ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE
Permanently Affiliated to Thiruvalluvar University
Recognized by UGC under sections 2(f) and 12(B) of the UGC Act 1956
Accredited with "B" Grade by NAAC
Approved by the Government of Tamil Nadu
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DEPARTMENT OF COMPUTER APPLICATIONS

PSOs and Cos

REGULATION 2017-2018

DEPARTMENT OF COMPUTERAPPLICATION

PSOs, Cos

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Able to develop Software and can serve as a Software developer and Programmer.

PSO2: Able to serve as the Software Professional in different IT sectors with enhanced knowledge of Software.

PSO3: Understand the Networking concepts and can serve as a Network Infrastructure Developer.

PSO4: Able to serve as a Database developer and also as DBMS Administrator by thoroughly learning DBMS.

PSO5: Able to serve as the Web Designers/Website Developers by knowing various Web Development Software.

PSO6: Able to present their innovations in more unique way by using Software.

COURSE OUTCOME

SEMESTER I

COURSE: DIGITAL LOGIC AND PROGRAMMING IN C CREDIT: 6

CO1: Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions.

CO2: Develop K-maps to minimize and optimize logic functions up to 5 variables.

CO3: Design various Combinational and Sequential Circuits such as encoders, decoders and counters using multiplexers and flip flops.

CO4: Identify the errors during the execution of a program.

CO5: Develop their programming skills.

CO6: Understand operators, expressions and pre-processors.

CO7: Understand arrays, its declaration and uses

COURSE: PROGRAMMING IN C LAB 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 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 concepts to convert between metric, household and Apothecary Units.

SEMESTER - II

COURSE: C++ & DATA STRUCTURE CREDIT: 6

CO1: Understand The Basic Concepts Of Operators & Expression.

CO2: Create the functions in classes &objects.

CO3: Understand 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 tee &graph concept of operation.

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

CO1: Implement the concept of classes, object, conueer443structor, functions and over loading

CO2: Implement the inheritance and error handing functions

CO3: Implement infix to postfix conversion & binary tree traversals (in-order, pre- order& post order).

COURSE: MATHEMATICAL FOUNDATIONS II CREDIT: 6

CO1: Understand Matrix, Skew-Symmetric Matrix

CO2: Understand Cayley-Hamilton theorem

CO3: Analyze definite integrals

CO4: Implement analytical geometryCO5: 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: JAVA PROGRAMMING 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.

COURSE: E-COMMERCE CREDIT:4

CO1: Understand traditional and electronic business applications

CO2: Analyze network infrastructure For E-Commerce

CO3: Understand network security and Firewalls

CO4: Analyze EDI and its applications

CO5: Understand about Encrypted documents

COURSE: RESOURCE MANAGEMENT TECHNIQUES CREDIT:4

CO1: Understand linear programming problem

CO2: Analyze Assignment and transportation problem

CO3: Learn sequencing Model

CO4: Learn replacement Model

CO5: Understand networking analysis

COURSE: JAVA PROGRAMMING 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

COURSE: FINANCIAL ACCOUNTING CREDIT: 4

CO1: Understand financial Accounting concept

CO2: Understand the causes of depreciation

CO3: Analyze calculation of bills exchange and trade bills

CO4: Compare single entry and double entry system.

CO5: Understand profit and loss accounting

COURSE: DESIGN AND ANALYSIS OF ALGORITHM CREDIT: 3

CO1: Understand the concepts of Algorithm and Analysis.

CO2: Learn various advanced design and analysis techniques such as greedy algorithms, dynamic programming.

CO3: Understand different computational models and various complexity measures.

CO4: Analyze the complexity/ performance of different algorithms.

COURSE: TRAINING AND DEVELOPMENT CREDIT: 2

CO1: Understand the training needs and responsibilities of On the job and Off the job training.

CO2: Understand importance of career Planning.

CO3: Understand psychology of the learning process on which training is based.

CO4: Analyze the training needs of an organization.

