GOVERNMENT DEGREE COLLEGE, MANDAPETA

DEPARTMENT OF COMPUTER SCIENCE

PROGRAM OBJECTIVES, OUTCOMES, CO-CURRICULAR AND ASSESSMENT METHODS

B.Sc. - Computer Science

1. Aim and objectives of UG program in Subject:

- Computer Science The Objectives of this Program describes what students are expected to know and be able to do by the time of graduation. The Computer Science Department's Bachelor of Science program must enable students to attain, by the time of graduation:
- An ability to identify, formulate and develop solutions to computational challenges.
- An ability to design, implement and evaluate a computational system to meet desired needs within realistic constraints.
- An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.
- An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
- An ability to communicate and engage effectively with diverse stakeholders.
- An ability to analyze impacts of computing on individuals, organizations, and society.
- Recognition of the need for and ability to engage in continuing professional development.
- An ability to use appropriate techniques, skills, and tools necessary for computing practice.
- Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.
- Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a computing based industry.

2. Learning outcomes of Subject Computer Science:

- Students will be able to communicate in written and oral forms in such a way as to demonstrate their ability to present information clearly, logically, and critically.
- Students will be able to apply mathematical and computing theoretical concepts in solution of common computing applications, such as computing the order of an algorithm.
- Students will be able to complete successfully be able to program small-to-mid- size programs on their own. Sufficient programming skills will require use of good practice, e.g., good variable names, good use of computational units, appropriate commenting strategies.
- Students will be able to use appropriately system design notations and apply system design engineering process in order to design, plan, and implement software systems
- In a self-selected area of depth in Computing, students will demonstrate a depth of knowledge appropriate to graduate study and/or lifelong learning in that area. Students should be able to read for understanding materials in that area beyond those assigned in coursework.
- Students will be prepared for a career in an information technology oriented business or industry, or for graduate study in computer science or other scientific or technical fields.
- Use systems development, word-processing, spreadsheet, and presentation software tosolve basic information systems problems

Semester: I Paper: 1 - PROBLEM SOLVING IN C

Aim and objectives of Course:

- This course aims to provide exposure to problem-solving through programming.
- It introduces the concepts of the C Programming language.

Learning outcomes of Course:

- Upon successful completion of the course, a student will be able to: Understand the evolution and functionality of a Digital Computer.
- Apply logical skills to analyses a given problem
- Develop an algorithm for solving a given problem.
- Understand 'C' language constructs like Iterative statements, Array processing, Pointers.
- Apply 'C' language constructs to the algorithms to write a 'C' language program

Semester: II Paper: 2 DATA STRUCTURES USING C

Aim and objectives of Course:

- To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Learning outcomes of Course:

- Upon successful completion of the course, a student will be able to: Understand available Data Structures for data storage and processing.
- Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph
- Choose a suitable Data Structures for an application
- Develop ability to implement different Sorting and Search methods
- Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal
- Design and develop programs using various data structures
- Implement the applications of algorithms for sorting, pattern matching etc

Semester: III Paper: 3 - DATABASE MANAGEMENT SYSTEMS

Aim and objectives of Course:

- The objective of the course is to introduce the design and development of databases with special emphasis on relational databases.

Learning outcomes of Course: Upon successful completion of the course, a student will be able to:

- Gain knowledge of Database and DBMS.
- Understand the fundamental concepts of DBMS with special emphasis on relational data model.
- Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
- Model data base using ER Diagrams and design database schemas based on the model.
- Create a small database using SQL.
- Store, Retrieve data in database.

Semester: IV Paper: 4 - O O P using JAVA

Aim and objectives of Course:

- To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.

Learning outcomes of Course:

- Understand the benefits of a well-structured program
- Understand different computer programming paradigms
- Understand underlying principles of Object-Oriented Programming in Java
- Develop problem-solving and programming skills using OOP concepts
- Develop the ability to solve real-world problems through software development in high-level programming language like Java

Semester: IV Paper: 5 - OPERATING SYSTEMS

Aim and objectives of Course:

- This course aims to introduce the structure and organization of a file system. It emphasizes various functions of an operating system like memory management, process management, device management, etc.

Learning outcomes of Course: Upon successful completion of the course, a student will be able to:

- Know Computer system resources and the role of operating system in resource management with algorithms
- Understand Operating System Architectural design and its services.
- Gain knowledge of various types of operating systems including Unix and Android.
- Understand various process management concepts including scheduling, synchronization, and deadlocks.
- Have a basic knowledge about multithreading.
- Comprehend different approaches for memory management.
- Understand and identify potential threats to operating systems and the security features design to guard against them.
- Specify objectives of modern operating systems and describe how operating systems have evolved over time.
- Describe the functions of a contemporary operating system

Semester: V (Skill Enhancement Course - Elective)
Paper: 6A - Web Interface Designing Technologies

Learning Outcomes: Students after successful completion of the course will be able to:

- Understand and appreciate the web architecture and services.
- Gain knowledge about various components of a website.
- Demonstrate skills regarding creation of a static website and an interface to dynamic website.
- Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.

Web Interface Designing Technologies – PRACTICAL

Learning Outcomes: On successful completion of this practical course, student shall be able to:

- Create a basic website with the help of HTML and CSS.
- Acquire the skill of installing word press and various plugins of Word press.
- Create a static website with the help of Word press.
- Create an interface for a dynamic website.
- Apply various themes for their websites using Word press

Semester: V (Skill Enhancement Course - Elective)
Paper: 7A - Web Applications Development using PHP& MYSQL

Learning Outcomes: Students after successful completion of the course will be able to:

- Write simple programs in PHP.
- Understand how to use regular expressions, handle exceptions, and validate data using PHP.
- Apply In-Built functions and Create User defined functions in PHP programming.
- Write PHP scripts to handle HTML forms.
- Write programs to create dynamic and interactive web based applications using PHP and MYSQL.
- Know how to use PHP with a MySQL database and can write database driven web pages.

Web Applications Development using PHP & MYSQL–PRACTICAL

Learning Outcomes: On successful completion of this practical course, student shall be able to:

- Write, debug and implement the Programs by applying concepts and error handling techniques of PHP.
- Create an interactive and dynamic website.
- Create a website with reports generated from a database.
- Write programs to create an interactive website for e-commerce sites like online shopping, etc.