

Bachelor of Computer Science

COURSE OUTCOME

First Year:I B.Sc

I Semester

Course Code: SCSJC11

Course Name: Programming in 'C'

Credit:4

CO1. Illustrate the flowchart and design an algorithm for a given problem and to develop C programs using operators

CO2. Develop conditional and iterative statements to write c programs.

CO3. Exercise user defined functions to solve real-time problems.

CO4. Inscribe c programs that use pointers to access arrays, strings, and functions.

CO5. Exercise user defined data types including structures and unions to solve problems

CO6. Inscribe c programs using pointers and to allocate memory using dynamic memory management functions.

CO7. Exercise files concept to show input and output of files in C

Course Code: SCSJA11

Course Name: Mathematical Foundation-I

Credit:4

CO1:Understand the basic principles of propositional Logic and Equivalences.

CO2:Understand the concepts of Relations and Orderings.

CO3:Apply the problem related to Permutations and Combinations

CO4:Analyze the different Graphs and Graph models.

CO5:Understand basic operation on Matrices, Eigen values and Eigen Vectors.

Course Code: SCSJC1P

Course Name: Practical –Programming in ‘C’

Credit:4

CO1. Illustrate flowchart and algorithm to the given problem

CO2. Understand basic structure of the c programming, declaration and usage of variables.

CO3. Write c programs using operators

CO4. Exercise conditional and iterative statements to write c programs.

CO5. Write c programs using pointers to access arrays, strings and functions.

CO6. Write c Programs using pointer and allocate memory using dynamic management functions.

CO7.Exercise user defined data types.

Course Code: SCSJS1P

Credit:2

Course Name: Practical –Office Automation

CO1.Understand the procedure of documentation. .

CO2: Understand the basic operation of MS-Word, MS-PowerPoint and MS-Excel.

CO3: Understand the procedure of creating E-Mail and Working of Internet.

Course Code: UVEJV11

Course Name: Value Education

Credit:2

CO1: Students will understand the importance of value based living.

CO2: Students will gain deeper understanding about the purpose of their life.

CO3: Students will understand and start applying the essential steps to become good leaders.

CO4: Students will emerge as responsible citizens with clear conviction to practice values and ethics in life.

CO5: Students will become value based professionals.

CO6: Students will contribute in building a healthy nation

II Semester

Course Code: SCSJC21

Course Name: Object Oriented Programming using C++

Credit:4

CO1: Develop solutions for a range of problems using objects and classes.

CO2: Implement algorithms utilizing the principles of object oriented programming to solve simple problems

CO3: Demonstrate the implementation of constructors, destructors and operator overloading.

CO4: Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism.

CO5: Understand & implement console I/ O operations & templates.

Course Code: SCSJA21

Course Name: Mathematical Foundation-II

Credit:4

CO1: Understand the types and graphical representation of statistical data.

CO2: Understand the characteristics of Dispersion.

CO3: Analyse the properties of Correlation techniques

CO4: Understand the concepts of set, sample space and probability

CO5: Apply the concept of sampling distribution over statistical data

Course Code: SCSJC2P

Course Name: Practical –Object Oriented Programming using C++

Credit:4

CO1: Develop solutions for a range of problems using objects and classes.

CO2: Implement algorithms utilizing the principles of object oriented programming to solve simple problems

CO3: Demonstrate the implementation of constructors, destructors and operator overloading.

CO4: Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism.

CO5: Understand & implement console I/ O operations & templates

Course Code: SCSJS2P

Course Name: Practical –Linux Programming

Credit:2

CO1: Students will be able to understand the basic commands of Linux operating system and can write shell scripts

CO2: Students will be able to create file systems and directories and operate them

CO3: Students will be able to create processes background and fore ground etc. By fork() system calls

CO4: Students will be create shared memory segments, pipes, message queues and can exercise inter process communication

Course Code: UESJD21

Course Name: Environmental Studies

Credit:2

CO1: Understand core concepts and methods from ecological and physical sciences and their application in environmental problem-solving.

CO2: Understand the impact of human intervention to environmental pollution.

CO3: Understand the importance of saving environmental resources.

CO4: Analyze the key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.

