

V. S. M. COLLEGE (A): RAMACHANDRAPURAM

COURSE OUTCOMES

MCA

COMPUTER FUNDAMENTALS AND PROGRAMMING IN C

CO1: Demonstrate the basic knowledge of computer hardware and software.

CO2: Ability to apply solving and logical skills to programming in c language and other languages

CO3: A student will be able to code, compile and test C programs.

CO4: Analyze programming problems to choose when regular loops should be used and when recursion will produce a better program.

DATA STRUCTURES

CO1: Learn how to use data structure concepts for realistic problems.

CO2: "Ability to identify appropriate data structure for solving computing problems in respective language"

CO3: Ability to solve problems independently and think critically.

CO4: Be able to analyze algorithms and improve the efficiency of algorithms.

COMPUTER ORGANIZATION

CO1: They should be in a position to define the logic circuits for various applications.

CO2: After this course students understand in a better way the I/O and memory organization in depth.

CO3: They can develop Digital systems for various applications

CO4: Understand the basics of hardwired and micro-programmed control of the CPU.

DISCRETE MATHEMATICAL STRUCTURE

CO1: " Differentiate and select either the direct method or contradiction method is suitable in order to prove a mathematical statement effectively."

CO2: Construct the problem in the language of sets and perform set operation on it to solve.

CO3: Apply various methods to solve Recurrence relation.

CO4: Solve problem using graphs and trees both quantitatively and qualitatively.

MANAGEMENT ACCOUNTENCY

CO1: "Understand the basics of accounting and the role of Accountants in various departments and different levels of an Organization."

CO2: Prepare Financial Statements and apprise the methods of analyzing those statements.

CO3: "Identify various objectives and scope of Financial Management and use Ratio Analysis to analyze financial statements."

CO4: "Identify various elements of cost and the tools and techniques of Cost and Management Accounting that can be applied in an organization"

C AND DATA STRUCTURES PROGRAMMING LAB

CO1: Understand problem analysis, algorithm design, and program implementation

CO2: Able to Write modular, efficient and readable C programs

CO3: Design modular programs with structured programming constructs

CO4: "Ability to formulate problems and implement algorithms in C and work in a team to develop projects."

COMPUTER ORGANIZATION LAB

CO1: Able to understand basic logic gate

CO2: Construct simple logic circuits using flip flops and multiplexers

CO3: Able to implement Logic circuits for various applications

CO4: Apply the knowledge of combinational and sequential logical circuits to design computer architecture.

OPERATING SYSTEMS

CO4: Understand the basics of operating systems like kernel, shell, types and views of operating systems"

CO2: Able Describe the various CPU scheduling algorithms and remove deadlocks.

CO3: Student is able to point the problems related to process management and synchronization

CO4: "Able to use disk management and disk scheduling algorithms for better utilization of external memory."

OPERATING SYSTEMS LAB

CO1: "After completion of the course students will be able to Work confidently in Unix environment"

CO2: Write shell scripts to automate various tasks.

PROBABILITY, STATISTICS & QUEUING THEORY

CO1: Understand and apply the concepts of probability and statistics to solve a range of

CO2: Different problems, and understand their applications in a variety of situations.

CO3: "Construct the probability distribution of random variables, based on real-world situation, and use it to compute expectation and variance."

CO4: "Identify the components of statistical hypothesis and can apply them to solve real life problems."

INFORMATION SYSTEMS & ORGANIZATIONAL BEHAVIOR

CO1: Understand the Conceptual Framework of Management and how management concepts can be applied in practice.

CO2: Acquaint with various organizational structures, and dynamics of motivation.

CO3: "Identify the duties of a HR manager and the modus operandi of Training and Development."

CO4: Assess the effectiveness of communication in an organization and ways to improve them.

FORMAL LANGUAGES & AUTOMATA THEORY

CO1: Acquire a fundamental understanding of the core concepts in automata theory and formal languages.

CO2: An ability to design grammars and automata (recognizers) for different language classes.

CO3: Ability to identify formal language classes and prove language membership properties.

CO4: Ability to prove and disprove theorems establishing key properties of formal languages and automata.

OBJECT ORIENTED PROGRAMMING WITH C++ & JAVA

CO1: "Ability to apply Object Oriented Programming features and concepts for solving the given problem"

CO2: Able to use JAVA standard API library to write complex programs

CO3: Able to develop interactive programs using applet and swing

CO4: Implement, test and debug solutions in C++.

