ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE
Permanently Affiliated to Thiruvalluvar University
Recognized by UGC under section 2(f) and 12(B) of UGC Act 1956
Accredited with "B" Grade by NAAC
Approved by the Government of Tamil Nadu
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REGULATION – 2023-2024

COURSE OUTCOME

SEMESTER I

COURSE: OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++ (CORE PAPER) CREDIT: 4

CO1: Remember the program structure of C with its syntax and semantics .

CO2: Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files).

CO3: Apply the programming principles learnt in realtime problems.

CO4: Analyze the various methods of solving a problem and choose the best method

CO5: Code, debug and test the programs with appropriate test cases

COURSE: OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++ (CORE PRACTICAL) CREDIT: 4

CO1: Remember the program structure of C with its syntax and semantics.

CO2: Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files).

CO3: Apply the programming principles learnt in real-time problems.

CO4: Analyze the various methods of solving a problem and choose the best method

CO5: Code, debug and test the programs with appropriate test cases.

COURSE: INTRODUCTION TO HTML (SEC1) CREDIT: 2

CO1: Knows the basic concept in HTML Concept of resources in HTML.

CO2: Knows Design concept. Concept of Meta Data Understand the concept of saves the files.

CO3: Understand the page formatting. Concept of list.

CO4: Creating Links. Know the concept of creating link to email address

CO5: Concept of adding images understand the table creation.

COURSE: PROBLEM SOLVING TECHNIQUES (FC) CREDIT: 2

CO1: Study the basic knowledge of Computers. Analyze the programming languages

CO2: Study the data types and arithmetic operations. Know about the algorithms. Develop program using flow chart and pseudo code.

CO3: Understand the page formatting. Concept of list.

CO4: Analyze about Arrays.

CO5: Explain about DFD Illustrate program modules. Creating and reading Files

COURSE: DISCRETE MATHEMATICS- I (EC1) CREDIT: 3

CO1: The student will be able to demonstrate the knowledge of the relationship between roots and coefficients of the given equation.

CO2: The student will be able to know the various methods of solving the first-order higher degree differential equations.

CO3: The student will be able to understand about Binary Operations

CO4: The student will be able to write the expansions of $\cos n\theta$ and $\sin n\theta$ in powers of $\cos\theta$ and $\sin\theta$.

CO5: the student will be able to determine the extreme values of the given function.

SEMESTER II

COURSE: DATA STRUCTURE AND ALGORITHMS (CORE THEORY)

CREDIT: 5

CO1: Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.

CO2: Understand basic data structures such as arrays, linked lists, stacks and queues

CO3: Describe the hash function and concepts of collision and its resolution methods

CO4: Solve problem involving graphs, trees and heaps.

CO5: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data

COURSE: DATA STRUCTURE AND ALGORITHMS LAB (CORE PRACTICAL)

CREDIT: 5

CO1: Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.

CO2: Understand basic data structures such as arrays, linked lists, stacks and queues

CO3: Describe the hash function and concepts of collision and its resolution methods

CO4: Solve problem involving graphs, trees and heaps.

CO5: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data

COURSE: DISCRETE MATHEMATICS- II (EC2) CREDIT: 3

CO1: The student will be able to understand the basic concept of Integration.

CO2: The student will be able to understand the basic concept of PartialDifferentialEquations.

CO3: The student will be able to understand the basic concept of solutions of linear differential equations.

CO4: The student will be able to understand the basic properties of VectorAnalysis

CO5: The student will be able to understand the basic concept of Guass, Stoke's and Green's theorems

COURSE: OFFICE AUTOMATION (SEC-2) CREDIT: 2

CO1: Possess the knowledge on the basics of computers and its components

CO2: Gain knowledge on Creating Documents, spreadsheet and presentation.

CO3: Learn the concepts of Database and implement the Query in Database.

CO4: Demonstrate the understanding of different automation tools.

CO5: Utilize the automation tools for documentation, calculation and presentation purpose.

COURSE: PHP PROGRAMMING (SEC-3) CREDIT: 2

CO1: Write PHP scripts to handle HTML forms

CO2: Write regular expressions including modifiers, operators, and Meta characters. .

CO3: Create PHP Program using the concept of array.

CO4: Create PHP programs that use various PHP library functions

CO5: Manipulate files and directories.

SEMESTER III

COURSE: PYTHON PROGRAMMING (CORE PAPER) CREDIT: 5

CO1: Learn the basics of python, Do simple programs on python, learn how to use an array.

CO2: Develop program using selection statement, Work with Looping and jump statements, Do programs on Loops and jump statements.

CO3: Concept of function, function arguments, implementing the concept of List, tuples and dictionary

CO4: Basic concept of Object Oriented Programming: Class, Object and Inheritance

CO5: Usage of File handlings in python, Concept of GUI programs.

COURSE: PYTHON PROGRAMMING LAB (CORE PRACTICAL) CREDIT: 5

CO1: Demonstrate the understanding of syntax and semantics of PYTHON language

CO2: Identify the problem and solve using PYTHON programming techniques.

CO3: Identify suitable programming constructs for problem solving.

CO4: Analyze various concepts of PYTHON language to solve the problem in an efficient way.

CO5: Develop a PYTHON program for a given problem and test for its correctness.

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-I (EC3)

CREDIT: 3

CO1: Learn the basics of statistical methods

CO2: Understanding of measures of location

CO3: Understanding of measures of dispersion.

CO4: Understand about Measures of skewness

CO5: Understand about correlation and quotients involving surds.

COURSE: FUNDAMENTALS OF INFORMATION TECHNOLOGY (SEC4)

CREDIT: 1

CO1: Learn the basics of computer, Construct the structure of the required things in computer, learn how to use it.

CO2: Develop organizational structure using for the devices present currently under input or output unit.

CO3: Concept of storing data in computer using two headers namely RAM and ROM with Different types of ROM with advancement in storage basis.

CO4: Work with different software, Write program in the software and applications of software.

CO5: Usage of Operating system in information technology which really acts as a interpreter between software and hardware.

COURSE:UNDERSTANDING INTERNET (SEC5)CREDIT: 2

CO1: Knows the basic concept in internet Concept of internet.

CO2: Know the concept of TCP/IP – Internet Technologies and Protocol

CO3: Understand the concept of Internet connectivity.

CO4: Can be able to know about internet networks

CO5: Understand the concept of Electronic mail.

SEMESTER IV

COURSE: JAVA PROGRAMMING (CORE PAPER) CREDIT: 5

CO1: Understand the basic Object-oriented concepts. Implement the basic constructs of Core Java.

CO2: Implement inheritance, packages, interfaces and exception handling of Core Java.

CO3: Implement multi-threading and I/O Streams of Core Java

CO4: Implement AWT and Event handling.

CO5: Use Swing to create GUI.

COURSE: JAVA PROGRAMMING LAB (CORE PRACTICAL) CREDIT: 5

CO1: Understand the basic Object-oriented concepts. Implement the basic constructs of Core Java.

CO2: Implement inheritance, packages, interfaces and exception handling of Core Java.

CO3: Implement multi-threading and I/O Streams of Core Java

CO4: Implement AWT and Event handling.

CO5: Use Swing to create GUI

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-II (EC4)

CREDIT: 3

CO1: Learn the basics of curve fitting methods.

CO2: Understanding of Sample Space

CO3: Understanding of standard distribution

CO4: Understand about Test of Significance

CO5: Understand about Analysis of variance

COURSE: WEB DESIGNING (SEC6) CREDIT: 2

CO1: Develop working knowledge of HTML.

CO 2: Ability to Develop and publish Web pages using Hypertext Markup Language (HTML).

CO3: Ability to optimize page styles and layout with Cascading Style Sheets (CSS).

CO4: Ability to develop a java script

CO5: An ability to develop web application using Ajax.

COURSE: CYBER FORENSICS (SEC7) CREDIT: 2

CO1: Understand the definition of computer forensics fundamentals. .

CO 2: Evaluate the different types of computer forensics technology.

CO3: Analyze various computer forensics systems.

CO4: Apply the methods for data recovery, evidence collection and data seizure.

CO5: Gain your knowledge of duplication and preservation of digital evidence.

SEMESTER V

COURSE: OPERATING SYSTEMS (CORE PAPER) CREDIT: 3

CO1: Define the fundamentals of OS and identify the concepts relevant to process, process life cycle, Scheduling Algorithms, Deadlock and Memory management

CO2: know the critical analysis of process involving various algorithms, an exposure to threads and semaphores

CO3: Have a complete study about Deadlock and its impact over OS. Knowledge of handling Deadlock with respective algorithms and measures to retrieve from deadlock.

CO4: Have complete knowledge of Scheduling Algorithms and its types.

CO5: understand memory organization and management

COURSE: OPERATING SYSTEM LAB (CORE PRACTICAL) CREDIT: 3

CO1: Able to understand the basics of UNIX commands and shell programming.

CO2: Able to understand the programming knowledge of scheduling algorithm

CO3: Able to understand the working of semaphores in operating system

CO4: Able to understand how to code various algorithms used in operating system.

CO5: Able to understand how to code and working procedure of file management concepts in operating system.

COURSE: DATABASE MANAGEMENT SYSTEM (CORE PRACTICAL) CREDIT: 3

CO1: Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.

CO2: Define the integrity constraints. Understand thebasic concepts of Relational Data Model, EntityRelationship Model.

CO3: Design database schema considering normalization and relationships within database. Understand and construct database using Structured Query Language. Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)

CO4: Classify the different functions and various join operations and enhance the knowledge of

handling multiple tables.

CO5: Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions

COURSE: DATABASE MANAGEMENT SYSTEM LAB (CORE PRACTICAL)

CREDIT: 3

CO1: Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.

CO2: Define the integrity constraints. Understand the basic concepts of Relational Data Model, Entity Relationship Model.

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CO4: Classify the different functions and various join operations and enhance the knowledge of handling multiple tables.

CO5: Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions

COURSE: INTRODUCTION TO DATA SCIENCE (EC5) **CREDIT: 3**

CO1: Understand the basics in Data Science and Big data. .

CO2: Understand overview and building process in Data Science.

CO3: Understand various Algorithms in Data Science.

CO4: Understand Hadoop Framework in Data Science.

CO5: Case study in Data Science.