II-B.Sc:III Semester

Course Code: SCSGC31

Course Name: Data Structures and Computer Algorithm

Credit:4

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 Code: SCSGC32

Course Name: Digital Principals and Computer Organization

Credit:4

CO1: Understand the operation of Basic Logic Gates ,numerical and character representations in digital logic including ASCII, Gray code and Excess-3 code.

CO2: Understand the principle of Boolean Laws &Theory,Karnaugh Map and Combinational Circuits.

CO3: Apply and interpret function tables and truth tables for simple sequential devices including flip-flops, counters and registers.

CO4: Understand the basic working of Registers, Flipflops and Counters.

CO5: Understand the architecture and addressing formats.

Course Code: SCSGA31

Course Name: Resource Management Techniques

Credit:4

CO1:Understand the basic characteristics of Operational Research.

CO2: Apply Graphical method to solve LPP.

CO3:Apply Simplex Method to solve LPP.

CO4:Apply Hungarian method to solve assignment problem.

CO5:Analyze the different methods to solve Transportation problem

Course Code: SCSGC3P

Course Name: practical- Data Structures and Computer Algorithm **Credit:3**

CO1:Apply the Basic concepts of tree and graphs

CO2:Apply the basic concepts of Heaps, Linked List, Stack,Queues and Trees

CO3:Apply the efficiency of binary search trees and multiway search trees

CO4:Apply the concepts of dynamic programming and basic traversal and search techniques

CO5:Apply the concepts of Backtracking and Branch & Bound

Course Code: SCSGS3P

Course Name: Practical-Multimedia Programming Lab **Credit:2**

CO1:Apply the basic tools and techniques of designing graphics using Adobe Photoshop

CO2:Apply basic tools and techniques of designing graphics using Macromedia Flash

II B.Sc:IV Semester

Course Code: SCSGCS41

Course Name: Object Oriented Programming using JAVA **Credit:4**

Students should be able to learn the Internet Programming, using Java Applets, other components, including windows, menus, buttons, checkboxes, text fields, scrollbars and scrolling lists, using Abstract Windowing Toolkit (AWT) & Swings, apply event handling on AWT and Swing components, learn to access database through Java programs, using Java Data Base Connectivity (JDBC),create dynamic web pages, using Servlets and JSP and make a reusable software component, using Java Bean.

Course Code: SCSGA41

Course Name: Numerical Methods **Credit:4**

CO1: Apply numerical methods to find our solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations.

CO2: Apply numerical methods to find solution to simultaneous equation.

CO3: Apply various interpolation methods and finite difference concepts

CO4: Work out numerical differentiation and integration whenever and wherever routine methods are not applicable.

CO5: Work numerically on the ordinary differential equations using different methods through the theory of finite differences.

Course Code: SCSGS42

Course Name: System Software

Credit:4

CO1: Fundamental knowledge about working of language processors and architectures of hypothetical machines

CO2: Understand the design of an assembler.

CO3: Design a loader for loading an object program for execution.

CO4: Develop skills to design macro processors using C language

CO5: Impart basic knowledge to develop other system

Course Code: SCSGC4P

Course Name: Practical-JAVA Programming

Credit:4

CO1: To build software development skills using java programming for real world applications.

CO2: To implement frontend and backend of an application

CO3: To implement classical problems using java programming.

Course Code: SCSGS4P

Course Name: Practical-PHP Programming

Credit:2

CO1: To understand the importance of the web as an effective medium of communication.

CO2: To develop basic skills in analyzing the usability of a web site.

CO3: To develop hands on experience using open source technologies such as HTML, CSS, JavaScript, PHP and MySQL.

CO4: To implement static, dynamic and interactive web pages and web applications.

CO5: To be able to analyze the available open source technologies and select the appropriate one based on need.

III-B.Sc:V Semester

Course Code: SCSGA51

Course Name: Client Server Computing

Credit:4

CO1: Define the underlying concepts in client server development using common access databases.

CO2: Describe the concept of middleware, and communication protocols

Co3: Explain the different component of N Tier and Three Tier application

CO4: Design distributed applications using the Java Remote Method Invocation (RMI) framework

Course Code: SCSGC51

Course Name: Relational Database Management System

Credit:4

CO1: To expose the students in the basic concepts involved in designing and building a a database system.

