GOVERNMENT DEGREE COLLEGE, RAJAMPETA

ANNAMAYYA-DISTRICT,ANDHRA PRADESH

DEPARTMENT OF COMPUTER SCIENCE

Programme Outcomes (U.G)

PO1. *Critical Thinking:* Apply critical thinking and enhance learning in the three major subjects of their choice with scientific reasoning and analytical skills.

PO2. *Problem solving:* Think logically and organize task into a structured form for problem solving by applying the knowledge of basic science.

PO3. *Effective communication:* To develop the ability of effective communication of scientific information in written and oral format.

PO4. *Individual and team work:* Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.

PO5. *Ethics:* Apply ethical, moral and social values in personal and professional life leading to holistic development of the individual.

PO6. *Environment and sustainability:* Develop interdisciplinary approach to provide better solution and innovative ideas for sustainable development and conservation of natural resources.

PO7. *Self-directed and lifelong learning:* Recognize the need for and have the ability to engage in independent, lifelong learning and adapt to technological changes to be globally competent.

Programme Specific Outcomes

PSO1: Acquiring the adequate knowledge of Computer Science to become employable in industry.

PSO2: Understand the internal working of computer such as, memory, processor, and operating systems to develop system software.

PSO3: Apply logical skills to analyze a given problem and develop algorithms to provide feasible solutions for the problem.

PSO4: Understand and apply various programming language constructs to develop desktop and web based applications.

PSO5: Understand and apply Mathematical and Statistical models for data analysis and visualization.

PSO6: Acquire the knowledge for higher education and research and entrepreneur opportunities.

Course Outcomes

Year –I Semester-I

Paper-1: PROBLEM SOLVING IN C

Course Learning Outcomes:

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

1) Understand the evolution and functionality of a Digital Computer.
2) Apply logical skills to analyze a given problem
3) Develop an algorithm for solving a given problem.
4) Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
5) Apply 'C' language constructs to the algorithms to write a 'C' language program.

Year-I Semester-II

Paper-2: DATA STRUCTURES USING C

Course Learning Outcomes:

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

1) Understand available Data Structures for data storage and processing.
2) Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph.
3) Choose a suitable Data Structures for an application.
4) Develop ability to implement different Sorting and Search methods.
5) Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal.
6) Design and develop programs using various data structures.

7) Implement the applications of algorithms for sorting, pattern matching etc

Year-II Semester-III

Paper-3: DATABASE MANAGEMENT SYSTEMS

Course Learning Outcomes:

On completing the subject, students will be able to:

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

Year-II Semester-IV

Paper-4: OBJECT ORIENTATED PROGRAMMING THROUGH JAVA

Course Learning Outcomes:

On completing the subject, students will be able to:

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

Year-II Semester-IV

Paper-5: OPERATING SYSTEMS

Course Learning Outcomes:

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

1) Know Computer system resources and the role of operating system in resource management with algorithms.

2) Understand Operating System Architectural design and its services.
3) Gain knowledge of various types of operating systems including Unix and Android.
4) Understand various process management concepts including scheduling, synchronization, and deadlocks.
5) Have a basic knowledge about multithreading.
6) Comprehend different approaches for memory management.
7) Understand and identify potential threats to operating systems and the security features design to guard against them.
8) Specify objectives of modern operating systems and describe how operating systems have evolved over time.
9) Describe the functions of a contemporary operating system.

Year-III Semester-V

Paper- 6A: Web Interface Designing Technologies

Course Learning Outcomes:

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

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

Year-III Semester-V

Paper- 7A: Web Applications Development using PHP & MYSQL

Course Learning Outcomes:

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

1) Write simple programs in PHP.
2) Understand how to use regular expressions, handle exceptions, and validate data using PHP.
3) Apply In-Built functions and Create User defined functions in PHP programming.
4) Write PHP scripts to handle HTML forms.

5) Write programs to create dynamic and interactive web based applications using PHP and MYSQL.
6) Know how to use PHP with a MySQL database and can write database driven web pages.

Year-III Semester-V

Paper- 6B: INTERNET OF THINGS

Course Learning Outcomes:

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

1) Appreciate the technology for IoT
2) Understand various concepts, terminologies and architecture of IoT systems.
3) Understand various applications of IoT
4) Learn how to use various sensors and actuators for design of IoT.
5) Learn how to connect various things to Internet.
6) Learn the skills to develop simple IOT Devices.

Year-III Semester-V

Paper- 7B: APPLICATION DEVELOPMENT USING PYTHON

Course Learning Outcomes:

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

1) Understand and appreciate the web architecture and services.
2) Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
3) Demonstrate proficiency in handling Strings and File Systems.
4) Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
5) Interpret the concepts of Object-Oriented Programming as used in Python.
6) Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.

Year-III Semester-V

Paper- 6C: DATA SCIENCE

Course Learning Outcomes:

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

1) Develop relevant programming abilities.
2) Demonstrate proficiency with statistical analysis of data.
3) Develop the ability to build and assess data-based models.
4) Demonstrate skill in data management
5) Apply data science concepts and methods to solve problems in real-world contexts and will communicate these solutions effectively

Year-III Semester-V

Paper- 7C: Python for Data Science

Course Learning Outcomes:

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

1) Identify the need for data science and solve basic problems using Python built-in data types and their methods.
2) Design an application with user-defined modules and packages using OOP concept
3) Employ efficient storage and data operations using NumPy arrays.
4) Apply powerful data manipulations using Pandas.
5) Do data pre-processing and visualization using Pandas