SEMESTER - IV

COURSE: DATABASE MANAGEMENT SYSTEMS CREDIT: 3

CO1: Understand the basic concepts of Database.

CO2: Analyze different data models.

CO3: Evaluate SQL and PL/SQL concepts

CO4: Implement Procedures, Functions, Triggers and Cursors.

COURSE: ENTERPRISE RESOURCE PLANNING CREDIT: 4

CO1: Describe about business process under ERP system.

CO2: Understand the system of Industrial Credit Management system

CO3: Define the various function areas

CO4: Understand the concept of human resource management

CO5: Compare and contrast traditional system and ERP system

COURSE: DECISION SUPPORT SYSTEM CREDIT: 4

CO1: Understand the concepts of Decision Support system (DSS) and its affect on management.

CO2: Define the purpose of DSS and Data Warehousing.

CO3: Compare data, information and knowledge as they apply to DSS.

CO4: Define and describe the usefulness of the neural network.

CO5: Define and differentiate between the data warehouse, data marts and data mining.

COURSE: RDBMS LAB CREDIT: 3

CO1: Implement Simple Queries to fetch data from table.

CO2: Evaluate queries used to fetch data from table using aggregate functions and set operations.

CO3: Compare and Contrast Trigger Before and After

CO4: Implement Functions and Procedures in PL/SQL.

COURSE: FINANCIAL ACCOUNTING II CREDIT: 6

CO1: Understand different accounting methods

CO2: Evaluate department and branch account

CO3: Compute partnership account

CO4: Analyze the procedure of dissolution of partnership form

CO5: Understand hire purchase and installation accounts.

COURSE: COMPUTER ORGANISATION AND ARCHITECTURE CREDIT: 3

CO1: Understand the basic computer architecture.

CO2: Compare the different Addressing Modes

CO3: Analyze Direct Memory Access

CO4: Compare and Contrast Memory Management

COURSE: MANAGEMENT CONCEPTS CREDIT: 2

CO1: Understand the functions and responsibilities of managers.

CO2: Analyze tools and techniques to be used in the performance of the managerial job.

CO3: Analyze and understand the environment of the organization.

CO4: To develop cognizance of the importance of management principles.

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 javadoc.

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: Explain 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

WirelessNetwork.

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.

REGULATION – 2020-2021

PSOs, Cos

B.C.A

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Develop student's computer knowledge, their basic understanding of software commonly used in Educational and IT Sectors.

PSO2: Understand how to organize information accurately by using the different software available to perform activities accurately and quickly.

PSO3: Understand how to present their innovations in more unique way by using Software.

PSO4: Develop the various IT skills to the electronic databases. Use the Systems Analysis Design paradigm to critically analyze a problem.

PSO5: Solve the problems in the Information Technology environment (Networking Concepts and their broad usages)

PSO6: Understand how to function effectively as a team to accomplish a task of Software Development.

REGULATION – 2020-2021

COURSE OUTCOME

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 Algorithms, Factoring Methods.

COURSE: PROGRAMMING IN C LAB **CREDIT: 2**

CO1: Enhance the analyzing and problem solving skills and use the same for writing programs in C.

CO2: Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards.

CO3: Learn to debug a given program and execute the C program.

CO4: To have enough practice the use of conditional and looping statements.

CO5: To implement arrays, functions and pointers.

COURSE: MATHEMATICAL FOUNDATIONS I **CREDIT: 3**

CO1: Understand set theory

CO2: Learn Symbolic Logic concepts.

CO3: Understand Binary Operation, Differentiation, Two dimensional analytical geometry.

CO4: Implement concepts to convert between metric, household and Apothecary Units.

SEMESTER - II

COURSE: C++ & DATA STRUCTURE **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.

CO3: Understand Explain the file concept and exception handlings in C++

CO4: The Student will be able to understand the concepts of Stacks and Queue using array and pointers.

CO5: The Student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.

CO6: The Student will be able to understand the concepts of Sorting and Searching Algorithms.

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: FINANCIAL ACCOUNTING-I CREDIT: 3

CO1: To introduce the basic concepts and conventions to the students, this would help in development of accounting knowledge.

