binay codes and its application in digital design.
	C02 Identify the logic functions, circuits, truth tables and also apply the laws of Boolean algebra to simplify circuits and expressions.
	C03 Develop the formal procedures for the analysis and design of combinational circuits.
	C04 Analyse sequential circuit's components and their usability in digital circuits.
	C05 Compare the concept of memories, programmable devices and digital ICs.
	C06 Design and analyze circuits for digital arithmetic.
	1100001:Engineering Mathematics-II
	C01 Retrieve the engineering application problems to related course content
	C02 Describe the basic concept of Complex Variable , Linear Programming Problem and Numerical Methods
	C03 Classify Complex Variable , Linear Programming Problem and Numerical Methods so as to apply the knowledge in solving routine
	C04 Inculcate analytical and computational skill to interpret the topics for engineering problems
	C05 Analyze the Complex Variable, Linear Programming Problem and Numerical Methods to examine the real world problem
	C06 Evaluate and Implement suitable techniques relevant for industries and contribute to the society
Semester 3	150301:Digital Electronics
	C01 Illustrate various number systems, Binay codes and its application in digital design.
	C02 Identify the logic functions, circuits, truth tables and also apply the laws of Boolean algebra to simplify circuits and expressions.
	C03 Develop the formal procedures for the analysis and design of combinational circuits.
	C04 Analyse sequential circuit's components and their usability in digital circuits.
	C05 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.
	C02 Explain the working of linear and non-linear data structures.
	C03 Identify the appropriate data structure to solve the specific problems.
	C04 Analyze the performance of various data structures and their applications.
	C05 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
	C01 Illustrate the fundamental concepts of Computer Graphics, hardware & software components and its applications.
	C02 Explain various graphical image generation & manipulation methods and algorithms.
	C03 Apply various methods of generation & manipulation of images for creating graphical images and color models.
	C04 Explain various rendering, illumination and color models of realistic image or pictures using image processing techniques.

	C05	Discuss various methods to create natural seen & realistic images in 2D &3D space.	
	C06	Design & analysis of various graphical image processing techniques and animation.	
	150304: Object Oriented Programming & Methodology		
	C01	Relate the concepts and significance of OOPs in real world.	
	C02	Demonstrate adeptness of object oriented programming to solve problems using Object oriented concepts	
	C03	Apply object oriented programming to develop solutions of problems using standard language constructs.	
	C04	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.	
	C06	Develop software using concepts of objects, associations and integrity constraint.	
	150305: Hardware LAB		
	C01	Explain basics of different computer peripherals and interfaces.	
	C02	Demonstrate architecture of various computer hardware devices and their functioning.	
	C03	Demonstrate the details of system buses, memory system, and I/O interfaces.	
	C04	Identify the existing configuration of the computers peripherals and creating wireless network through the access point.	
	C05	Analyze progress in contemporary peripherals and bus systems.	
	C06	construct a networking based on IPv4 address scheme.	
	Semester 4	150411: Computer Networks	
		C01	Explain the fundamental concepts of Computer Networks.
		C02	Illustrate the basic taxonomy & terminologies of computer network protocols.
		C03	Develop a concept for understanding advance computer network.
		C04	Build the skill of IP addressing and routing mechanism
		C05	Predict the performance of computer network in congestion and Internet.
		C06	Construct the network environment for implementation of computer networking concept.
		150412: Database Management System	
		C01	Define the basic properties of algorithm.
		C02	Analyze the complexity of an algorithm.
C03		Apply mathematical preliminaries to analyse and design stages of different types of algorithms.	
C04		Examine algorithms for a number of important computational problems.	
C05		Compare different design techniques to develop algorithms for various computational problems.	
C06		Build the general principles and good algorithm design techniques to develop efficient computer algorithms.	
150413:Software Engineering			
C01		Demonstrate the concepts of different type of database system.	
C02		Apply Relational algebra concepts to design database system.	
C03		Make use of queries to design and access database system.	
C04		Analyze the evaluation of transaction processing and concurrency control.	
C05		Determine the optimize database for real world applications.	
C06		Design a database system for a real world application.	
150414:Theory of Computation			
C01		Outline the basic concept of operating systems	
C02		Analyze the working of operating system	
C03		Examine the working of various scheduling/allocation approaches	
C04		Measure the performance of various scheduling/allocation approaches	
C05		Compare the various operating system problems/issues	
C06		Develop the Solution of various operating system problems/issues	
150415:Programming Lab Python Programming			
C01		Demonstrate the computer architecture for defining basic component and functional unit.	
C02		Recall different number system and solve the basic arithmetic operations of signed and unsigned numbers.	
C03		Develop the fundamental concept to understand the working of microprocessor.	
C04		Explain the basic concept of input output organization.	
C05		Compare various memory and mapping techniques.	
C06		Develop the skill of writing assembly language programming.	
150416:Discrete Structures			
C01		Demonstrate the fundamentals of computer programming	
C02		Read, understand and trace the execution of program	
C03		Develop Conditional and Iterative Statements	
C04		Design the program using functions	
C05		Implement the programs using Derived and User defined data types	
C06		Design program for a given problem using computer programming	
		1000006:Disaster Management	
		C01	understand the basic concepts of set theory, propositional logic, graph theory, discrete numeric function and algebraic structure.
		C02	Illustrate the knowledge of course content and distinguish between them in terms of their applications.
		C03	Implement the course content to solve the problems.
		C04	Apply the concept of studied topics with suitable technique faced in engineering problems.
		C05	Analyze the basic concepts of set theory, propositional logic, graph theory, discrete numeric function and algebraic structure to examine the
		C06	Design the analytical skill and interpret applications of engineering beneficial in real time troubleshooting.
		150511:Data Science	
	C01	List various software models with respect to their accuracy and needs of the customer requirement.	