CO, PSO Mapping

Paper-1: PROBLEM SOLVING IN C

CO	PSO					
	1	2	3	4	5	6
1) Understand the evolution and functionality of a Digital Computer.	√	√		√		
2) Apply logical skills to analyze a given problem	√		√		√	√
3) Develop an algorithm for solving a given problem.	√		√	√	√	
4) Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.	√		√	√		
5) Apply 'C' language constructs to the algorithms to write a 'C' language program.	√		√	√		√

Paper-2: DATA STRUCTURES USING C

CO	PSO					
	1	2	3	4	5	6
1) Understand available Data Structures for data storage and processing.	√	√	√	√	√	
2) Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph.	√		√		√	
3) Choose a suitable Data Structures for an application.	√		√			√
4) Develop ability to implement different Sorting and Search methods.	√		√			√
5) Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal.	√		√			
6) Design and develop programs using various data structures.	√			√		√
7) Implement the applications of algorithms for sorting, pattern matching etc	√		√	√		√

Paper-3: DATABASE MANAGEMENT SYSTEMS

CO	PSO					
	1	2	3	4	5	6
1) Gain knowledge of Database and DBMS.	√	√				√
2) Understand the fundamental concepts of DBMS with special emphasis on relational data model.	√				√	√
3) Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.	√		√		√	√
4) Model database using ER Diagrams and design database schemas based on the model.	√		√	√		√

5) Create a small database using SQL.	√		√	√		
6) Store, Retrieve data in database.	√	√	√			√

Paper-4: OBJECT ORIENTATED PROGRAMMING THROUGH JAVA

CO	PSO					
	1	2	3	4	5	6
1) Understand the benefits of a well-structured program	√	√		√		
2) Understand different computer programming paradigms	√		√	√		√
3) Understand underlying principles of Object-Oriented Programming in Java	√		√	√		√
4) Develop problem-solving and programming skills using OOP concepts	√	√	√	√		√
5) Develop the ability to solve real-world problems through software development in high-level programming language like Java	√		√	√	√	√

Paper-5: OPERATING SYSTEMS

CO	PSO					
	1	2	3	4	5	6
1) Know Computer system resources and the role of operating system in resource management with algorithms.	√	√	√			√
2) Understand Operating System Architectural design and its services.	√	√				
3) Gain knowledge of various types of operating systems including Unix and Android.	√	√	√	√		√
4) Understand various process management concepts including scheduling, synchronization, and deadlocks.	√	√				
5) Have a basic knowledge about multithreading.	√	√	√	√	√	√
6) Comprehend different approaches for memory management.	√	√			√	
7) Understand and identify potential threats to operating systems and the security features design to guard against them.	√	√				
8) Specify objectives of modern operating systems and describe how operating systems have evolved over time.	√	√	√			√
9) Describe the functions of a contemporary operating system.	√	√				√

Paper- 6A: Web Interface Designing Technologies

CO	PSO					
	1	2	3	4	5	6
1) Understand and appreciate the web architecture and services.	√		√	√		

2) Gain knowledge about various components of a website.	√		√	√		√
3) Demonstrate skills regarding creation of a static website and an interface to dynamic website.	√		√	√	√	
4) Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.	√	√	√	√		√

Paper- 7A: Web Applications Development using PHP & MYSQL

CO	PSO					
	1	2	3	4	5	6
1) Write simple programs in PHP.	√			√		
2) Understand how to use regular expressions, handle exceptions, and validate data using PHP.	√	√	√	√	√	√
3) Apply In-Built functions and Create User defined functions in PHP programming.	√		√	√		
4) Write PHP scripts to handle HTML forms.	√		√	√		
5) Write programs to create dynamic and interactive web based applications using PHP and MYSQL.	√		√	√	√	√

Paper- 6B: INTERNET OF THINGS

CO	PSO					
	1	2	3	4	5	6
1) Appreciate the technology for IoT	√			√		
2) Understand various concepts, terminologies and architecture of IoT systems.	√					
3) Understand various applications of IoT	√					√
4) Learn how to use various sensors and actuators for design of IoT.	√		√	√		√
5) Learn how to connect various things to Internet.	√		√	√		√
6) Learn the skills to develop simple IOT Devices.	√		√	√		√

Paper-7B: APPLICATION DEVELOPMENT USING PYTHON

CO	PSO					
	1	2	3	4	5	6
1) Understand and appreciate the web architecture and services.	√			√		
2) Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.	√		√	√	√	
3) Demonstrate proficiency in handling Strings and File Systems.	√		√	√	√	
4) Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular	√			√	√	

Expressions.						
5) Interpret the concepts of Object-Oriented Programming as used in Python.	√			√		
6) Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.	√		√	√	√	√

Paper- 6C: DATA SCIENCE

CO	PSO					
	1	2	3	4	5	6
1) Develop relevant programming abilities.	√		√	√	√	
2) Demonstrate proficiency with statistical analysis of data.	√				√	
3) Develop the ability to build and assess data-based models.	√	√		√	√	
4) Demonstrate skill in data management	√	√			√	
5) Apply data science concepts and methods to solve problems in real-world contexts and will communicate these solutions effectively	√		√		√	√

Paper- 7C: Python for Data Science

CO	PSO					
	1	2	3	4	5	6
1) Identify the need for data science and solve basic problems using Python built-in data types and their methods.	√				√	√
2) Design an application with user-defined modules and packages using OOP concept	√		√	√	√	
3) Employ efficient storage and data operations using NumPy arrays.	√			√	√	
4) Apply powerful data manipulations using Pandas.	√			√	√	√
5) Do data pre-processing and visualization using Pandas	√			√	√	√