



DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE OUTCOMES

I - B.Sc Information Technology

SEMESTER: I

Subject Name: PROGRAMMING IN C

Subject Code: U22NTC11

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Learn the fundamental programming concepts and methodologies which are essential to building good C/C++ programs
CO2	Identify solution to a problem and apply control structures and user defined functions for solving the problem
CO3	Work with textual information, characters and strings
CO4	Write reusable modules
CO5	Understand the basic idea of pointers and managing files

Subject Name: Mathematical Foundations

Subject Code: U22MAAN11

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Understand sets and perform operations and algebra on sets
CO2	Determine the Properties of Relations, Equivalence Relation, Properties of Relations Matrix and Graph Representation of Relations
CO3	Analyse logical propositions via truth tables.
CO4	Perform the Matrix Operations and Rank of a Matrix
CO5	Able to define the basic concepts of Graphs, Directed graphs and Weighted Graphs

Subject Name: LAB: PROGRAMMING IN C

Subject Code: U22NTCP11

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Apply the specification of syntax rules for numerical constants and variables, data types
CO2	Read, understand and trace the execution of programs written in C language
CO3	Write programs that perform operations using derived data types
CO4	Apply and Write C programs to implement one dimensional and two dimensional arrays
CO5	Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor



Subject Name: LAB: HTML and SASS

Subject Code: U22NTCP12

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Analyze a web page and identify its elements and attributes.
CO2	Understand the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.
CO3	Design and develop web pages using CSS styles, internal and/or external style sheets
CO4	Develop interactive web applications through coding using HTML Frames and CSS

SEMESTER: II

Subject Name: JAVA PROGRAMMING

Subject Code: U22NTC21

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Understand the basic concepts and fundamentals of platform independent object oriented language.
CO2	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
CO3	Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
CO4	Use the syntax and semantics of java programming language and basic concepts of OOP
CO5	Understand streams and efficient user interface design techniques.

Subject Name: LAB: JAVA PROGRAMMING

Subject Code: U22NTCP21

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Write Java application programs using OOP principles and proper program structuring
CO2	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
CO3	Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
CO4	Create Multithreaded programs.



Subject Name: ACCOUNTING PRACTICES FOR BUSINESS

Subject Code: U22CEAN21

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Understand the fundamentals of financial accounting
CO2	Compute the ledger balances, net profit, amount of depreciation.
CO3	Assess the financial position of the business
CO4	Analyse the EOQ, stock levels and material issues
CO5	Nuance of BEP, PV ratio and margin of safety

Subject Name: LAB: BUSINESS ACCOUNTING SOFTWARE

Subject Code: U22NTAP21

Upon completion of the course, students will be able to

COs	CO Statement
CO1	Understand the fundamentals of financial accounting
CO2	Compute the ledger balances, net profit, amount of depreciation.
CO3	Assess the financial position of the business
CO4	Analyse the EOQ, stock levels and material issues
CO5	Nuance of BEP, PV ratio and margin of safety



COURSE OUTCOME

SEMESTER III

DATA STRUCTURES

Subject Code: U2NTC31

1. Assess how the choice of data structures and algorithm design methods impacts the performance of programs.
2. Choose the appropriate data structure and algorithm design method for a specified application.
3. Solve problems using data structures such as linked lists, stacks, queues, binary trees and graphs and writing programs for these solutions.

JAVA PROGRAMMING

Subject Code: U2NTC32/U2NTC41

CO1	Gain knowledge about object oriented programming, java technology and its features and get exposure on java literals, data types, variables and operators.
CO2	Implement programs using control flow statements, loop statements and arrays.
CO3	Describe the basic building block of object oriented programming in Java
CO4	Learn how to create objects for basic types and how to handle abnormal condition occurring in a program.
CO5	Implement input output data processing and learn how to execute more than one process at a time.

LAB: COMPUTER ANIMATION

Subject Code: U3NTC3P1

CO1	Design layouts for Paper Adverts, Brouchers, CD Covers, Package Designing in Photoshop
CO2	create new layers and perform other basic layer functions in Photoshop
CO3	Design, create, edit, and manipulate animation using several animation tools and techniques in Flash.
CO4	Utilize components to create interactivity in Flash
CO5	Acquire practical proficiency for work with 2D graphics in CorelDraw
CO6	Meet the demands of today's working designer to create ads or collateral for print in CorelDraw



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LAB: Programming in Java

Subject Code: U3NTC3P2/U2NTC4P

CO1	Describe the Numbers, Type conversions and Strings in Java
CO2	Express different Decision Making statements and Functions
CO3	Interpret Object oriented programming in Java
CO4	Understand how to create a package and importing a package
CO5	Understand Multithreading and Exception handling Concepts in java
CO6	Explain how to design GUI Applications using applet
CO7	Design simple animation using applet and thread.