OBJECT ORIENTED PROGRAMMING LAB

CO1: Able to develop JAVA program using object oriented concepts

CO2: "Get the capability to implement the different types of inheritance & done problems related to them"

CO3: Implement the programs using polymorphism

CO4: Able to write programs using AWT and Swings concept

WEB TECHNOLOGIES

CO1: "Gain knowledge of client side scripting, validation of forms and AJAX programming Have understanding of server side scripting with PHP language."

CO2: Have understanding of advanced concepts of PHP.

CO3: To introduce Server side programming with Java Servlets and JSP.

WEB TECHNOLOGIES LAB

CO1: "The students will be able to: • Analyze a web page and identify its elements and attributes"

CO2: Create web pages using XHTML and Cascading Style Sheets.

CO3: "Build dynamic web pages using JavaScript (Client side programming). Create XML documents and Schemas."

CO4: Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.

OPERATIONS RESEARCH

CO4: Ability to apply the OR methods in different domains like operating system, algorithms and etc.

CO2: Derive the Network models and understanding of reliability concepts.

CO3: By learning Game Theory one gets an ability to take decisions in competitive world.

CO4: Understand the mathematical tools that are needed to solve optimisation problems.

DESIGN AND ANALYSIS OF ALGORITHMS

- CO1:** "Analyze the asymptotic runtime complexity of algorithms for real world problems developed using different algorithmic methods."
- CO2:** "Find the optimal solutions by using advanced design and analysis of algorithm techniques like greedy method and dynamic programming."
- CO3:** "Apply the search space and optimization problem techniques like backtracking and branch and bound method to solve problems optimally where advanced algorithm design techniques fail to find solution."
- CO4:** "Distinguish the problems and its complexity as polynomial and NP problems and can formulate some real world problems to abstract mathematical problems"

COMPUTER NETWORKS

- CO1:** After this course student could understand and explore the basics of Computer Networks and Various Protocols. She/he will be in a position to understand the World Wide Webconcepts.
- CO2:** After this course he/she will be in a position to administrate a network and flow of information.
- CO3:** Describe, analyze and evaluate various related technical, administrative and social aspects of specific computer network protocols from standards documents and other primary materials found through research
- CO4:** Program network communication services for client/server and other application layouts.

ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

- CO1:** Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.
- CO2:** Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
- CO3:** Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
- CO4:** Demonstrate proficiency developing applications in an 'AI language', expert system shell, or data mining tool.

DATA BASE MANAGEMENT SYSTEMS

- CO1:** Understand database concepts and structures and query language
- CO2:** Understand the E R model and relational model
- CO3:** Understand Functional Dependency and Functional Decomposition.
- CO4:** Apply various Normalization techniques

DATABASE MANAGEMENT SYSTEMS LAB

- CO1:** Describe the fundamental elements of relational database management systems
- CO2:** Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- CO3:** Design ER-models to represent simple database application scenarios
- CO4:** Improve the database design by normalization.

INFORMATION SECURITY AND CRYPTOGRAPHY

CO1: Identify passive attacks, active attacks and how to prevent them.

CO2: Encipher and decipher data using public key algorithms.

CO3: Have adequate knowledge about the security services implemented in network protocols.

CO4: Discuss authentication applications

CLOUD COMPUTING

CO1: The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet.

CO2: Cloud concepts capabilities across the various cloud service models including IaaS, PaaS, SaaS, and developing cloud based software applications on top of cloud platforms

CO3: Provide the appropriate cloud computing solutions and recommendations according to the applications used.

CO4: Identify problems, and explain, analyze, and evaluate various cloud computing solutions.

DATA WAREHOUSING AND DATA MINING

CO1: Importance of data mining, knowledge discovery process, data preprocessing.

CO2: Describe the various architectures and main components of a data warehouse & Design a data warehouse, and be able to address issues that arise when implementing a data warehouse.

CO3: Develop skills to write queries using DMQL & Extract knowledge using data mining techniques.

CO4: Discover the relationships among data bases, data classification and data clustering

OBJECT ORIENTED SOFTWARE ENGINEERING

CO1: Ability to Develop the minimum requirements for the development of application.

CO2: Ability to Design and Architectural Style of Software Systems

CO3: Ability to develop, maintain, efficient, reliable and cost effective software solutions.

CO4: Propose Testing Strategy for a Software Application

DISTRIBUTED SYSTEMS (PG1945120)

CO1: Understand the need for distributed systems and their applications.

CO2: Understand the concepts of remote procedure calls, remote file systems, distributed agreement, clock synchronization, and security.