COURSE: DATA MINING AND WAREHOUSING (EC6) **CREDIT: 3**

CO1: To understand the basic concepts and the functionality of the various data mining and data warehousing component

CO2: To know the concepts of Data mining system architectures

CO3: To analyze the principles of association rules.

CO4: To get analytical idea on Classification and prediction methods

CO5: To Gain knowledge on Cluster analysis and its methods.

COURSE: PROJECT WITH VIVA VOCE **CREDIT: 4**

Co1: Show leadership skills and learn time management

Co2: Identify various tools to be applied to a specific problem.

Co3: Evaluate the reports.

Co4: Take part in a team as well as manage it to deliver stunning outcomes

Co5: Assess and develop the individual skills to present and organize projects

COURSE: INTERNSHIP / INDUSTRIAL TRAINING **CREDIT: 2**

Co1: Find their specific areas of interest , refine their skills and abilities

Co2: Show a greater sense of self-awareness and appreciation for others

Co3: Apply problem solving and critical thinking skills to solve real time problem

Co4: Design various solution approaches for addressing IT business needs.

Co5: Apply best practices of IT industries by working in the Product or service domain.

SEMESTER VI

COURSE: MACHINE LEARNING (CORE THEORY) **CREDIT: 3**

CO1: Appreciate the importance of visualization in the data analytic solution

CO2: Apply structured thinking to unstructured problems

CO3: Understand a very broad collection of machine learning algorithms and Problems

CO4: Learn algorithmic topics of machine learning and mathematically deep enough to introduce the required theory

CO5: Develop an appreciation for what is involved in learning from data.

COURSE: MACHINE LEARNING LAB (CORE THEORY) **CREDIT: 3**

CO1: Understand decision tree algorithms and apply them to regression and classification problems..

CO2: Learn and apply methods for selecting attributes (features) in decision trees.

CO3: Apply Bayesian inference techniques to gene expression datasets.

CO4: Solve pattern recognition problems using Bayesian inference.

CO5: Understand ensemble methods like Bagging to improve classification accuracy.

COURSE: DATA ANALYTICS USING R-PROGRAMMING (CORE PAPER)

CREDIT: 3

CO1: Work with big data tools and its analysis techniques.

CO2: Analyze data by utilizing clustering and classification algorithms.

CO3: Learn and apply different mining algorithms and recommendation systems for large volumes of data.

CO4: Perform analytics on data streams

CO5: Learn NoSQL databases and management

COURSE: DATA ANALYTICS USINGR PROGRAMMING LAB (CORE PRACTICAL) **CREDIT: 3**

CO1: Acquire programming skills in core R Programming

CO2: Acquire Object-oriented programming skills in R-Programming.

CO3: Develop the skill of designing graphical-user interfaces (GUI) in R Programming

CO4:Acquire R Programming skills to move into specific branches

COURSE: CLOUD COMPUTING (EC7) **CREDIT: 3**

CO1: Understand the fundamental concepts and Technologies in Cloud Computing.

CO2: Able to understand various cloud service types and their uses and pitfalls. .

CO3: Able to understand Cloud Architecture and Application design.

CO4: Understand the various aspects of application design, benchmarking and security in the Cloud.

CO5: Understand various Case Studies in Cloud Computing. .

COURSE: SOFTWARE TESTING (EC7) **CREDIT: 3**

CO1: Students learn to apply software testing knowledge and engineering methods

CO2: Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.

CO3: Have an ability understand and identify various software test in problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods. .

CO4: Have basic understanding and knowledge of contemporary issues insoftware testing, such as component-based software testing problems

CO5: Have an ability to use software testing methods and modern software program program testing tools for their testing projects.

COURSE: OPEN SOURCE SOFTWARETECHNOLOGIES (EC7) CREDIT: 3

CO1: Acquire and understand the basic concepts in Java, application of OOPS concepts.

CO2: Acquire knowledge about operators and decision-making statements.

CO3: Identify the significance and application of Classes, arrays and interfaces and analyzing java arrays.

CO4: Understand about the applications of OOPS concepts and analyze overriding and packages through java programs.

CO5: Create window-based programming using applet and

REGULATION- 2022-2023

COURSE OUTCOME

SEMESTER I

COURSE: PROGRAMMING IN C (CORE PAPER) CREDIT: 4

CO1: The student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions

CO2: The student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.

CO3: The student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions

CO4: The student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C.

CO5: The student will be able to understand the concepts of Fundamental Algorithms, Factoring Methods.

COURSE: PROGRAMMING IN C LAB (CORE PRACTICAL) CREDIT: 2

CO1: The student will be able to enhance the analyzing and problem solving skills and use the same for writing programs in C

CO2: The student will be able to Write diversified solutions, draw flowcharts and develop a Well-documented and indented program according to coding standards

CO3: The student will be able to learn to debug a given program and execute the C program

CO4: The student will be able to have enough practice the use of conditional and looping Statements

CO5: The student will be able to implement arrays, functions and pointers

COURSE: MATHEMATICAL FOUNDATIONS I (ALLIED) CREDIT: 3

CO1: The student will be able to demonstrate the knowledge of the relationship between roots and coefficients of the given equation.

CO2: The student will be able to know the various methods of solving the first-order higher degree differential equations.

CO3: The student will be able to understand about Binary Operations

CO4: The student will be able to write the expansions of $\cos n\theta$ and $\sin n\theta$ in powers of $\cos\theta$ and $\sin\theta$.

CO5: the student will be able to determine the extreme values of the given function.

SEMESTER II

COURSE: C++ AND DATA STRUCTURES (CORE THEORY) CREDIT: 4

CO1: The student will be able to understand the concepts of object oriented programming Apply structure and Inline functions.

CO2: The student will be able to understand the concepts of the types of inheritances and Applying various Levels of Inheritance for real time problems Apply the OOPs concepts class and object. Understand Explain the file concept and exception handlings in C++

CO3: The student will be able to understand the concepts of Stacks and Queue using array and pointers.

CO4: The student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.

CO5: The student will be able to understand the concepts of Sorting and Searching Algorithms.

COURSE: C++ AND DATA STRUCTURES LAB (CORE PRACTICAL) CREDIT: 2

CO1: The student will be able Understand the Creating and Deleting the Objects with the Concepts of Constructors and Destructors.

CO2: The student will be able Demonstrate the Polymorphism Concepts and Operator Overloading.

CO3: The student will be able Understand basic Data Structures such as Arrays, Linked Lists, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.

CO4: The student will be able Apply Algorithm for solving problems like Sorting and Searching.

CO5: The student will be able Apply Algorithms and use Graphs and Trees as tools to visualize and simplify Problems

COURSE: MATHEMATICAL FOUNDATIONS 2 (ALLIED) CREDIT: 5

CO1: The student will be able to understand the basic concept of Integration.

CO2: The student will be able to understand the basic concept of Partial Differential Equations.

CO3: The student will be able to understand the basic concept of solutions of linear differential equations.

CO4: The student will be able to understand the basic properties of Vector Analysis

CO5: The student will be able to understand the basic concept of Guass, Stoke's and Green's theorem

SEMESTER III

COURSE: PROGRAMMING IN JAVA (CORE PAPER) CREDIT: 3

CO1: The student will be able to understand the concept of General purpose and purely object-oriented programming language including data types and classes

CO2: The student will be able to understand the concept of loops

CO3: The student will be able to understand the concepts of Arrays

CO4: The student will be able to understand the concepts of Files

CO5: The student will be able to understand the concept of internet programming using applets and GUI-based

COURSE: JAVA PROGRAMMING LAB (CORE PRACTICAL) CREDIT: 3

CO1: The student will be able to understand the concept of purely object oriented programming language including data types and classes.

CO2: The student will be able to implement layout managers.

CO3: The student will be able to develop an application using frames.

CO4: The student will be able to understand the concepts of RMI.

CO5: The student will be able to handle exceptions in program.

COURSE: DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION (CORE PAPER) CREDIT: 2

CO1: The student will be able to understand Boolean algebra and basic gates.

CO2: The student will be able to understand how to simplify expression using K-Map.

CO3: The students will be able to understand how to build combinational circuits.

CO4: The student will be able to know about registers and addressing modes

CO5: The student will be able to understand types of memories.

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-1(ALLIEDII)

CREDIT: 3

CO1: The student will be able to understand statistical methods.

CO2: The student will be able to understand Measures of location.

CO3: The students will be able to understand Measures of dispersion.

CO4: The student will be able to know about Measures of Skewness.

CO5: The student will be able to understand concurrent deviation.

COURSE: MATHEMATICS FOR COMPETETIVE EXAMINATIONS-I (SBS)

CREDIT: 2

CO1: The student will be able to answer the questions related to the number system.

CO2: The student will be able to answer real-life simple problems by applying the HCF and/or LCM.

CO3: The student will be able to apply the correct sequence of operations to find out the value of a given mathematical expression.

CO4: The student will be able to solve the problems involving square roots, cube roots, and average.

CO 5: The student will be able to carry out the problems related to ages, and simplify products and quotients involving surds.

SEMESTER IV

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEMS (CORE PAPER)

CREDIT: 3

CO1: Describe the database architecture and its applications Sketch the ER diagram for Real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Describe the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts.

CO4: Explain the storage and accessing of data.

CO5: Illustrate the query processing in database management. Define the concurrency control and deadlock concept

COURSE: RDBMSLAB (CORE PRACTICAL) CREDIT: 3

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL, DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set Operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-II (ALLIEDII)

CREDIT: 3

CO1: The student will be able to understand least's quires.

CO2: The student will be able to understand conditional probability.

CO3: The students will be able to understand Standard distributions.

CO4: The student will be able to know about Test of Significance.

CO5: The student will be able to understand Analysis of variance.

COURSE: FOUNDATION MATHEMATICS FOR COMPETETIVE EXAMINATIONS (NME) CREDIT: 2

CO1: The student will be able to solve real-life problems related to percentages.

CO 2: The student will be able to carry out real-world problems related to profit and loss.

CO3: The student will be able to demonstrate knowledge of real-life problems based on the ratio and proportions.

CO4: The student will be able to demonstrate knowledge of the work rate formula and apply this technique to solve several real-life problems.

SEMESTER V

COURSE: MOBILE APPLICATION DEVELOPMENT (CORE PAPER)

CREDIT: 4

CO1: The student will be able to understand the basics of smart phones and android platforms.