SEMESTER IV

PYTHON PROGRAMMING

Subject code: U3NTC41

CO1	Learn the Basics of Python Environment and Data Types
CO2	Learn to process Inputs and Outputs
CO3	Design program using Arrays and Subroutines
CO4	Describe the usage of the built-in data structures like 'list', 'tuple' and 'dictionary'.
CO5	Understand the basics of OOPs and Database Connectivity

OPERATING SYSTEMS

Subject Code: U1NTC42

1. To acquire the knowledge on the role of an operating system.
2. Become aware of the issues in the management of resources like processor, memory and input-output.

ALLIED - RESOURCE MANAGEMENT SYSTEMS

Subject Code: U1MAA4N

- To provide the student with the concept of Operations Research Techniques and problem solving in LPP, Simplex Method, Assignment Problem and Transportation Problem



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LAB: PYTHON PROGRAMMING

Subject Code : U3NTC4P

C01	Demonstrate programs using simple Python statements and expressions.
C02	Explain control flow and functions concept in Python for solving problems.
C03	Develop Python programs by defining functions and calling them
C04	Use Python data structures – lists, tuples & dictionaries for representing compound data.
C05	Design programs using OOP concepts in Python
C06	Interpret different database operations



COURSE OUTCOME

SEMESTER V

RELATIONAL DATABASE MANAGEMENT SYSTEMS

Subject Code: U3NTC51

CO1	Learn the fundamental elements of DBMS and RDBMS.
CO2	Explain the basic concepts of Entity - Relationship model, Relational database design.
CO3	Improve the database design by normalization and relational algebra.
CO4	Understand the use of Structured Query Language (SQL) and PL/SQL.
CO5	Interpret the concept of Transaction and Query processing.

DATA COMMUNICATIONS AND NETWORKS

Subject Code: U3NTE51

CO1	Gain the Knowledge about the Data communication, Analog and Digital Signals
CO2	Acquire Practical ability of doing the encryption and decryption
CO3	Understand the process flow of the data exchange
CO4	Determine the Internetworking Devices
CO5	Manipulate the IP address and logical address

WEB PROGRAMMING

Subject Code: U3NTE52

CO1	Design and implement dynamic websites with good aesthetic sense of designing and latest technical know - how's.
CO2	Analyze a web page and identify its elements and attributes.
CO3	Understand, analyze and apply the role of languages like HTML, CSS, JavaScript, PHP and protocols in the workings of the web and web applications.
CO4	Have a Good grounding of Web Application Terminologies, Internet Tools.
CO5	Learn different ways of connecting to MySQL through PHP, and how to create tables, enter data, select data, change data, and delete data.

LAB: ANDROID PROGRAMMING

Subject Code: U3NTC5P1

CO1	Implement Android platform, Architecture and features
CO2	Design User Interface and develop activity for Android App
CO3	Use Intent , Broadcast receivers and Internet services in Android App
CO4	Design and implement Database Application and Content providers



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LAB: WEB PROGRAMMING

Subject Code: U3NTC5P2

CO1	Build dynamic web pages using JavaScript (Client side programming).
CO2	Use scripting languages and web services to transfer data and add interactive components to web pages.
CO3	Select and apply Markup Languages for processing, identifying, and presenting information in web pages
CO4	Implement static, dynamic and interactive web pages and web applications.

SBE 2 – ANDROID PROGRAMMING

Subject Code: U3NTS51

CO1	Expose on Android OS architecture
CO2	Familiarize with Android's APIs for data storage, retrieval, user preferences, files and content providers
CO3	Identify, analyze and choose tools for Android development including device emulator, profiling tools and IDE
CO4	Construct user interfaces
CO5	Design and implement Database Application and Content providers

SBE 3 - EMPLOYABILITY SKILLS

Subject Code: U1PS51

- To enrich the Employability Skills by imparting Reasoning skills, Aptitude skills and General Knowledge.