CO2: Learn how to use the structured query language (SQL)

CO3: Understand the relational model and Relational database management system

CO4: To provide detailed knowledge of transaction, concurrency and recovery strategies of DBMS

CO5: To know how normalization is important for DBMS and different normalization.

CO6: Java Programming using Servlet.

Course Code: SCSGC52

Course Name: Operating System

Credit:4

CO1: Understand Operating System Structure, Operations and Services

CO2: Understand the Process Concept, Multithreaded Programming, Process Scheduling and Synchronization.

CO3: Apply the Concepts of Virtual Memory Management and File Systems

CO4: Design and implement CPU Scheduling algorithms, Page Replacement Algorithms,

Memory Allocation Algorithms, Disk Scheduling Algorithms.

CO5: Analyze I/O Management and Secondary Storage Mechanism.

Course Code: SCSGC53

Course Name: Software Engineering

Credit:4

CO1: Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements

CO2: Able to elicit, analyse and specify software requirements through a productive working relationship with various stakeholders of the project

CO3: Analyse and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.

CO4: Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice

CO5: Able to use modern engineering tools necessary for software project management, time management

Course Code: SCSGC5P

Course Name: Relational Database Management System Lab

Credit:4

The students should be able to understand, appreciate and explain the underlying concept of DBMS also to populate and query a database using SQL DDL/DML commands.

Programming in PL/SQL including the stored procedure, stored functions, and cursors packages.

Course Code: UES8D51

Course Name: Environmental Studies

Credit:2

CO1: Understand core concepts and methods from ecological and physical sciences and their application in environmental problem-solving

CO2: Understand the impact of human intervention to environmental pollution

CO3: Understand the importance of saving environmental resources.

CO4: Analyze the key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.

Course Code: SCSGS5P

Course Name: Python Programming Lab

Credit:2

CO1: To familiarize the students with various data types, control structures ,functions used in python

CO2:To familiarize students to create menu driven ,user friendly and graphical programs in python.

III B.Sc:VI Semester:

Course Code: SCSGA61

Course Name: Computer Graphics

Credit:4

CO1: Understand the concepts of display devices and Line drawing algorithms.

CO2: Learn the different types of clipping algorithms and two dimensional transformations.

CO3: Apply the concepts of 3D display methods, transformation and viewing in computer graphics.

CO4: Analyze the surface detection methods, dither techniques, rendering and illumination Models

CO5: Design and implement computer animation with morphing.

Course Code: SCSGC61

Course Name: Data Communication & Networks

Credit:4

CO1: Understand the architecture of Networks and error checking mechanism in networks.

CO2: Analyze the different protocol standards and transmission techniques used in network.

CO3: Analyze the different routing protocols used in wired and wireless networks.

Co4: Understand the protocol used for reliable end-end transmission.

Course Code: SCSGC62

Course Name: Data Mining

Credit:4

CO1: Understand the basic concepts of data warehouse and functionality of the various data warehousing components and how it differs from traditional data base systems and how it is helpful for data mining.

CO2: Understand the pre-processing methods on datasets and various functionality of the data mining system.

CO3: Apply classification and prediction methods for data mining.

CO4: Use various clustering algorithm for grouping data items of interest.

CO5: Understand various fields in which data mining can be applied and related tools used for mining process.

Course Code: UVE8V61

Course Name: Value Education

Credit:2

CO1: Students will understand the importance of value based living.

CO2: Students will gain deeper understanding about the purpose of their life.

CO3: Students will understand and start applying the essential steps to become good leaders.

CO4: Students will emerge as responsible citizens with clear conviction to practice values and ethics in life.

CO5: Students will become value based professionals.

CO6: Students will contribute in building a healthy nation

Course Code: SCSGC6P

Course Name: Web Technology Lab

Credit:4

CO1: Understand the programming concepts of HTML, DHTML, CSS, JavaScript, XML and other Web technologies.

CO2: Implement client side applications using JavaScript Language

CO3: Develop dynamic User Interface applications.

CO4: Analyze the need of “WEBSERVERS” for the management and Development delivery of electronic information.

CO5: Utilize professional level platforms (ASP, JSP, Servlets) to produce software Systems/websites that meet specified user needs and constraints.