CO2: The student will be able to understand the basic concepts of user interface related to app development.

CO3: The student will be able to understand the important of data persistence in mobile environment.

CO4: The student will be able to understand the various services and network facilities provided by android platform.

CO5: The student will be able to understand the various apps deployed and developed on by mobile platform.

COURSE: OPERATING SYSTEM (CORE PAPER) CREDIT: 4

CO1: The student will be able to understand the basics of smart phones and android platforms.

CO2: The student will be able to understand the basic concepts of user interface related to app development.

CO3: The student will be able to understand the important of data persistence in mobile environment.

CO4: The student will be able to understand the various services and network facilities provided by android platform.

CO5: The student will be able to understand the various apps deployed and developed on by mobile platform.

COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB (CORE PRACTICAL) CREDIT: 3

CO1: Understand about the basic developments of android applications

CO2: Understand the usage of the controls in android application.

CO3: Understand the advanced controls that are used in android applications.

CO4: Understand how the alerts are worked in application.

CO5: Understand the concept of connecting a database into the application.

COURSE: OPERATING SYSTEM LAB (CORE PRACTICAL) CREDIT: 3

CO1: Understand the basics of UNIX commands and shell programming.

CO2: Understand the programming knowledge of scheduling algorithms.

CO3: Understand the working of semaphores in operating system.

CO4: Understand how to code various algorithms used in operating system.

CO5: Understand how to code and working procedure of file management concepts in Operating system.

COURSE: DATA MINING (INTERNAL ELECTIVE) CREDIT: 3

CO1: Understand about the basics of data mining and data.

CO2: Understand about the methods of Data Warehousing

CO3: Understand about the techniques of Data Mining

CO4: Understand about the importance of Cluster and outlier detection

CO5: Improve the students knowledge with recent trends and tools

COURSE: SOFTWARE ENGINEERING (SKILL BASED SUBJECT)

CREDIT: 2

CO1: The student will be able to recall the various techniques of software process models

CO2: The student will be able to understand the requirements for a software project.

CO3: The student will be able to create architectural design.

CO4: The student will be able to understand testing strategies.

CO5: The student will be able to understand software project management.

SEMESTER VI

COURSE: OPEN SOURCE SOFTWARE (CORE THEORY) CREDIT: 4

CO1: Understand the concept of HTML, HTML5 and CSS.

CO2: Learn to inspect and detect errors by going through each and every code segment.

CO3: Understand basic concept of Java Script and MySQL.

CO4: Understand basic concept of PHP

CO5: Understand basic concept of PERL

COURSE: PYTHON PROGRAMMING (CORE THEORY)CREDIT: 4

CO1: Understand the basic building blocks for creating PYTHON programming in details.

CO2: Understand the control statements and basic methods used in PYTHON programming

CO3: Understand the basic build in functions.

CO4: Understand the some advanced methods to use in PYTHON

CO5: Understand the concept of objects used in PYTHON

COURSE: PYTHON PROGRAMMING LAB (CORE PRACTICAL)CREDIT: 3

CO1: Write a program using operators.

CO2: Develop a program using loops.

CO3: Implement program using Arrays.

CO4: Implement the concept of String functions.

CO5: Build application with basic expressions.

COURSE: OPEN SOURCE PROGRAMMING LAB (CORE PRACTICAL)CREDIT: 2

CO1: Design static web pages.

CO2: Able to link common style to the web pages using CSS

CO3: Validate form controls using javascript.

CO4: Design dynamic webpages using PHP.

CO5: Develop PHP program with MYSQL database connection.

COURSE: CRYPTOGRAPHY (INTERNAL ELECTIVE)CREDIT: 3

CO1: Understand security attacks and services.

CO2: Understand the concept of Encryption Standards.

CO3: Understand public key cryptographic algorithms.

CO4: Learn the concept of hash functions.

CO5: Understand the Email security.

COURSE: CLOUD COMPUTING (INTERNAL ELECTIVE) CREDIT: 3

CO1: Understand basic concepts of mobile computing.

CO2: Learn the basics of mobile telecommunication system

CO3: Comprehend wireless LAN and cellular systems.

CO4: Understand protocols at network and transport layer.

CO5: Learn development of applications in mobile computing platform.

COURSE: PROJECTWORK CREDIT: 5

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end

CO4: Understand and about project design.

CO5: Understand how to develop real time projects.

REGULATION- 2020-2021

COURSE OUTCOME

SEMESTER I

COURSE: PROGRAMMING IN C (CORE PAPER) CREDIT: 4

CO1: The student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions

CO2: The student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.

CO3: The student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions

CO4: The student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C.

CO5: The student will be able to understand the concepts of Fundamental Algorithms, Factoring Methods.

COURSE: PROGRAMMING IN C LAB (CORE PRACTICAL) CREDIT: 2

CO1: The student will be able to enhance the analyzing and problem solving skills and use the same for writing programs in C

CO2: The student will be able to Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards

CO3: The student will be able to learn to debug a given program and execute the C program

CO4: The student will be able to have enough practice the use of conditional and looping statements

CO5: The student will be able to implement arrays, functions and pointers

COURSE: MATHEMATICAL FOUNDATIONS I (ALLIED)

CREDIT: 3

CO1: The student will be able to demonstrate the knowledge of the relationship between roots and coefficients of the given equation.

CO2: The student will be able to know the various methods of solving the first-order higher degree differential equations.

CO3: The student will be able to understand about Binary Operations

CO4: The student will be able to write the expansions of $\cos n\theta$ and $\sin n\theta$ in powers of $\cos\theta$ and $\sin\theta$.

CO5: the student will be able to determine the extreme values of the given function.

SEMESTER II

COURSE: C++ AND DATA STRUCTURES (CORE THEORY) CREDIT: 4

CO1: The student will be able to understand the concepts of object oriented programming Apply structure and Inline functions.

CO2: The student will be able to understand the concepts of the types of inheritances and Applying various Levels of Inheritance for real time problems Apply the OOPs concepts class and object. Understand Explain the file concept and exception handlings in C++

CO3: The student will be able to understand the concepts of Stacks and Queue using array and pointers.

CO4: The student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.

CO5: The student will be able to understand the concepts of Sorting and Searching Algorithms.

COURSE: C++ AND DATA STRUCTURES LAB (CORE PRACTICAL) CREDIT: 2

CO1: The student will be able Understand the Creating and Deleting the Objects with the Concepts of Constructors and Destructors.

CO2: The student will be able Demonstrate the Polymorphism Concepts and Operator Overloading.

CO3: The student will be able Understand basic Data Structures such as Arrays, Linked Lists, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.

CO4: The student will be able Apply Algorithm for solving problems like Sorting and Searching.

CO5: The student will be able Apply Algorithms and use Graphs and Trees as tools to visualize and simplify Problems

COURSE: MATHEMATICAL FOUNDATIONS 2 (ALLIED) CREDIT: 5

CO1: The student will be able to understand the basic concept of Integration.

CO2: The student will be able to understand the basic concept of PartialDifferentialEquations.

CO3: The student will be able to understand the basic concept of solutions of linear differential equations.

CO4: The student will be able to understand the basic properties of Vector Analysis

CO5: The student will be able to understand the basic concept of Guass, Stoke's and Green's theorem

SEMESTER III

COURSE: PROGRAMMING IN JAVA (CORE PAPER) CREDIT: 3

CO1: The student will be able to understand the concept of General purpose and purely object-oriented
programming language including data types and classes

CO2: The student will be able to understand the concept of loops

CO3: The student will be able to understand the concepts of Arrays

CO4: The student will be able to understand the concepts of Files

CO5: The student will be able to understand the concept of internet programming using applets and
GUI-based

COURSE: JAVA PROGRAMMING LAB (CORE PRACTICAL) CREDIT: 3

CO1: The student will be able to understand the concept of purely object oriented programming
language including data types and classes.

CO2: The student will be able to implement layout managers.

CO3: The student will be able to develop an application using frames.

CO4: The student will be able to understand the concepts of RMI.

CO5: The student will be able to handle exceptions in program.

COURSE: DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION (CORE PAPER) CREDIT: 2

CO1: The student will be able to understand Boolean algebra and basic gates.

CO2: The student will be able to understand how to simplify expression using K-Map.

CO3: The students will be able to understand how to build combinational circuits.

CO4: The student will be able to know about registers and addressing modes

CO5: The student will be able to understand types of memories.

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-1(ALLIEDII) CREDIT: 3

CO1: The student will be able to understand statistical methods.

CO2: The student will be able to understand Measures of location.

CO3: The students will be able to understand Measures of dispersion.

CO4: The student will be able to know about Measures of Skewness.

CO5: The student will be able to understand concurrent deviation.

COURSE: MATHEMATICS FOR COMPETETIVE EXAMINATIONS-I (SBS) CREDIT: 2

CO1: The student will be able to answer the questions related to the number system.

CO2: The student will be able to answer real-life simple problems by applying the HCF and/or LCM.

CO3: The student will be able to apply the correct sequence of operations to find out the value of a given mathematical expression.

CO4: The student will be able to solve the problems involving square roots, cube roots, and average.

CO 5: The student will be able to carry out the problems related to ages, and simplify products and quotients involving surds.

SEMESTER IV

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEMS (CORE PAPER)

CREDIT: 3

CO1: Describe the database architecture and its applications Sketch the ER diagram for Real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Describe the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts.

CO4: Explain the storage and accessing of data.

CO5: Illustrate the query processing in database management. Define the concurrency control and deadlock concept

COURSE: RDBMSLAB (CORE PRACTICAL) **CREDIT: 3**

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL, DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set Operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)

COURSE: STATISTICAL METHODS AND THEIR APPLICATIONS-II (ALLIEDII)

CREDIT: 3

CO1: The student will be able to understand least's quires.

CO2: The student will be able to understand conditional probability.

CO3: The students will be able to understand Standard distributions.

CO4: The student will be able to know about Test of Significance.

CO5: The student will be able to understand Analysis of variance.

COURSE: FOUNDATION MATHEMATICS FOR COMPETETIVE EXAMINATIONS (NME) **CREDIT: 2**

CO1: The student will be able to solve real-life problems related to percentages.

CO 2: The student will be able to carry out real-world problems related to profit and loss.