NME 1 – INTRODUCTION TO INFORMATION TECHNOLOGY

Subject Code: U3NTN51

CO1	Know about the characteristics and uses of computers
CO2	Gain knowledge about the classification of computers
CO3	Acquire knowledge about CPU RAM and ROM
CO4	Interpret the mechanisms of various secondary storage devices
CO5	Understand the basics of Networks, Internet and Web browser



SEMESTER VI

CORE 16 – SOFTWARE ENGINEERING

Subject Code: U3NTC61 / U2NTE52

CO1	Learn basic software engineering definitions, size factors, quality and productivity factors.
CO2	Acquire knowledge in software cost factors and software cost estimation techniques.
CO3	Produce efficient, reliable, robust and cost - effective software solutions.
CO4	Design a system, component, or process to meet desired needs within realistic constraints
CO5	Apply testing principles on software project and understand the maintenance concepts.

DOTNET PROGRAMMING

Subject Code: U3NTC62

CO1	Learn the basics of .Net Framework and VB.NET Language
CO2	Acquire knowledge in control flow statements, loop statements and arrays in VB.NET
CO3	Interpret the basic building block of object oriented programming in VB.NET
CO4	Use ASP.NET controls in web applications.
CO5	Create database driven ASP.NET web applications and web services
CO6	Use the features of Dot Net Framework along with the features of ASP.NET and VB.NET

DATA SCIENCE

Subject Code: U3NTC63

CO1	Understand the key technologies in data science and business analytics: data mining, machine learning, visualization techniques, predictive modeling, and statistics.
CO2	Acquire knowledge of statistical data analysis techniques utilized in business decision making.
CO3	Interpret principles of Data Science to the analysis of business problems.
CO4	Learn algorithms to build machine intelligence.
CO5	Develop skill in data management

PROJECT & VIVA VOCE

Subject Code: U1NT6PR

CO1: Analyze end user requirements, identifying and implementing solutions to user requests.

CO2: Apply algorithmic techniques in the project.

CO3: Analyze technical requirements to determine resource requirements.

CO4: Design, plan, budget and propose an IT project.



CO5: Install technical hardware and software support to the project.

CO6: Analyze and select application and operating system settings to create an optimal user environment.

CO7: Identify and resolve technical problems using trouble-shooting methods.

SBE 4 – LAB: DOTNET PROGRAMMING

Subject Code: U3NTS6P1

CO1	Recognize and explain the benefits of procedural, event driven, and object oriented languages
CO2	Design and Create windows programs in VisualBasic.NET programming language
CO3	Work with Visual Basic Forms, Toolbox Controls and Properties
CO4	Create user interactive web pages using ASP.Net.
CO5	Use ADO.NET in a web application to read, insert, and update data in a database.
CO6	Perform form validation with validation controls.

SBE 5 – OPEN SOURCE PROGRAMMING

Subject Code: U3NTS61

CO1	Identify the use of server - side JavaScript
CO2	Understand how Node.js is architected to allow high scalability with asynchronous code
CO3	Create basic web applications with Node.js
CO4	Organize the server by creating modules
CO5	Acquire knowledge in NoSQL database MongoDB to store data.

SBE 6 – LAB: OPEN SOURCE PROGRAMMING

Subject Code: U3NTS6P2

CO1	Understand the basics of the open source framework
CO2	Use MySQL to store data in a database
CO3	Create Interface to a MongoDB database and a web service
CO4	Build advanced, scalable and high performance web applications



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NME 2 – INTRODUCTION TO INTERNET

Subject Code: U2NTN61

CO1	Get familiar with basics of Internet
CO2	Acquire knowledge about Internet and different ways to access it.
CO3	Surfing the Internet effectively
CO4	Interpret E - mail and explain the benefits and challenges of using E - Mail
CO5	Learn the web page designing and website hosting



DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE OUTCOMES

I M.Sc. Information Technology

SEMESTER: I

Subject Name: Advanced C Programming

Subject Code: P16NTC11

In this course the students will

CO1:	Learn the concept and rationale of pointers in simplest possible terms.
CO2:	Understand the relationship between pointers and strings. Also the usage of pointers in maintaining popular Data Structures like Stacks, Queues, Singly and doubly linked list.
CO3:	Learn the standard Data Structures like Circular Linked list, Binary Trees, Threaded binary trees and how they can be implemented using pointers.
CO4:	Learn to manipulate hardware oriented data - individual bits, the bitwise operators and advanced issues of C programming like issuing interrupts, near and far pointers, pointers and typecasting.
CO5:	Learn the initiations in the world of TSRs systematically. How a TSR attaches itself to interrupts and its termination. Issues involved in doing interrupt 0X21.