Semester 5	C02	Explain the real world problems using software engineering concepts.	
	C03	Develop the technique and results with customer expectations.	
	C04	Identify and how to use various cost estimation techniques used in software engineering.	
	C05	Compare design of a system, component, or process to meet desired needs within realistic constraints	
	C06	Develop the techniques, skills and software engineering tools necessary for engineering domain.	
	150512:Networking with TCP/IP		
	C01	Explain the basic concepts of switching and finite automata theory and languages.	
	C02	Relate practical problems to languages, automata, computability, and complexity.	
	C03	Construct abstract models of computing and analyse their power to recognize the languages.	
	C04	Construct and analyze the grammar.	
	C05	Apply mathematical models and descriptors in various computing theories	
	C06	Solve problems in computer science using mathematical and formal techniques.	
	150513:Information Security		
	C01	Classify the concepts of different advanced microprocessors and microcontroller.	
	C02	Illustrate the various peripheral interfaces, controllers and bus standards.	
	C03	Build a system using peripheral devices and controllers for 8086 microprocessor.	
	C04	Distinguish the interface with various devices to the microprocessor.	
	C05	Design an interface for various devices on 8086/8051 based systems.	
	C06	Develops skills in assembly language programming for 8051 & 8086 applications.	
	150514: Compiler Design		
	C01	Recall the concepts of finite automata and context free grammar	
	C02	Build the concept of working of compiler	
	C03	Examine various parsing techniques and their comparison	
	C04	Compare various code generation and code optimization techniques.	
	C05	Analyze different tools and techniques for designing a compiler	
	C06	Design various phases of compiler	
	150515:Artificial Intelligence		
	C01	Design solutions to real world problems	
	C02	Express the technical ideas, strategies and methodologies	
	C03	Utilize new tools, algorithms, techniques to obtain solution of the project	
	C04	Evaluate the performance of the prototype/ results	
	C05	Able to locate and use technical information from multiple sources.	
	C06	Demonstrate the ability to communicate effectively in speech and writing	
	100007:Disaster Management		
	C01	CO1: Identify disaster prevention and mitigation approaches	
	C02	CO2: Classify global and national disasters, their trends and profiles	
	C03	CO3: Determine the impacts of various disasters	
	C04	CO4: Apply Disaster Risk Reduction in management	
	C05	CO5: Infer the linkage between disasters, environment and development	
	C06		
	r 6	150601: Compiler Design	
		C01	Recall the concepts of finite automata and context free grammar
		C02	Build the concept of working of compiler
		C03	Examine various parsing techniques and their comparison
		C04	Compare various code generation and code optimization techniques.
		C05	Analyze different tools and techniques for designing a compiler
		C06	Design various phases of compiler
		150602: Computer Networks	
		C01	Explain the fundamental concepts of Computer Networks.
		C02	Illustrate the basic taxonomy & terminologies of computer network protocols.
C03		Develop a concept for understanding advance computer network.	
C04		Build the skill of IP addressing and routing mechanism	
C05		Predict the performance of computer network in congestion and Internet.	
C06		Construct the network environment for implementation of computer networking concept.	
150603:Minor Project - II			
C01		Able to formulate a real problem	
C02		Express the technical ideas, strategies and methodologies	
C03		Utilize the new tools, algorithms, techniques to obtain solution of the project	
C04		Test and validate the develop the prototype/results	
C05		Write a project report	
C06		Present the oral demonstration	
(DE-1)150611:Network & Web Security			
C01		Explain cryptographic algorithms, hash algorithms and authentication mechanisms.	
C02		Illustrate fundamentals of number theory, attacks and security principles.	
C03		Apply number theory and various algorithms to achieve principles of security.	
C04		Analyze the cause for various existing network attacks and describe the working of available security controls	
C05		Examine the vulnerabilities in IT infrastructure.	

Semester	C06	Predict the attacks and controls associated with IP, transport-level, web and e-mail security.
	(DE-1)150612: Image Processing	
	C01	Explain different modalities and current techniques in image acquisition.
	C02	Classify spatial and fequency domain techniques in image processing.
	C03	Apply image processing techniques to enhance visual images.
	C04	Analyze the constraints in image processing when dealing with real problems
	C05	Evaluate various enhancement, restoration and retrieval techniques of image processing
	C06	Design a system using mathematical models and principle of digital image processing for real world problems
	(DE-1)150613:Mobile Computing	
	C01	explain the basic concepts of mobile telecommunications system.
	C02	demonstrate the infrastructure to develop mobile communications system
	C03	classify the different generations and technology for mobile communications.
	C04	examine the working of different protocols of wireless mobile communication technology.
	C05	determine the importance of each technology suitable for different situation of mobile and wireless communications.
	C06	develop protocols for Adhoc and infrastructure based wireless networks.
	(OC-1) 900106: Data Structures	
	C01	Outline the basics of algorithms and their performance criteria's
	C02	Explain the working of linear / Non linear data structures
	C03	Identify the appropriate data structure to solve specific problems
	C04	Analyze the performance of various data structures & their applications
	C05	Evaluate the time/ space complexities of various data structures & their applications
	C06	Design the optimal algorithmic solutions for various problems
	(OC-1) 900107:Python Programming	
	C01	explain the numbers, Math, functions, Strings, List, Tuples and Dictionaries in Python
	C02	apply different Decision-Making statements and Functions
	C03	identify the Object-oriented programming in Python
	C04	analyze the different File handling operations
	C05	design GUI Applications in Python and evaluate different database operations
	C06	develop Client-Server network applications using Python