CO3: The student will be able to demonstrate knowledge of real-life problems based on the

ratio and proportions.

CO4: The student will be able to demonstrate knowledge of the work rate formula and apply this technique to solve several real-life problems.

SEMESTER V

COURSE: MOBILE APPLICATION DEVELOPMENT (CORE PAPER)

CREDIT: 4

CO1: The student will be able to understand the basics of smart phones and android platforms.

CO2: The student will be able to understand the basic concepts of user interface related to app development.

CO3: The student will be able to understand the important of data persistence in mobile environment.

CO4: The student will be able to understand the various services and network facilities provided by android platform.

CO5: The student will be able to understand the various apps deployed and developed on by mobile platform.

COURSE: OPERATING SYSTEM (CORE PAPER) **CREDIT: 4**

CO1: The student will be able to understand the basics of smart phones and android platforms.

CO2: The student will be able to understand the basic concepts of user interface related to app development.

CO3: The student will be able to understand the important of data persistence in mobile environment.

CO4: The student will be able to understand the various services and network facilities provided by android platform.

CO5: The student will be able to understand the various apps deployed and developed on by mobile platform.

COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB (CORE PRACTICAL)

CREDIT: 3

CO1: Understand about the basic developments of android applications

CO2: Understand the usage of the controls in android application.

CO3: Understand the advanced controls that are used in android applications.

CO4: Understand how the alerts are worked in application.

CO5: Understand the concept of connecting a database into the application.

COURSE: OPERATING SYSTEM LAB (CORE PRACTICAL) CREDIT: 3

CO1: Understand the basics of UNIX commands and shell programming.

CO2: Understand the programming knowledge of scheduling algorithms.

CO3: Understand the working of semaphores in operating system.

CO4: Understand how to code various algorithm used in operating system.

CO5: Understand how to code and working procedure of file management concepts in operating system.

COURSE: DATA MINING (INTERNAL ELECTIVE) CREDIT: 3

CO1: Understand about the basics of data mining and data.

CO2: Understand about the methods of Data Warehousing

CO3: Understand about the techniques of Data Mining

CO4: Understand about the importance of Cluster and outlier detection

CO5: Improve the students knowledge with recent trends and tools

COURSE: SOFTWARE ENGINEERING (SKILL BASED SUBJECT)

CREDIT: 2

CO1: The student will be able to recall the various techniques of software process models

CO2: The student will be able to understand the requirements for a software project.

CO3: The student will be able to create architectural design.

CO4: The student will be able to understand testing strategies.

CO5: The student will be able to understand software project management.

SEMESTER VI

COURSE: OPEN SOURCE SOFTWARE (CORE THEORY) CREDIT: 4

CO1: Understand the concept of HTML, HTML5 and CSS.

CO2: Learn to inspect and detect errors by going through each and every code segment.

CO3: Understand basic concept of Java Script and MySQL.

CO4: Understand basic concept of PHP

CO5: Understand basic concept of PERL

COURSE: PYTHON PROGRAMMING (CORE THEORY) CREDIT: 4

CO1: Understand the basic building blocks for creating PYTHON programming in details.

CO2: Understand the control statements and basic methods used in PYTHON programming

CO3: Understand the basic build in functions.

CO4: Understand the some advanced methods to use in PYTHON

CO5: Understand the concept of objects used in PYTHON

COURSE: PYTHON PROGRAMMING LAB (CORE PRACTICAL)CREDIT: 3

CO1: Write a program using operators.

CO2: Develop a program using loops.

CO3: Implement program using Arrays.

CO4: Implement the concept of String functions.

CO5: Build application with basic expressions.

COURSE: OPEN SOURCE PROGRAMMING LAB (CORE PRACTICAL)CREDIT: 2

CO1: Design static web pages.

CO2: Able to link common style to the web pages using CSS

CO3: Validate form controls using JavaScript.

CO4: Design dynamic WebPages using PHP.

CO5: Develop PHP program with MYSQL database connection.

COURSE: CRYPTOGRAPHY (INTERNAL ELECTIVE) CREDIT: 3

CO1: Understand security attacks and services.

CO2: Understand the concept of Encryption Standards.

CO3: Understand public key cryptographic algorithms.

CO4: Learn the concept of hash functions.

CO5: Understand the Email security.

COURSE: CLOUD COMPUTING (INTERNAL ELECTIVE) CREDIT: 3

CO1: Understand basic concepts of mobile computing.

CO2: Learn the basics of mobile telecommunication system

CO3: Comprehend wireless LAN and cellular systems.

CO4: Understand protocols at network and transport layer.

CO5: Learn development of applications in mobile computing platform.

COURSE: PROJECTWORK CREDIT: 5

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end

CO4: Understand and about project design.

CO5: Understand how to develop real time projects.

REGULATION – 2017-2018

COURSEOUTCOME:

SEMESTER - I

COURSE: PROGRAMMING IN C **CREDIT: 4**

CO1: The Student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions

CO2: The Student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.

CO3: The Student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions.

CO4: The Student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C.

CO5: The Student will be able to understand the concepts of Fundamental Algorithm , Factoring Methods.

COURSE: PROGRAMMING IN CLAB **CREDIT:2**

CO1: Design programs using Functions, Pointers, Structures and Union in C Language.

CO2: Design a program using File handling.

CO3: Implement arrays in Sorting and Linear Search of an element.

COURSE: MATHEMATICAL FOUNDATIONS - I **CREDIT:4**

CO1: Understand and to simplify and evaluate algebraic expressions.

CO2: Analyze linear equations in one variable.

CO3: Compare linear and non-linear equations using Analytic methods.

CO4: Implement concept stoconvert between metric, house hold and Apothecary Units.

SEMESTER-II

COURSE: C++ & DATA STRUCTURE **CREDIT: 4**

CO1: Understand and the Basic Concepts Of Operators Expression.

CO2: Create the functions in classes &objects.

CO3: Understand and the concept of function overloading.

CO4: Identify all inheritance and file concept.

CO5: Evaluate the data structure & list concept analysis.

CO6: Create data type & operations in data structures concept.

CO7: Compare the binary search & graph concept of operation.

COURSE: C++ AND DATA STRUCTURES LAB **CREDIT: 2**

CO1: Understand the creating and deleting the objects with the concepts of Constructors and Destructors.

CO2: Demonstrate the Polymorphism concepts and Operator Overloading

CO3: Understand basic Data Structures such as Arrays, Linked List, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.

CO4: Apply algorithm for solving problems like Sorting and Searching.

CO5: Apply algorithm and use Graphs and Trees as tools to visualize and simplify problems.

COURSE: MATHEMATICAL FOUNDATIONS II **CREDIT: 5**

CO1: Understand Matrix, Skew-Symmetric Matrix

CO2: Understand Cayley-Hamilton theorem

CO3: Analyze definite integrals

CO4: Implement analytical geometry

CO5: Understand 3-Dimension

CO6: Compare area and volume using Integration

CO7: Analyze Planes and Straight Lines

CO8: Analyze Hermition and Skew-Hermition

SEMESTER-III

COURSE: PROGRAMMING IN JAVA CREDIT: 3

CO1: Use an integrated development environment to write, compile, run and test simple Object-oriented java programs.

CO2: Read and make elementary modifications to java programs that solve real-world problems.

CO3: Validate input in a java program.

CO4: Identify and fix defects and common security issues in code.

CO5: Students are able to know about a General-purpose and Purely object-Oriented programming language including data types, control statements, and classes

CO6: Students are able to Secured, well-suited for internet programming using applets and GUI-based

COURSE: PROGRAMMING IN JAVA LAB CREDIT: 3

CO1: Implement Package, Inheritances and interfaces

CO2: Analyze Flow, Border and Grid Layouts Validate input in a java program

CO3: Evaluate Dialogs, Menu and Frame

CO4: Implement User defined Exception Handling

CO5: Implement RMI, Net Beans, IO Streams, Multithreading, Swing Concepts

COURSE: STATISTICAL METHODS & THEIR APPLICATIONS I CREDIT: 3

CO1: Understand diagrammatic and graphical representation of data.

CO2: Implement Mean, Mode, Median

CO3: Evaluate skewness, co-efficient of skewness

CO4: Implement correlation, regression analysis

CO5: Understand different statistical method

COURSE: DIGITAL LOGIC DESIGN & COMPUTER ORGANIZATION CREDIT: 2

CO1: Understand the basics of Number System

CO2: Understand the concept of Simplification of Boolean expressions using K-map and arithmetic circuits

CO3: Understand the concept of Combinational Logic Circuits

CO4: Understand the concept of Basic structure of Computers

CO5: Understand the concept of Input, Output and Memory Organization

COURSE: BASIC MATHEMATICS **CREDIT: 2**

CO1: Understand and power sets, equality of sets

CO2: Understand and binary, octal and hexadecimal numbers

CO3: Evaluate logical statements and connectives

CO4: Understand type of matrices

SEMESTER-IV

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEMS **CREDIT: 3**

CO1: Describe the database architecture and its applications Sketch the ER diagram for real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Describe the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts.

CO4: Explain the storage and accessing of data.

CO5: Illustrate the query processing in database management. Define the concurrency control and deadlock concept.

COURSE: RDBMS LAB **CREDIT: 3**

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL, DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set Operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)

COURSE: STATISTICAL METHODS & THEIR APPLICATIONS II CREDIT: 3

CO1: Implement Curve fitting methods

CO2: Understand Baye's Theorem

CO3: Understand Binomial, Poisson, Normal distribution

CO4: Implement test of significance

CO5: Understand one and two way classification.

COURSE: STATISTICS PRACTICAL CREDIT: 2

CO1: Implement Skewness and Kurtosis

CO2: Understand Correlation and Regression

CO3: Understand Curve Fitting

CO4: Evaluate fitting of distributions – Binomial, Poisson, Normal

COURSE: WIRELESS DATA COMMUNICATION CREDIT: 2

CO1: Understand the concepts of basic OSI layers.

CO2: Understand the concepts of signals and transmission media.

CO3: Understand the basic concepts of error detection and DLC

CO4: Understand the Characterize of wireless transmission technologies

CO5: Understand the concepts of Security.