Subject Name: Operating System Design

Subject Code: P16NTC12

In this course the students will

CO1:	Learn to recognize computer components like processor, register, cache memory and operating system functions major activity.
CO2:	Learn the basic awareness of the process description, process control, execution of operating system.
CO3:	Be familiar with deadlock prevention, avoidance and deadlock detections.
CO4:	Understand the scheduling algorithms, multiple scheduling and real-time scheduling.
CO5:	Learn system processes like I/O buffering, Disk scheduling, disk cache, RAID and File Management

Subject Name: Data Structures and Algorithms

Subject Code: P16NTC13

In this course the students will

CO1:	Learn principles of algorithm design and implement various operations on heap and
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	learn the use of open addressing and characterizing run time complexity.
CO2:	Learn to design and analyze B trees and to characterize a graph in terms of strongly connected components.
CO3:	Learn to manipulate sets by applying different modes of operations such as union, intersection and difference.
CO4:	Understand classes P, NP, and NP-Complete.
CO5:	Understand design, implementation and analysis of parallel algorithms.

Subject Name: Lab: Data structure using C Pointer

Subject Code: P16NT1P1

In this course the students will

CO1:	Design to implement the usage of pointers in maintaining popular data structures like stack, Queue, Single, circular and Doubly Linked list.
CO2:	Develop programs to implement the usage of pointers in standard Data Structures like Binary Tree, Heap tree and Graph traversals.
CO3:	Create programs to initiate in the world of TSR like printing the letter in lower case while pressing shift key simultaneously and when capslock key is in off mode, displaying real time clock.

Subject Name: Lab: Web Designing

Subject Code: P16NT1P2

In this course the students will

CO1:	Learn the advanced capabilities and features of PHP for web site development.
CO2:	Learn to develop programs using arrays, loops, string handling functions, form validation and form handling in PHP
CO3:	Understand the manipulation of DDL and DML commands.
CO4:	Learn to develop applications using PHP and MYSQL connectivity.

Subject Name: Computer Networking Security

Subject Code: P16NTE11

In this course the students will

CO1:	Learn System security which includes buffer overflow, malicious programs, Firewalls, Intrusion detection systems.
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CO2:	Understand the concept of coincidence, types of conventional algorithms, AES and DES.
CO3:	Learn asymmetric key algorithms like RSA, Rabin, Elgomal and Elliptic curve cryptography.
CO4:	Understand the standard hash functions, and digital signature.
CO5:	Understand the concepts of password based authentication, Challenge-response methods and key management techniques, Kerberos, public key distributions.

Subject Name: Cyber Forensics

Subject Code: P16NTE12

In this course the students will

CO1:	Understand the concept of Network layer security, Transport layer security and IPSec protocol.
CO2:	Learn E-Mail security, Firewall, pgp-s, trusted systems and identify the roles of firewall, types of firewall, E-Commerce transactions.
CO3:	Take up the computer forensics and investigation as profession.
CO4:	Understand the basic Evidence collection and forensics tools, incident scenes.
CO5:	Gain exposure of the Process of Analysis and Data Validation.

SEMESTER: II

Subject Name: Advanced Java Programming

Subject Code: P16NTC21

In this course the students will

CO1:	Learn to establish database connection and in distributed applications.
CO2:	Implement the user interaction with an item in UI and GUI.
CO3:	Learn how to position the components in a window.
CO4:	Learn how to position the components in a window.
CO5:	Learn to establish client server communication and to create web application and enterprise application.



Subject Name: Software Testing

Subject Code: P16NTC22

In this course the students will

CO1:	Learn to apply software engineering practice over the entire system lifecycle.
CO2:	Test the functional requirements of the system.
CO3:	Learn to test adequacy assessment using control flow, data flow and program mutation works.
CO4:	Gain knowledge to find greatest possible number of errors with a manageable amount of effort applied over a realistic time span.
CO5:	Learn to monitor and measure the test activity.

Subject Name: Python Programming

Subject Code: P16NTC23

In this course the students will

CO1:	Learn to work with the Variable, Expression, statement, conditions, functions and recursion.
CO2:	Learn Fruitful function, Debugging, Iteration and strings.
CO3:	Understand the List sequence, list operation, method, map, filter Dictionaries, looping and reverse lookup.
CO4:	Understand the basics of file reading, file writing, and format operator.
CO5:	Understand the pure functions, modifiers, prototyping, debugging, printing objects, overloading and inheritances.