CO2: To understand the concept of Double entry system this helps in preparation of various books of accounts.

CO3: To develop the capability of students to prepare the Final Accounts of a Small Business Concern.

CO4:To introduce the concept of Single entry system of Accounting which helps them to prepare the accounts from incomplete records.

CO5: To enhance the Accounting Knowledge by introducing the practical uses of Average Due Date and Bank Reconciliation Statement.

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: FINANCIAL ACCOUNTING II **CREDIT: 5**

CO1 To Understand the concept of Branch Accounting and enable the students to prepare Accounts for various types of Branches.

CO2 To enhance the procedure for preparing Departmental Accounts.

CO3 To Develop the skill of the students in preparing Hire Purchase Accounting, both in the books of Hire Purchaser and Hire Vendor.

CO4 To Understand the Accounting procedure for Partnership in cases like Admission, Retirement, Death.

CO5 To Understand the Accounting procedure for Dissolution and Insolvency of a Partner.

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.

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: 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: 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: 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

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1:An ability to enhance the application of knowledge of theory subjects in diverse fields.

PSO2:Develop language proficiency to handle corporate communication demands.

PSO3:Preparing students in various disciplines of technologies such as computer applications, computer networking, software engineering, JAVA, database concepts and programming.

PSO4: In order to enhance programming skills of the young IT professionals, the concept of

project development in using the technologies learnt during the semester has been introduced.

PSO5: To enhance knowledge in robotics, provide experimental hardware equipment for teaching the basics of robotics, robot dynamics and control, and robot system design and application.

PSO6: To enhance logical ability and programming concepts by implementing programming lab.

PSO7: Preparing students for future aspects by building and improving their creativity, social awareness, and general knowledge.

PSO8: Encouraging students to convert their start-up idea to reality by implementing.

PSO9: Ability to understand the changes or future trends in the field of computer application.

PSO10: Ability to identify, formulate, analyse and solve problems of programming using

different languages.

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 sinθ.

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 VectorAnalysis

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: FINANCIAL ACCOUNTING-I CREDIT: 3

CO1: To introduce the basic concepts and conventions to the students, this would help in development of accounting knowledge.
CO2: To understand the concept of Double entry system this helps in preparation of various books of accounts.
CO3:To develop the capability of students to prepare the Final Accounts of a Small Business Concern.
CO4 :To introduce the concept of Single entry system of Accounting which helps them to prepthe accounts from incomplete records.
CO5: To enhance the Accounting Knowledge by introducing the practical uses of Average Due Date and Bank Reconciliation Statement.

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.

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: FINANCIAL ACCOUNTING-II **CREDIT: 5**

CO1: Student can able To Understand the concept of Branch Accounting and enable the studento prepare Accounts for various types of Branches.

CO2: Student can be able To enhance the procedure for preparing Departmental Accounts.

CO3: Student can be able to Develop the skill of the students in preparing Hire PurchAccounting, both in the books of Hire Purchaser and Hire Vendor.

CO4: Student can able to Understand the Accounting procedure for Partnership in cases Admission, Retirement, Death.

CO5: To Understand the Accounting procedure for Dissolution and Insolvency of a Partner.

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: Uunderstand 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: 2

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: MOBILE COMPUTING (INTERNAL ELECTIVE)

CREDIT: 3

CO1: After studied unit-1, the student will be able to understand basic concepts of mobile computing.

CO2:. After studied unit-2, the student will be able to learn the basics of mobile telecommunication system

CO3. After studied unit-3, the student will be able to comprehend wireless LAN and cellular systems.

CO4: After studied unit-4, the student will be able to understand protocols at network and transport layer.

CO5: After studied unit-5, the student will be able to learn development of applications in mobile
computing platform.

REGULATION- 2023-2024

COURSE OUTCOME

SEMESTER I

PROGRAM SPECIFIC OUTCOMES(PSOs)

PSO1: To enable students to apply basic microeconomic, macroeconomic and monetary concepts and theories in real life and decision making.