COURSE: FOUNDATION MATHEMATICS FOR COMPETITVE EXAMS

CREDIT: 2

CO1: Understand ratio and proportions

CO2: Understand profit and loss, discounts

CO3: Implement Simple and Complex interest

CO4: Understand time, distance and work

SEMESTER – V

COURSE: MOBILE APPLICATIONS DEVELOPMENT CREDIT: 3

CO1: Acquire knowledge of Mobile Applications Development

CO2: Understand Eclipse and Android Studio

CO3: Implement mobile applications development in Emulator

CO4: Understand Mobile databases

CO5: Understand Android Services and Android User Interface

COURSE: OPERATING SYSTEM **CREDIT: 3**

CO1: Analyze various operating system services

CO2: Compare and contrast various scheduling algorithm

CO3: Understand memory management techniques

CO4: Implement various file management techniques

COURSE: DATA COMMUNICATION AND NETWORK **CREDIT: 2**

CO1: Understand data communication and prepare them for better computer networking

CO2: Prepare logical and physical network drawings for fairly simple networks, specifying network and link types, plus costs

CO3. Evaluate a java program using java doc.

COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB **CREDIT: 3**

CO1: Implement Basic Android Applications

CO2: Implement Activity, Intent, Spinner

CO3: Understand Android Studio and Eclipse

CO4: Implement Progress Bar, Gaming Apps, Alert Dialog

COURSE: OPERATING SYSTEM LAB **CREDIT: 3**

CO1: Implement various scheduling algorithm concept

CO2: Analyze producer consumer problem using semaphore

CO3: Implement memory management techniques

CO4: Implement a program for system calls

COURSE: DATA MINING **CREDIT: 3**

CO1: Understand the concepts of data mining and data models

CO2: Acquire good knowledge of data pre processing.

CO3: Understand the concept of data classification.

CO4: Understand the concept of data cluster analysis.

COURSE: SOFTWARE ENGINEERING **CREDIT: 3**

CO1: Understand Software Engineering

CO2: Analyze different Process Models like Waterfall Model, Evolutionary Process Model

CO3: Understand about the Data Engineering and System Architecture Design

CO4: Compare the Black Box and White Box Testing

CO5: Analyze the Project Management.

SEMESTER – VI

COURSE: CLOUD COMPUTING **CREDIT: 5**

CO1: Understand the basic functions, principles and concepts of cloud systems.

CO2: Understand the basic concepts of cloud computing.

CO3: Determine the various services available for developing cloud.

CO4: Troubleshoot the various securities in cloud.

CO5: Evaluate the programming model technique available in cloud.

CO6: Acquire sufficient knowledge about the cloud.

COURSE: OPEN SOURCE PROGRAMMING **CREDIT: 4**

CO1: Understand the basic concepts of HTML5&CSS

CO2: Analyze various Linux commands & security models

CO3: Discussion on MYSQL and PHP database connectivity

CO4: Evaluate PHP Controls , structures and arrays

CO5: Implement basic form processing with PHP and MYSQL

COURSE: ASP.NET LAB **CREDIT: 3**

CO1: Implement validation controls.

CO2: Implement Web server controls.

CO3: Implement ADO.NET and how to access database

CO4: Evaluate Ad rotator programs.

COURSE: OPEN-SOURCE PROGRAMMING LAB **CREDIT: 3**

CO1: Implement frames & tables in HTML

CO2: Implement various CSS styles and list concept.

CO3: Evaluate basic shell programs

CO4: Implement cookies and session concept

COURSE: MOBILE COMPUTING **CREDIT: 3**

CO1: Acquire Good Knowledge of Wireless Communication to Students.

CO2: Understand Fundamentals of Wireless Communication.

CO3: Analyze Security, Mobility, Scalability and Their Unique Characteristics in Wireless Network.

CO4: Apply Knowledge of TCP/IP extension in Mobile computing.

COURSE: MULTIMEDIA SYSTEMS **CREDIT: 3**

CO1: Understand the concept of Multimedia

CO2: Compare different medium like text,audio,video,graphics and animation.

CO3: Analyse Application program interface

CO4: Acquire good knowledge about different Multimedia Software

COURSE: ASP.NET **CREDIT: 3**

CO1: Understand basic concepts of ASP.NET .

CO2: Evaluate different validation controls.

CO3: Analyze Architecture of ADO.net.

CO4: Understand how to access database in web application.

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COURSE OUTCOME (CO)

REGULATION – 2023-2024

COURSE OUTCOME

SEMESTER I

COURSE: ANALYSIS & DESIGN OF ALGORITHMS (CORE PAPER) CREDIT: 5

CO1: Get knowledge about algorithms and determines their time complexity. Demonstrate specific search and sort algorithms using divide and conquer technique

CO2: Gain good understanding of Greedy method and its algorithm.

CO3: Able to describe about graphs using dynamic programming technique..

CO4 Abstract object-based views for generic software systems

CO5: Explore the traversal and searching technique and apply it for trees and graphs.

COURSE: OBJECT ORIENTED ANALYSIS AND DESIGN & C++ (CORE PAPER) CREDIT: 5

CO1: Understand the concept of Object-Oriented development and modeling techniques.

CO2: Gain knowledge about the various steps performed during object design

CO3: Abstract object-based views for generic software systems.

CO 4: Link OOAD with C++ language

CO5: Apply the basic concept of OOPs and familiarize to write C++ program

COURSE: PYTHON PROGRAMMING (CORE PAPER) CREDIT: 4

CO1: Understand the basic concepts of Python Programming

CO2: Understand File operations, Classes and Objects

CO3: Acquire Object Oriented Skills in Python

CO4: Develop web applications using Python.

CO5: Develop Client Server Networking applications

COURSE ADVANCED SOFTWARE ENGINEERING (CORE PAPER) CREDIT: 3

CO1: Understand about Software Engineering process

CO2: Understand about Software project management skills, design and quality management

CO3: Analyze on Software Requirements and Specification.

CO4: Analyze on Software Testing, Maintenance and Software Re-Engineering

CO5: Design and conduct various types and levels of software quality for a software project

COURSE: PRACTICAL I: PYTHON PROGRAMMING LAB CREDIT: 3

CO1: Able to write programs in Python using OOPS concepts.

CO2: To understand the concepts of File operations and Modules in Python

CO3: Implementation of lists, dictionaries, sets and tuples as programs

CO4: To develop web applications using Python

SEMESTER II

COURSE: DATA MINING AND WAREHOUSING (CORE PAPER) CREDIT: 5

CO1:Understand the basic data mining techniques and algorithms

CO2: Understand the Association rules, Clustering techniques and Data warehousing contents

CO3:Compare and evaluate different data mining techniques like classification, prediction, Clustering, and association rule mining.

CO4:Design data warehouse with dimensional modeling and apply OLAP operations

CO5:Identify appropriate data mining algorithms to solve real world problems

COURSE: ADVANCED OPERATING SYSTEMS (CORE PAPER) CREDIT: 5

CO1:Understand the design issues associated with operating systems.

CO2:Master various process management concepts including scheduling, deadlocks, and distributed file systems

CO3:Prepare Real Time Task Scheduling

CO 4:Analyze Operating Systems for Handheld Systems.

CO5:Analyze Operating Systems like LINUX and iOS

COURSE: ADVANCED JAVA PROGRAMMING (CORE PAPER) CREDIT: 4

CO1: Understand the advanced concepts of Java Programming.

CO2: Understand JDBC and RMI concepts

CO3: Apply and analyze Java in Database.

CO4: Handle different event in java using the delegation event model, event listener and class

CO5: Design interactive application

COURSE: WEB SERVICES CREDIT: 3

CO1: Understand web services and its related technologies

CO2: Understand XML concepts

CO3: Analyze on SOAP and UDDI model

CO4: Demonstrate the road map for the standards and future of web services

CO5: Analyze QoS enabled applications in web services.

COURSE: ADVANCED JAVA POGRAMMING LAB (PRACTICAL PAPER) CREDIT: 3

CO1: Understand to the implement concepts of Java using HTML forms, JSP & JAR

CO2: Must be capable of implementing JDBC and RMI concepts

CO3: Able to write Applets with Event handling mechanism

CO4: To Create interactive web-based applications using servlets and jsp.

CO5: Students are able to concept of web programming

COURSE: DATA MINING USING R LAB (PRACTICAL PAPER) CREDIT: 2

CO1: Able to write programs using R for Association rules, Clustering techniques

CO2: To implement data mining techniques like classification, prediction

CO3: Able to use different visualizations techniques using R

CO4: To apply different data mining algorithms to solve real world applications

SEMESTER III

COURSE: DIGITAL IMAGE PROCESSING (CORE PAPER) CREDIT: 5

CO1 - Understated the fundamentals of Digital Image Processing.

CO2 - Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement.

CO3 -Apply, Design, and Implement and get solutions for digital image processing problems.

CO4 - Apply the concepts of filtering and segmentation for digital image retrieval.

CO5 -Explore the concepts of Multi-resolution process and recognize the objects in an efficient manner

COURSE: CLOUD COMPUTING (CORE PAPER) CREDIT: 5

CO1 - Understand the concepts of Cloud and its services .

CO2 - Collaborate Cloud for Event & Project Management.

CO3 - Analyze on cloud in –Word Processing, Spread Sheets, Mail, Calendar, Database

CO4 - Analyze cloud in social networks

CO5 - Explore cloud storage and sharing

COURSE: NETWORK SECURITY ANDCRYPTOGRAPHY N (CORE PAPER)

CREDIT: 5

CO1 - Understand the process of the cryptographic algorithms

CO2 - Compare and apply different encryption and decryption techniques to solve problemsrelated to confidentiality and authentication

CO3 - Apply and analyze appropriate security techniques to solve network security ProblemCO4 - Explore suitable cryptographic algorithms

CO5 -Analyze different digital signature algorithms to achieve authentication and design secure applications.

COURSE: DATA SCIENCE AND ANALYTICS (EC5) CREDIT: 2

CO1: Understand the concept of data science and its techniques

CO2: Review data analytics

CO3:Apply and determine appropriate Data Mining techniques using R to real time applications

CO4: Analyze on clustering algorithms

CO5: Analyze on regression methods in AI

COURSE: DIGITAL IMAGE PROCESSING USINGMATLAB (PRACTICAL PAPER)

CREDIT: 2

CO1: To write programs in MATLAB for image processing using the techniques

CO2: To able to implement Image Enhancements & Restoration techniques

CO3: Capable of using Compression techniques in an Image

CO4: Must be able to manipulate the image and Segment it

COURSE: CLOUD COMPUTING LAB (PRACTICAL PAPER) CREDIT: 2

CO1: Articulate the main concepts, key technologies, strengths, and limitations of Cloud Computing and deploy applications over commercial cloud computing infrastructures.