Course Code: SCSGS61

Course Name: Quantitative Aptitude

Credit:2

CO1:To improve problem solving skills among students.

CO2:To improve mathematical skills for students to appear for competitive examination

Master of Computer Science

COURSE OUTCOME

Course Code: ECSJC11

Course Name: Discrete Mathematical Structure

Credit:4

CO1: Understand the concepts of Truth tables, Tautology and Contradiction.

CO2: Explain the concept of theory of inferences and validity of arguments.

CO3: Apply the concept of Lattice theory in distributed computing

CO4: Analyse the concept of Group theory.

CO5: Apply the concept of Graph theory in computability theory.

Course Code: ECSJC12

Course Name: Advanced Java Programming

Credit:4

CO1: Design programs using Remote method invocations (RMI).

CO2: Explore programming techniques of Java beans and swing.

CO3: Be aware about Java Enterprise applications.

CO4: Know about java servlets and java struts.

Course Code: ECSJC13

Course Name: Data Structures and Algorithms

Credit:4

CO1: Understand the Basic concepts of tree and graphs

CO2: Understand the basic concepts of Heaps, Linked List, Stack, Queues and Trees

CO3: Analyze the efficiency of binary search trees and multiway search trees

CO4: Understand the concepts of dynamic programming and basic traversal and search techniques

CO5: Understand the concepts of Backtracking and Branch & Bound

Course Code: ECSJC14

Course Name: Data Communication and Computer Networks

Credit:4

CO1: Understand the concepts of networks, types and architectures.

CO2: Identify the networks technologies for error free transmission of data

CO3:Apply various routing protocols in data communication to select optimal path.

CO4:Apply addressing entities of network with implementation of TCP and UDP protocols.

CO5:Develop real time applications of networks.

Course Code: ECSJC1P

Course Name: Advanced Java Programming Lab

Credit:3

Students should be able to learn the Internet Programming, using Java Applets, other components, including windows, menus, buttons, checkboxes, text fields, scrollbars and scrolling lists, using Abstract Windowing Toolkit (AWT) & Swings, apply event handling on AWT and Swing components, learn to access database through Java programs, using Java Data Base Connectivity (JDBC),create dynamic web pages, using Servlets and JSP and make a reusable software component, using Java Bean.

Course Code: ECSJC1Q

Course Name: Data Structures and Algorithms Lab

Credit:3

CO1:Understand the Basic concepts of tree and graphs

CO2:Understand the basic concepts of Heaps, Linked List, Stack,Queues and Trees

CO3:Analyze the efficiency of binary search trees and multiway search trees

CO4:Understand the concepts of dynamic programming and basic traversal and search techniques

CO5:Understand the concepts of Backtracking and Branch & Bound

I M.Sc:II Semester

Course Code: ECSJC21

Course Name: Python Programming

Credit:4

CO1:Describe the core syntax and semantics of Python programming language.

CO2:Discover the need for working with the strings and functions.

CO3:Illustrate the process of structuring the data using lists, dictionaries, tuples and sets.

CO4:Indicate the use of regular expressions and built-in functions to navigate the file system.

CO5:Infer the Object-oriented Programming concepts in Python.

Course Code: ECSJC22

Course Name: Compiler Design

Credit:4

CO1 : Understand the different phases of compilation

CO2 : Implement small compiler using modern compiler writing tools.

CO3 : Develop skills on lexical analysis and parsing which are helpful to a broad range of computer science application areas.

CO4 : Apply context free grammars to syntax analysis

CO5 : Analyze optimization techniques to reduce the code size

Course Code: ECSJC23

Course Name: Operating Systems and Design Principles

Credit:4

CO1: Understand Operating System Structure, Operations and Services

CO2: Understand the Process Concept, Multithreaded Programming, Process Scheduling and Synchronization

CO3: Apply the Concepts of Virtual Memory Management and File Systems

CO4: Design and implement CPU Scheduling algorithms, Page Replacement Algorithms, Memory Allocation Algorithms, Disk Scheduling Algorithms

CO5: Analyze I/O Management and Secondary Storage Mechanism.