PSO 2: To sensitize students to various economic issues related to Development, Growth, International Economics, Sustainable Development and Environment.

PSO 3: To familiarize students to the concepts and theories related to Finance, Investments and Modern Marketing.

PSO 4: Evaluate various social and economic problems in the society and develop answer to the problems as global citizens.

PSO 5: Enhance skills of analytical and critical thinking to analyze effectiveness of economic policies.

COURSE OUTCOME

SEMESTER I

COURSE: PYTHON PROGRAMMING

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 strings in various application, Significance of Modules, Work with functions, Strings and modules.

CO4: Work with List, tuples and dictionary, Write program using list, tuples and dictionary.

CO5: Usage of File handlings in python, Concept of reading and writing files, Do programs using files.

COURSE: PYTHON LAB CREDIT:4

CO1: Demonstrate the understanding of syntax and semantics of Python

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: FUNDAMENTALSOF INFORMATION TECHNOLOGY

CREDIT:2

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 header 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: STRUCTURED PROGRAMMING LANGUAGE IN C

CREDIT:2

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.

SEMESTER-II

COURSE: OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

CREDIT:5

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++LAB CREDIT:5

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: INTRODUCTION TO HTML 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 save the files. Understand the page formatting.

CO3: 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: UNDERSTANDING INTERNET CREDIT:2

CO1: On completion of this course, students will Internet.

CO2: Knows the basic concept in internet

CO3: Know the concept of TCP/IP – Internet Technologies and Protocol

CO4: Understand the concept of Internet connectivity.

CO5: Can be able to know about internet networks

SEMESTER-III

COURSE: DATA STRUCTURE AND ALGORITHMS **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 **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: OFFICE AUTOMATION **CREDIT:3**

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: PROBLEM SOLVING TECHNIQUES **CREDIT:1**

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 pseudocode.

CO3: Determine the various operators. Explain about the structures. Illustrate the concept of Loops

CO4: Study about Numeric data and character-based data. Analyze about Arrays.

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

COURSE: PHP PROGRAMMING **CREDIT:2**

CO1: Write PHP scripts to handle HTML forms

CO2: Write regular expressions including modifiers, operators, and metacharacters.

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-IV

COURSE: JAVA PROGRAMMING **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 **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: MULTIMEDIA SYSTEM **CREDIT:3**

CO1: understand the concepts, importance, application and the process of developing multimedia

CO2: to have basic knowledge and understanding about image related processings

CO3: To understand the framework of frames and bit images to animations

CO4: Speaks about the multimedia projects and stages of requirement in phases of project.

CO5: Understanding the concept of cost involved in multimedia planning, designing, and producing

COURSE: WEB DESIGNING **CREDIT:2**

CO1: Develop working knowledge of HTML

CO2: 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 **CREDIT:2**

CO1: Understand the definition of computer forensics fundamentals

CO2: 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 SYSTEM 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 CREDIT:3

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

CO2: Able to understand the programming knowledge of scheduling algorithms.

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

CO4: Able to understand how to code various algorithm 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 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, 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 CREDIT:3

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

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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: BIG DATA ANALYTICS 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: COMPUTER NETWORKS CREDIT:3

CO1: To Understand the basics of Computer Network architecture, OSI and TCP/IP reference models

CO2: To gain knowledge on Telephone systems using wireless network

CO3: To understand the concept of MAC

CO4: To analyze the characteristics of Routing and Congestion control algorithms

CO5: To understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

COURSE: INDUSTRIAL TRAINING **CREDIT:3**

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 **CREDIT:3**

CO1: Appreciate the importance of visualization in the data analytics 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 **CREDIT:3**

CO1: Appreciate the importance of visualization in the data analytics 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: DATA ANALYTICS USING R PROGRAMMING **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 USING R PROGRAMMING LAB 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: INTERNET OF THINGS AND ITS APPLICATIONS 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: CLOUD COMPUTING 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: OPEN SOURCE TECHNOLOGY CREDIT:2

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 graphics programming.