CO2: Gain knowledge about cloud and virtualization along with it, how one can migrate over it.

CO3: Develop the ability to manage the cloud environment and understand the concepts of cloud storage, security.

CO4: Choose the appropriate technologies, algorithms, and approaches for implementation of cloud environment using Openstack / AWS / Microsoft Azure / Google App Engine, etc.,

COURSE: INTERNSHIP CREDIT: 2

CO1: Find the specific areas of interest, refine their skills and abilities .

CO2: Show a greater sense of self-awareness and appreciation for others

CO3: Develop work habits and attitudes that are essential to succeed in the workplace

CO4: Discover the importance of communication, interpersonal and other critical skills

CO5:Choose and prioritize employment contacts leading directly to a full-time job immediately after the graduation from the college.

SEMESTER IV

COURSE: INTERNET OF THINGS (CORE PAPER) CREDIT: 5

CO1: Understand about IoT, its Architecture and its Applications.

CO2:Understand basic electronics used in IoT & its role.

CO3: Develop applications with C using Arduino IDE

CO4: Analyze about sensors and actuators

CO5: Design IoT in real time applications using today's internet &wireless technologies

COURSE: BLOCK CHAIN TECHNOLOGY (CORE PAPER) CREDIT: 5

CO1: Demonstrate blockchain technology and crypto currency.

CO2:Understand the mining mechanism in blockchain

CO3: Apply and identify security measures, and various types of services that allow people to trade and transact with bitcoins.

CO4:Apply and analyze Blockchain in health care industry

CO5: Analyze security, privacy, and efficiency of a given Blockchain system

COURSE: PROJECT WORKAND VIVA-VOLE (CORE PAPER) CREDIT: 7

CO1: Show Leadership Skills and Learn Time Management .

CO2: Identify various Tools to be applied to a specific Problem

CO3:Evaluate the Reports .

CO4: Involve in the Team and Manage it to deliver the excellent Outcomes.

CO5: Assess and Develop the Individual Skills to Present and Organize the Projects

COURSE: INTERNET OF THINGS LAB (PRACTICAL PAPER) CREDIT: 2

CO1: Implement IoT programs to turn ON/OFF LED.

CO2:Develop IoT programs for object detection.

CO3: Create IoT programs for agricultural purpose.

CO4: Implement web server program for local hosting

CO5:Design various IoT applications.

COURSE: SOFT SKILL DEVELOPMENT LAB CREDIT: 3

CO1: Gain basic communication skills in professional and social contexts effectively.

CO2: Acquire useful words and apply them in situational context.

CO3: Develop listening and reading skills through comprehension passages

CO4: Enrich leadership qualities and interpersonal communication.

CO5: Enhance essential characteristics in writing.

REGULATION -2022 -2023

COURSE OUTCOME

SEMESTER I

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM (CORE PAPER)

CREDIT: 3

CO1: Students are able to have a broad understanding of database concepts and database management system software

CO2: Students are able to have a high-level understanding of major DBMS components and their function

CO3: Students are able to know the various normalization techniques.

CO4: Students are able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

CO5: Students are able to understand the PL/SQL and Stored Procedures

COURSE: ENTERPRISE JAVA PROGRAMMING (CORE PAPER) CREDIT: 3

CO1: Students are able to understand about applets concepts.

CO2: Students are able to understand java networking system.

CO3: Students are able to understand about collections and design patterns.

CO 4: Students are able to develop applications using JSP.

CO5: Students are able to concept of web programming.

COURSE: PROGRAMMING USING C#.NET (CORE PAPER) CREDIT: 3

CO1: Students are able to understand about introduction of C#.NET

CO2: Students are able to understand what is mean by windows forms.

CO3: Students are able to understand about delegates and events.

CO4: Students are able to understand reflection and remoting.

CO5: Students are able to understand about database in C#.NET.

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM (PRACTICAL PAPER) CREDIT: 2

CO1: Students are able to have a broad understanding of database concepts and database management system software

CO2: Students are able to have a high-level understanding of major DBMS components and their function

CO3: Students are able to know the various normalization techniques.

CO4: Students are able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

CO5: Students are able to understand the PL/SQL and Stored Procedures.

COURSE: ENTERPRISE JAVA PROGRAMMING (PRACTICAL PAPER) CREDIT: 2

CO1: Students are able to understand about applets concepts.

CO2: Students are able to understand java networking system.

CO3: Students are able to understand about collections and design Patterns.

CO4: Students are able to develop applications using JSP.

CO5: Students are able to concept of web programming

COURSE: PROGRAMMING USING C#.NET (PRACTICAL PAPER) CREDIT: 2

CO1: Students are able to understand about introduction of C#.NET.

CO2: Students are able to understand what is mean by windows forms.

CO3: Students are able to understand about delegates and events.

CO4: Students are able to understand reflection and remoting.

CO5: Students are able to understand about database in C#.NET.

COURSE: COMPUTER ORGANIZATION (CORE ELECTIVE PAPER) CREDIT: 3

CO1: Students are able to understand about Organization and designConcepts

CO2: Students are able to describe the translation model of assemblyLanguage to machine language.

CO3: Students are able to understand about Micro program controlConcepts.

CO4: Students are able to understand central processor unit.

CO5: Students are able to understand about pipeline and vector processingconcepts.

COURSE: PUBLIC SPEAKING AND CREATIVE WRITING (OPEN ELECTIVEPAPER) CREDIT: 3

CO1: Students will be able to learn how to appreciate and analyze the poem

CO2: Students will be able to get an idea of how to write poem

CO3: Students will be able to receive the adequate knowledge about the paragraph writing

CO4: Students will be able to become a good writer after getting the ideas about writing methods

CO5: Students will be able to know how to differentiate between fiction and non- fictional writings.

SEMESTER II

COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING (CORE PAPER) CREDIT: 3

CO1: Students are able to work with JSP, JSF and Servlet using MVC approach.

CO2: Students are able to develop the web applications using the MVC framework provided byApache Struts

CO3: Students are able to develop Enterprise web application using EJB.

CO4: Students are able to implement the Object-Relation Mapping technique using Hibernate

CO5: Students are able to gets knowledge of Aspect Oriented Programming using spring and Spring MVC

COURSE: DESIGN AND ANALYSIS OF ALGORITHM (CORE PAPER)

CREDIT: 3

CO1: Students are able to prove the correctness and analyze the running time of the basicalgorithms for those classic problems.

CO2: Students are able to learn the key techniques of Divide-and-Conquer and Greedy Method.

CO3: Students are able to recognize the concept of Dynamic Programming and its algorithms

CO4: Students are able to understand backtracking.

CO5: Students are able to understand Branch and Bound techniques for designing and analyzing algorithms.

COURSE: WEB APPLICATION USING C#.NET (CORE PAPER) CREDIT: 3

CO1: Students are able to to know the differences between desktop application and web application.

CO2: Students are able to construct classes, methods, and access modifier and instantiateobjects.

CO3: Students are able create and manipulate GUI components in C# for windows application.

CO4: Students are able to code solutions and compile C# projects within the .NET framework.

CO5: Students are able to build the web application with Database.

COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING(PRACTICAL PAPER)

CREDIT: 2

CO1: Students are able to work with JSP, JSF and Servlet using MVC approach.

CO2: Students are able to develop the web applications using the MVC framework provided by Apache Struts

CO3: Students are able to develop Enterprise web application using EJB.

CO4: Students are able to implement the Object-Relation Mapping technique using Hibernate

CO5: Students are able to gets knowledge of Aspect Oriented Programming using Spring andSpring MV

COURSE: DESIGN AND ANALYSIS OF ALGORITHM(PRACTICAL PAPER)

CREDIT: 2

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CO4: Students are able to understand backtracking.

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COURSE: WEB APPLICATION USING C#.NET (PRACTICAL PAPER) CREDIT: 2

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CO3: MStudents are able create and manipulate GUI components in C# forwindows application.

CO4: Students are able to code solutions and compile C# projects withinthe .NET framework.

CO5: Students are able to build the web application with Database

COURSE: CLOUD COMPUTING (CORE ELECTIVE PAPER) CREDIT: 3

CO1: Students are able to understand the broad perceptive of cloudarchitecture and model.

CO2: Students are able to understand the concept of parallel anddistributed computing

CO3: Students are able to understand the different technologies.

CO4: Students are able to understand understand the features ofvirtualization.

CO5: Students are able to design the trusted cloud computing system withdifferent cloud platforms

COURSE: PRINCIPLES OF WEB DESIGN (OPEN ELECTIVE PAPER) CREDIT: 3

CO1: Students are able to learn how to combine basic HTML elements tocreate Web pages.

CO2: Students are able to understand the use of HTML tags and tagattributes to control a Web page‘s appearance.

CO3: Students are able to understand capable to learn how to add absoluteURLs, relative URLs, and named anchors to Web pages.

CO4: Students are able to understand to gain a good understanding ofusing tables and frames as

navigational aids on a Web site.

CO5: Students are able to control appearance webpages by applying stylesheet

SEMESTER III

COURSE: DISTRIBUTED OPERATING SYSTEM (COREPAPER) CREDIT: 3

CO1: Students are able to understand foundations of Distributed Systems.

CO2: Students are able to get the idea of memory management.

CO3: Students are able to comprehend in detail input and output process

CO4: Students are able to know the concept of multimedia operating system.

CO5: Students are able to understand the concept of security mechanism in distributed operating system

COURSE: XML AND WEB SERVICES (COREPAPER) CREDIT: 3

CO1: Students are able to understand fundamental XML technology

CO2: Students are able to understand the use of JSON.

CO3: Students are able to design collaborating web services according to a specification.

CO4: Students are able to know the concept of SOAP, WSDL and UDDI.

CO5: Students are able to know the role of web services in CMS

COURSE: PROGRAMMING USING PYTHON (COREPAPER) CREDIT:3

CO1: Students are able to explore the fundamental concepts of Python.