Course Code: ECSJT21

Credit:4

Course Name: Embedded Systems

CO1 : Study about the hardware fundamentals and the microprocessor architecture

CO2 : Understand the operating system and the programming guidelines

CO3 : Realize the operation and memory management of Real-time operating system

CO4 : Understand the embedded software development tools and design the real time operating system

CO5 : Program execution environment, Testing and debugging on host machine

Course Code: ECSJC2P

Course Name: Practical Python Programming lab

Credit:3

CO1:Apply the basic core syntax and semantics of Python programming language.

CO2:Apply the basic procedure for working with strings and functions.

CO3:Apply the process of structuring the data using lists, dictionaries, tuples and sets.

Course Code: ECSJC2Q

Course Name: Practical- Operating Systems

Credit:3

CO1:The student will be familiar with the language and terms of the UNIX/LINUX operating system

CO2: The student will be able to delineate the commands and procedures needed to carry out basic operations on the UNIX/LINUX operating system

CO3: Students can design, develop and implement a software solution to a given problem which employs operating systems tools

Second Year:III Semester

Course Code: ECSGC31

Course Name: Digital Image Processing

Credit:4

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

CO2: Develop any image processing application.

CO3: Understand the rapid advances in Machine vision.

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

CO5: Learn different causes for image degradation and overview of image restoration techniques.

CO6: Understand the need for image compression and to learn the spatial and frequency domain techniques of image compression.

CO7: learn different feature extraction techniques for image analysis and recognition.

Course Code: ECSGC32

Course Name: Soft Computing

Credit:4

CO1: Understand the basic soft computing techniques

CO2: Analyze the different types of ANN

CO3: Apply the fuzzy rules for real time application.

CO4: Apply GA to optimize real world problems.

CO5: Analyze the working procedures of Ant Colony Optimization techniques

Course Code: ECSGC3P

Course Name: Soft Computing Lab

Credit:3

CO1: Understand the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic

CO2: Apply the fundamental theory and concepts of neural networks

CO3: Apply the optimization procedure of GA for a real time application.

Course Code: ECSGC3Q

Course Name: Image Processing`

Credit:4

CO1 : Acquire the fundamental concepts of a digital image processing system.

CO2 : Learn different image transforms techniques

CO3 : Apply image enhancement techniques.

CO4 : Understand the concept of restoration techniques.

CO5 : Analyze and compress given images using segmentation techniques.

Course Code: ECSGT32

Course Name: Network Security

Credit:4

CO1: Understand the basic concepts of network security to predict and classify attacks on Network.

CO2: Illustrate the process for hiding the information for Symmetric Key cryptographic algorithms

CO3: Understand the process of Asymmetric Key cryptographic algorithms

CO4: Analyse public cryptographic Hash function and Digital Signatures.

CO5: Apply authentication techniques to provide secure communication

Second Year:IV Semester

Course Code: ECSGC41

Course Name: Pattern Recognition

Credit:4

CO1:Explain and compare a variety of pattern classification, structural pattern recognition, and pattern classifier combination techniques.

CO2:Summarize, analyze, and relate research in the pattern recognition area verbally and in writing.

CO3:Apply performance evaluation methods for pattern recognition, and critique comparisons of techniques made in the research literature.

CO4:Apply pattern recognition techniques to real-world problems such as document analysis and recognition.

CO5:Implement simple pattern classifiers, classifier combinations, and structural pattern recognizers.

Course Code: ECSGC42

Course Name: Advanced System Architecture

Credit:4

CO1: Demonstrate concepts of parallelism in hardware/software

. CO2 : Discuss memory organization and mapping techniques.

CO3 : Describe architectural features of advanced processors.

CO4 : Interpret performance of different pipelined processors.

CO5: Explain data flow in arithmetic algorithms

CO6 : Development of software to solve computationally intensive problems.

Course Code: ECSGT43

Course Name: Cloud Computing

Credit:4

CO1:Articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing

CO2:Understand Basics of Virtualization and Management

CO3:identify the architecture of public cloud, private cloud, hybrid cloud, etc.

CO4 infrastructure of cloud computing, including SaaS, PaaS, IaaS, and Programming models

CO5:Analyze the core issues of cloud computing such as security, privacy, and interoperability.