Subject Name: Lab: Advanced Java Programming

Subject Code: P16NT2P1

In this course the students will

CO1:	Understand swing-based GUI, client/server applications, update and retrieve the data from the databases, distributed applications, server side programs.
CO2:	Apply the above to design, implement and test a Java application.



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Subject Name: Lab: Python Programming

Subject Code: P16NT2P2

In this course the students will

CO1:	Understand the functions of decision making statements.
CO2:	Learn to create program with minimum coding using looping statement.
CO3:	Perform file reading, file writing and format operation.
CO4:	Learn to sort out the data in ascending or descending using algorithms.
CO5:	Learn to access the persistent data using mySql database.

Subject Name: IT and Data Computations

Subject Code: P2NTN2

In this course the students will

CO1:	Learn the history of computers along with its storage devices.
CO2:	Learn the basics of Relational Database Management System with its commands.
CO3:	Learn the basics of Multimedia components and the Networks.
CO4:	Understand the basics of SPSS package and its fundamentals.
CO5:	Be exposed the advancements in SPSS package such as Regression and other testing strategies.



COURSE OUTCOME

SEMESTER III

ANDROID PROGRAMMING

Subject Code: P19NTC31

- Owing to the popularity of Android, Mobile Apps development industries are considering Android Application Development as one of the best remunerative business opportunities. The need to hire knowledgeable mobile application developers is intense.

DATA MINING

Subject Code: P19NTC32

- Enable the students to identify the novel, potentially useful and understandable correlations and patterns in existing data and also make them to understand how to plan, evaluate and successfully refine a data mining project.

PRINCIPLES OF COMPILER DESIGN

Subject Code : P19NTC33

CO1	Describe the functionality of each phase involved in compilation process.
CO2	Implement the parsing techniques for the given programming construct described in Context Free Grammar.
CO3	Understand the different representations of intermediate code.
CO4	Generate the machine code by considering all the functionalities involved in different phases of the compilation process.
CO5	Be exposed to compiler optimization.

LAB: ANDROID PROGRAMMING

Subject Code: P19NTP31

- To Build and deploy Android applications and enable the students to understand the operation of the application, application lifecycle, configuration files, intents, and activities.



LAB: NETWORK

Subject Code: P19NTP32

- To train the students networking program skills by developing various network related programs in different programming languages and to enrich the students' knowledge in Router Configuration via CISCO.

TCP/IP PROTOCOLS

Subject Code: P19NTE31

- Technology related networks and internetworking may be the fastest growing in our culture today. One of the ramifications of that growth is dramatic increase in the number of professions where an understanding of these technologies is essential for success.

WIRELESS SENSOR NETWORKS

Subject Code: P19NTE32

- Enable the students to learn the basic principles behind the Wireless Sensor Network and make them to understand the concepts of communication, topology control, Routing Protocol and MAC Protocol with timing synchronization for localization services with sensor taking control.

SEMESTER IV

TEXT MINING

Subject Code: P19NTC41

- To provide student with a sound basis in Data Mining Techniques and to ensure that students are able to implement and to use some of the important Data Mining and Text Mining algorithms.
- To provide students with the fundamentals and essentials of Cloud Computing and to identify various cloud services, Assess cloud characteristics and service attributes, for compliance with enterprise objectives.



CLOUD COMPUTING

Subject Code: P19NTC42

- To provide students with the fundamentals and essentials of Cloud Computing and to identify various cloud services, Assess cloud characteristics and service attributes, for compliance with enterprise objectives.

INTERNET OF THINGS

Subject Code: P19NTC43

- Enable the students to coordinating and supporting the knowledge transfer activities base of IoT which provides different views that can be leveraged upon across industries and different deployments, thus shortening the learning cycle, deployment time and reducing cost.



COURSE OUTCOMES

UNDERGRADUATE

III - Year

V - Semester

Employability Skills

Subject Code: U1PS51

In this course, the students will

CO1:	Enrich them with the employability skills like reasoning skills and aptitude skills.
CO2:	Get adequate exposure to various types of competitive examinations.
CO3:	Get enough training in OMR based answer sheet.



COURSE OUTCOMES

UNDERGRADUATE

I - Semester

Value Education

Subject Code: U1VE11

In this course, the students will

CO1:	Learn to choose their own personal moral and spiritual values.
CO2:	Learn to become responsible citizens.
CO3:	Get sensitized to value formation.