CO2: Students are able to understand Basics of Python programming language.

CO3: Students are able to solve simple problems using Python.

CO4: Students are able to understand about modules and packages.

CO5: Students are able to understand about the concept of Object Oriented Programming.

COURSE: DISTRIBUTED OPERATING SYSTEM (PRACTICALPAPER) CREDIT: 2

CO1: Students are able to understand foundations of Distributed Systems.

CO2: Students are able to get the idea of memory management.

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COURSE: XML AND WEB SERVICES (PRACTICALPAPER)CREDIT: 2

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CO3: Students are able to design collaborating web services according to aspecification.

CO4: Students are able to know the concept of SOAP, WSDL and UDDI.

CO5: Students are able to know the role of web services in CMS.

COURSE: PROGRAMMING USING PYTHON (PRACTICALPAPER)CREDIT: 2

CO1: Students are able to explore the fundamental concepts of Python.

CO2: Students are able to understand Basics of Python programming language

CO3: Students are able to solve simple problems using Python.

CO4: Students are able to understand about modules and packages.

CO5: Students are able to understand about the concept of Object Oriented Programming.

COURSE: NETWORK SECURITY (CORE ELECTIVEPAPER)CREDIT: 3

CO1: Students are able to identify some of the deriving factors needed for network security.

CO2: Students are able to identify and classify attacks and threats.

CO3: Students are able to compare and contrast symmetric and asymmetric encryption.

CO4: Students are able to identify the web systems vulnerable to attack.

CO5: Students are able to use appropriate secure mail applications and security protocols.

COURSE: SOFT SKILLS (OPEN ELECTIVEPAPER)CREDIT: 3

CO1: Recap the language skills, Grammar, Vocabulary, Phrase, Clause and sentences.

CO2: Build his fluency gradually.

CO3: Acquaint with LSRW skills and can also develop his Non- Verbal Communication.

CO4: Introduce how to teach LSRW methods.

CO5: Learn about the importance of Business Etiquette.

SEMESTER IV

COURSE: MOBILE APPLICATION DEVELOPMENT (CORE PAPER) CREDIT: 4

CO1: Students are able to know about the mobile application development environment

CO2: Students are able to understand about fragments

CO3: Students are able to know about UI using views.

CO4: Students are able to understand about handling pictures

CO5: Students are able to understand concept of Telephony and SMS in android.

COURSE: SOFTWARE PROJECT MANAGEMENT (CORE PAPER) CREDIT: 4

CO1: Students are able to understand the introduction to software project management.

CO2: Students are able to learn about project planning.

CO3: Students are able to know about effort estimation and activity planning for the project.

CO4: Students are able to understand about risk management.

CO5: Students are able to learn how to work in groups.

COURSE: MOBILE APPLICATION DEVELOPMENT (PRACTICAL PAPER)

CREDIT: 2

CO1: Students are able to know about the mobile application development environment.

CO2: Students are able to understand about fragments

CO3: Students are able to know about UI using views.

CO4: Students are able to understand about handling pictures

CO5: Students are able to understand concept of Telephony and SMS in android.

COURSE: ARTIFICIAL INTELLIGENCE (CORE ELECTIVE PAPER) CREDIT: 3

CO1: Students are able to understand about artificial intelligence.

CO2: Students are able to learn about heuristic search techniques.

CO3: Students are able to know about predicate logic.

CO4: Students are able to understand about representing knowledge using rules.

CO5: Students are able to learn about game playing.

COURSE: FANTASY FICTION (OPEN ELECTIVE PAPER) **CREDIT: 3**

CO1: On successful completion of the course, students will be able to

CO2: Demonstrate a basic understanding of the sub-genre of fantasy fiction

CO3: Identify the genre and features of fantasy fiction

CO4: Discuss the evolution of fantasy fiction

CO5: Evaluate and discuss a work of fantasy fiction using prescribed texts

CO6: Discuss the socio-cultural contexts and their impact on works of fantasy fiction.

COURSE: PROJECT **CREDIT: 5**

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end

CO4: Understand about project design.

CO5: Analyze testing and its types.

CO6: Troubleshoot software coding.

CO7: Understand about software maintenance.

CO8: Evaluate project documentation.

CO9: Understand project software requirement specification.

CO10: Understand how to develop real time projects

REGULATION 2020-2021

SEMESTER I

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM CREDIT: 3

CO1: Understand database concepts and database management system software

CO2: Understand major DBMS components and their function

CO3: Understand model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model.

CO4: Learn SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

CO5: Learn data-intensive application using DBMS APIs.

COURSE: ENTERPRISE JAVA PROGRAMMING CREDIT: 3

CO1: Learn Applet Programming using various techniques

CO2: Learn applications development using Abstract Window Toolkit and Events

CO3: Learn update and retrieve the data from the databases using JDBC- ODBC

CO4: Develop server side programs in the form of Servlets

CO5: Build up Java Applications using collections and JSP Tags.

COURSE: PROGRAMMING USING C# .NET CREDIT: 3

CO1: Understand the differences between desktop application and web application.

CO2: Learn to construct classes, methods, and access modifier and instantiate objects.

CO3: Learn to create and manipulate GUI components in C# for windows application.

CO4: Understand code solutions and compile C# projects within the .NET framework.

CO5: Learn to build the desktop application with Database.

COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM LAB CREDIT: 2

CO1: Learn to perform DDL, DML Operations

CO2: Implement Constraints

CO3: Understand Nested Queries and Joins

CO4: Implement Cursor, Trigger, Procedure

COURSE: ENTERPRISE JAVA PROGRAMMING LAB **CREDIT: 2**

CO1: Understand Applet Programming

CO2: Implement JDBC and Servlet

CO3: Understand Client Server Networking

CO4: Understand Jasper Report Generation

COURSE: PROGRAMMING USING C# LAB **CREDIT: 2**

CO1: Understand Classes, Objects, Inheritance

CO2: Implement Windows Form Control

CO3: Implement Menu Handling

CO4: Understand ADO.NET Connection

COURSE: COMPUTER ORGANIZATION **CREDIT: 3**

CO1: Understand the types of instructions and the organization of registers and memory

CO2: Analyze the translation model of assembly language to machine language.

CO3: Understand the micro-program by mapping the instructions.

CO4: Learn the types of computer organizations.

CO5: Understand the better way of processing by Parallel and Vector Process.

COURSE: PRINCIPLES OF INTERNET **CREDIT: 3**

CO1: Learn the basics of Internet.

CO2: Understand the concept of www

CO3: Understand Firewall, Digital Certificate

CO4: Learn about Browsers

SEMESTER II

COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING **CREDIT: 3**

CO1: Understand JSP, JSF and Servlet using MVC approach.

CO2: Develop the web applications using the MVC framework provided by Apache Struts

CO3: Develop Enterprise web application using EJB.

CO4: Implement the Object-Relation Mapping technique using Hibernate

CO5: Understand aspect Oriented Programming using Spring and Spring MVC.

COURSE: DESIGN AND ANALYSIS OF ALGORITHMS CREDIT: 3

CO1: Analyze the running time of the basic algorithms for those classic problems.

CO2: Understand the basic knowledge of algorithm design and its implementation.

CO3: Learn the key techniques of Divide-and-Conquer and Greedy Method.

CO4: Recognize the concept of Dynamic Programming and its algorithms

CO5: Understand Backtracking algorithms.

CO6: Understand Branch and Bound techniques for designing and analyzing algorithms.

COURSE: WEB APPLICATION USING C# .NET CREDIT: 3

CO1: Understand the differences between desktop and web application.

CO2: Learn classes, methods, and accessor and instantiate objects.

CO3: Learn to create and manipulate GUI components in C#.

CO4: Understand code solutions and compile C# projects within the .NET framework.

CO5: Learn to build own desktop application with Database

COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING LAB CREDIT: 2

CO1: Understand JSP and MVC

CO2: Implement object oriented and collection mapping

CO3: Implement Association, Component and Inheritance Mapping

CO4: Understand Spring Actions and Spring MVC

COURSE: DESIGN & ANALYSIS OF ALGORITHM LAB CREDIT: 2

CO1: Implement Divide and Conquer Algorithm

CO2: Implement Greedy Method

CO3: Implement Back tracking, Pin Backing

CO4: Implement Travelling Sales Person Problem

COURSE: WEB APPLICATION USING C# .NET LAB CREDIT: 2

CO1: Understand Web Configuration File

CO2: Implement Rich Controls, Components

CO3: Understand Data Access

CO4: Understand Custom Controls and Rich Control

COURSE: CLOUD COMPUTING **CREDIT: 3**

CO1: Understand the broad perceptive of cloud architecture and model.

CO2: Understand the concept of parallel and distributed computing

CO3: Understand the different technologies.

CO4: Understand the features of virtualization.

CO5: Learn to design the trusted cloud computing system with different cloud platforms

COURSE: PRINCIPLES OF WEB DESIGN **CREDIT: 3**

CO1: Learn to combine basic HTML elements to create Web pages.

CO2: Understand the use of HTML tags and tag attributes to control a Web page's appearance.

CO3: Learn to add absolute URLs, relative URLs, and named anchors to Web pages.

CO4: Understand using tables and frames as navigational aids on a Web site.

CO5: Control appearance web pages by applying style sheet

SEMESTER III

COURSE: DISTRIBUTED OPERATING SYSTEM **CREDIT: 4**

CO1: Understand foundations of Distributed Systems.

CO2: Understand memory management concepts

CO3: Understand in detail the system level and support required for distributed system.

CO4: Understand the shell script commands of Unix

CO5: Learn LINUX

COURSE: XML AND WEB SERVICES **CREDIT: 4**

CO1: Understand fundamental XML technology

CO2: Understand the use of JSON

CO3: Learn the role of web services in commercial applications

CO4: Learn the emerging standard protocols like SOAP, WSDL and UDDI.

CO5: Analyze the role of web services in CMS

COURSE: PROGRAMMING USING PYTHON **CREDIT: 3**

CO1: Learn the fundamental concepts of Python

CO2: Understand Basics of Python programming language

CO3: Solve simple problems using Python

CO4: Acquire fundamental knowledge and skills on Python Programming

CO5: Understand the nuances of this language.