CO3: Analyze the Security Concepts

CO4: Evaluate the characteristics of a particular distributed system

OBJECT ORIENTED SOFTWARE ENGINEERING LAB

CO1: "By the end of the course students you shall be confident and equipped with all the knowledge required to perform analytical activities in R. Specifically, • Understand the fundamental syntax of R through readings, practice exercises, demonstrations, and writing R code "

CO2: Apply critical programming language concepts such as data types, iteration, control structures, functions, and boolean operators by writing R programs and through examples

CO3: Import a variety of data formats into R using RStudio

CO4: Prepare or tidy datasets for in preparation for analysis

IMAGE PROCESSING

CO1: Understand the need for image transforms different types of image transforms and their properties.

CO2: Develop any image processing application.

CO3: Understand the rapid advances in Machine vision.

CO4: learn different techniques employed for the enhancement of images.

BIG DATA ANALYTICS

CO1: Preparing for data summarization, query, and analysis.

CO2: Applying data modeling techniques to large data sets

CO3: Creating applications for Big Data analytics

CO4: Building a complete business data analytic solution

CYBER SECURITY

CO1: To study essential concepts for cyber security, cyber security applications, cyber crimes, unauthorized crimes and hacking.

CO2: To study prohibited action on cyber policies, evaluation of crime scene, evidence collection, cyber Crime Mobiles and Wireless Devices

CO3: To understand the Tools used in Cyber Security System

CO4: Protect data and respond to threats that occur over the Internet

CYBER SECURITY AND ANALYTICS LAB

CO1: Assess cyber security risk management policies in order to adequately protect an organization's critical information and assets.

CO2: Measure the performance of security systems within an enterprise-level information system.

CO3: Troubleshoot, maintain and update an enterprise-level information security system.

CO4: Implement continuous network monitoring and provide real-time security solutions.

ADVANCED DATA STRUCTURES

CO1: Design and analyze programming problem statements.

CO2: Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.

CO3: understand the necessary mathematical abstraction to solve problems.

CO4: come up with analysis of efficiency and proofs of correctness

WIRELESS AND ADHOC NETWORKS

CO1: The Fundamental Concepts and applications of ad hoc and wireless sensor networks

CO2: The MAC protocol issues of ad hoc networks

CO3: "routing protocols for ad hoc wireless networks with respect to TCP design issues the concepts of network architecture and MAC layer protocol for WSN"

CO4: The WSN routing issues by considering QoS measurements

SOFT COMPUTING

- CO1:** Discuss the ideas of fuzzy sets, fuzzy logic and use of heuristics based on human experience
Relate with neural networks that can learn from available examples.
- CO2:** Generalize to form appropriate rules for inference systems Describe with genetic algorithms and other random search procedures useful while seeking global optimum in self-learning situations Develop some familiarity with current research problems and research methods in Soft Computing Techniques
- CO3:** Describe human intelligence and AI
- CO4:** “Develop some familiarity with current research problems and research methods in Soft Computing Techniques Details”

MOBILE COMPUTING

- CO1:** Able to think and develop new mobile application.
- CO2:** Able to take any new technical issue related to this new paradigm and come up with a solution(s).
- CO3:** Generalize to form appropriate rules for inference systems Describe with genetic algorithms and other random search procedures useful while seeking global optimum in self-learning situations Develop some familiarity with current research problems and research methods in Soft Computing Techniques
- CO4:** Able to develop new ad hoc network applications and/or algorithms/protocols.
- CO5:** Able to understand & develop any existing or new protocol related to mobile environment

BIO INFORMATICS

- CO1:** knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics
- CO2:** Existing software effectively to extract information from large databases and to use this information in computer modeling
- CO3:** Problem-solving skills, including the ability to develop new algorithms and analysis methods
- CO4:** To understanding of the intersection of life and information sciences, the core of shared concepts, language and skills the ability to speak the language of structure-function relationships, information theory, gene expression, and database queries

SOFTWARE TESTING AND QUALITY ASSURANCE

- CO1:** The students will be familiar with the process of verification and validation.
- CO2:** The students will understand the process of applying tests to software and the fundamental components of a test case.
- CO3:** The students will be able to derive test cases from software requirement specifications - including being able to partition input and output domains, form test specifications, and identify valid combinations of input.
- CO4:** The students will understand and be able to distinguish between methods of judging test case adequacy and how to design tests that will accomplish the obligations of such methods.

DOT NET LAB

- CO1:** Create user interactive web pages using ASP.Net.

CO2: .Create simple data binding applications using ADO.Net connectivity.

CO3: Develop secured web application

CO4: Performing Database operations for Windows Form and web applications.