CO6: Learn the usage of modules and packages in Python

CO7: Familiarize with file concepts in Python

CO8: Familiarize with web concepts using Python.

COURSE: DISTRIBUTED OPERATING SYSTEM LAB **CREDIT: 2**

CO1: Learn Shell Scripts

CO2: Implement shell programs using Branching and Looping Statements

CO3: Understand CPU Processes and Memory un usage using shell script.

COURSE: XML AND WEB SERVICES LAB **CREDIT: 2**

CO1: Learn XML Document

CO2: Understand XSLT Elements

CO3: Implement XPath Node sets and Number functions

CO4: Learn to implement XML with XSD

COURSE: PYTHON PROGRAMMING LAB **CREDIT: 2**

CO1: Understand String operations

CO2: Understand Dictionaries

CO3: Implement Flow Control and Functions

CO4: Understand File Handling, Exception Handling and Regular Expressions

COURSE: NETWORK SECURITY **CREDIT: 3**

CO1: Learn some of the driving factors needed for network security

CO2: Identify and classify attacks and threats

CO3: Compare and contrast symmetric and asymmetric encryption systems.

CO4: Identify the web systems vulnerable to attack.

CO5: Learn secure mail applications and security protocols

COURSE: PROGRAMMING USING C++ **CREDIT: 3**

CO1: Understand object oriented programming and advanced C++ concepts.

CO2: Understand the various functions and arguments in object oriented programming.

CO3: Understand the classes and objects in C++.

CO4: Learn inheritance and polymorphisms.

CO5: Understand the concepts of files and exception handling

SEMESTER - IV

COURSE: MOBILE APPLICATION DEVELOPMENT **CREDIT: 4**

CO1: Learn Android OS

CO2: Understand Intents, Activities and Fragments

CO3: Understand View and View Groups

CO4: Learn SQLite

CO5: Learn Xamarin

COURSE: SOFTWARE PROJECT MANAGEMENT **CREDIT: 4**

CO1: Provide sound knowledge in Project Management.

CO2: Understand the importance of requirement gathering

CO3: Explore different models in Software Development

CO4: Understand the workflow of a Project

CO5: Identify various actors in the activity

COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB **CREDIT: 2**

CO1: Learn Android Applications

CO2: Understand UI Controls

CO3: Implement SQLite Database

CO4: Implement Emailing, Telephony and SMS

COURSE: PROJECT **CREDIT: 5**

CO1: Acquire good knowledge of project management. CO2: Understand about project planning.

CO3: Evaluate front end and back end CO4: Understand about project design. CO5: Analyze testing and its types.

CO6: Troubleshoot software coding.

CO7: Understand about software maintenance. CO8: Evaluate project documentation.

CO9: Understand project software requirement specification. CO10: Understand how to develop real time projects.

COURSE: BIG DATA ANALYTICS **CREDIT: 3**

CO1: Understand the needs for Big Data and its environments.

CO2: Learn the basic requirements of Big Data Technologies.

CO3: Understand Map Reduce programming framework(Hadoop).

CO4: Learn NoSQL DB's Cassandra and MongoDB

CO5: Understand Hive and Pig technologies for analyzing the Big Data.

COURSE: RESEARCH METHODS AND ETHICS **CREDIT: 3**

CO1: Understand research processes (reading, evaluating, and developing);

CO2: Perform literature reviews using print and online databases;

CO3: Identify, explain, compare, and prepare the key elements of a research proposal/report;

CO4: Compare and contrast quantitative and qualitative research

REGULATION -2017-2018

SEMESTER - I

COURSE: FORMAL LANGUAGES & AUTOMATA THEORY **CREDIT: 5**

CO1: Develop fundamental skills on String, Alphabets and operations

CO2: Understand and the formal languages and set theory, relations and functions.

CO3:Develop Deterministic and non-deterministic finite automata.

CO4: Draw the finite automata and Sequential Circuits

CO5: Solve problems on Chomsky classification of grammars

CO6: Understand the basic structure of Turing Machine

CO7: Implement1'sand 2'sComplement for Turing machines.

COURSE: ADVANCED JAVA PROGRAMMING **CREDIT: 3**

CO1: Develop Advanced Java Programming skills that are required to fully utilize the capabilities ofthis Object-Oriented, general-purpose programming language.

CO2: Design and develop GUI applications using Abstract Windowing Toolkit(AWT), Swingand Event handling.

CO3: Design java applications using pre-built framework.

CO4: Learn to access database through Java programs, using Java Data Base Connectivity (JDBC).

COURSE: WEB APPLICATION USING C# .NET **CREDIT: 3**

CO1: Understand the differences between desktop and web application.

CO2: Learn classes, methods, and accessor and instantiate objects.

CO3: Learn to create and manipulate GUI components in C#.

CO4: Understand code solutions and compile C# projects within the .NET framework.

CO5: Learn to build own desktop application with Database

COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMINGLAB CREDIT: 2

CO1: Understand JSP and MVC

CO2: Implement object oriented and collection mapping

CO3: Implement Association, Component and Inheritance Mapping

CO4: Understand Spring Actions and Spring MVC

COURSE: DESIGN & ANALYSIS OF ALGORITHM LAB **CREDIT: 2**

CO1: Implement Divide and Conquer Algorithm

CO2: Implement Greedy Method

CO3: Implement Back tracking, Pin Backing

CO4: Implement Travelling Sales Person Problem

COURSE: WEB APPLICATION USING C# .NET LAB **CREDIT: 2**

CO1: Understand Web Configuration File

CO2: Implement Rich Controls, Components

CO3: Understand Data Access

CO4: Understand Custom Controls and Rich Controls

COURSE: CLOUD COMPUTING **CREDIT: 3**

CO1: Understand the broad perceptive of cloud architecture and model.

CO2: Understand the concept of parallel and distributed computing

CO3: Understand the different technologies.

CO4: Understand the features of virtualization.

CO5: Learn to design the trusted cloud computing system with different cloud platforms

COURSE: PRINCIPLES OF WEB DESIGN **CREDIT: 3**

CO1: Learn to combine basic HTML elements to create Web pages.

CO2: Understand the use of HTML tags and tag attributes to control a Web page's Appearance.

CO3: Learn to add absolute URLs, relative URLs, and named anchors to Web pages. CO4: Understand using tables and frames as navigational aids on a Web site.

CO5: Control appearance web pages by applying style sheet.

SEMESTER III

COURSE: DISTRIBUTED OPERATING SYSTEM **CREDIT: 4**

CO1: Understand foundations of Distributed Systems.

CO2: Understand memory management concepts

CO3: Understand in detail the system level and support required for distributed system.

CO4: Understand the shell script commands of Unix

CO5: Learn LINUX

COURSE: PROGRAMMING USING PYTHON **CREDIT: 3**

CO1: Learn the fundamental concepts of Python

CO2: Understand Basics of Python programming language

CO3: Solve simple problems using Python

CO4: Acquire fundamental knowledge and skills on Python Programming

CO5: Understand the nuances of this language.

CO6: Learn the usage of modules and packages in Python

CO7: Familiarize with file concepts in Python

CO8: Familiarize with web concepts using Python.

COURSE: DISTRIBUTED OPERATING SYSTEM LAB **CREDIT: 2**

CO1: Learn Shell Scripts

CO2: Implement shell programs using Branching and Looping Statements

CO3: Understand CPU Processes and Memory un usage using shell script

COURSE: XML AND WEB SERVICES LAB **CREDIT: 2**

CO1: Learn XML Document

CO2: Understand XSLT Elements

CO3: Implement XPath Node sets and Number functions

CO4: Learn to implement XML with XSD

COURSE: PYTHON PROGRAMMING LAB **CREDIT: 2**

CO1: Understand String operations

CO2: Understand Dictionaries

CO3: Implement Flow Control and Functions

CO4: Understand File Handling, Exception Handling and Regular Expressions

COURSE: NETWORK SECURITY **CREDIT: 3**

CO1: Learn some of the driving factors needed for network security

CO2: Identify and classify attacks and threats

CO3: Compare and contrast symmetric and asymmetric encryption systems.

CO4: Identify the web systems vulnerable to attack.

CO5: Learn secure mail applications and security protocols

COURSE: PROGRAMMING USING C++ **CREDIT: 3**

CO1: Understand object oriented programming and advanced C++ concepts.

CO2: Understand the various functions and arguments in object oriented programming.

CO3: Understand the classes and objects in C++.

CO4: Learn inheritance and polymorphisms.

CO5: Understand the concepts of files and exception handling.

SEMESTER- IV

COURSE: MOBILE APPLICATION DEVELOPMENT **CREDIT: 4**

CO1: Learn Android OS

CO2: Understand Intents, Activities and Fragments

CO3: Understand View and View Groups

CO4: Learn SQLite

CO5: Learn Xamarin

COURSE: SOFTWARE PROJECT MANAGEMENT **CREDIT: 4**

CO1: Provide sound knowledge in Project Management.

CO2: Understand the importance of requirement gathering

CO3: Explore different models in Software Development

CO4: Understand the workflow of a Project

CO5: Identify various actors in the activity

COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB **CREDIT: 2**

CO1: Learn Android Applications

CO2: Understand UI Controls

CO3: Implement SQLite Database

CO4: Implement Emailing, Telephony and SMS

COURSE: PROJECT **CREDIT: 5**

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end

CO4: Understand about project design.

CO5: Analyze testing and its types.

CO6: Troubleshoot software coding.

CO7: Understand about software maintenance.

CO8: Evaluate project documentation.

CO9: Understand project software requirement specification.

CO10: Understand how to develop real time projects.

COURSE: BIG DATA ANALYTICS **CREDIT: 3**

CO1: Understand the needs for Big Data and its environments.

CO2: Learn the basic requirements of Big Data Technologies.

CO3: Understand Map Reduce programming framework(Hadoop).

CO4: Learn NoSQL DB's Cassandra and MongoDB

CO5: Understand Hive and Pig technologies for analyzing the Big Data.

COURSE: RESEARCH METHODS AND ETHICS **CREDIT: 3**

CO1: Understand research processes (reading, evaluating, and developing);

CO2: Perform literature reviews using print and online databases;

CO3: Identify, explain, compare, and prepare the key elements of a research proposal/report;

CO4: Compare and contrast quantitative and qualitative research