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NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: I** **Credit: 4**
Course Title: Problem Solving with Computer **Course Code: CMSGCOR01T**

Course Content	Course Outcome
UNIT 1 Introduction to Computers: Characteristics of Computers, Uses of computers, Types, and generations of Computers. Basic Computer Organization - Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices.	**CO 1** Make knowledge about computer fundamental. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.	**CO 2** Students know about what is the planning the computer program. **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	**CO 3** Students know about the Techniques of Problem Solving. **Level 3 - Apply, Level 4 - Analyze**
UNIT 4 Structure of a Python Program, Elements of Python	**CO 4** Students learn Overview of Programming **Level 2 - Understand, Level 3 - Apply**
UNIT 5 Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator).	**CO 5** Students learn Introduction to Python **Level 2 - Understand, Level 3 - Apply**
UNIT 6 Input and Output Statements, Control statements (Looping while Loop, for Loop, Loop Control, Conditional Statement- if...else, Difference between break, continue and pass)	**CO 6** Students learn Creating Python Programs **Level 3 - Apply, Level 4 - Analyze**
UNIT 7 Numbers, Strings, Lists, Tuples, Dictionary, Date & Time, Modules, Defining Functions, Exit function, default arguments.	**CO 7** Students know about the Techniques of Structures **Level 3 - Apply, Level 4 - Analyze**
UNIT 8 Objects and Classes, Inheritance, Regular Expressions, Event Driven Programming, GUI Programming.	**CO 8** Students know about the Techniques of Introduction to Advanced Python **Level 4 - Analyze, Level 5 - Evaluate, Level 6 - Create**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: I** **Credit: 2**
Course Title: Problem Solving with Computer
Course Code: CMSGCOR01P

Course Content	Course Outcome
UNIT 1 Section: A (Simple programs)	**CO 1** Understand the basic syntax and structure of Python programming. Develop simple Python programs to solve basic computational problems. Use control structures, functions, and file handling to create functional programs. Handle basic errors and exceptions in Python programs. **Level 1 – Remember, Level 2 – Understand, Level 3- Apply**
UNIT 2 Section: B (Visual Python)	**CO 2** Understand the basics of visual programming and graphics libraries in Python. Develop graphical user interfaces and visualize data using Python. Implement event-driven programming concepts. Integrate visual components with backend logic to create interactive applications. **Level 2 – Understand, Level 3- Apply**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: II** **Credit: 4**
Course Title: Database Management Systems
Course Code: CMSGCOR02T

Course Content	Course Outcome
UNIT 1 Characteristics of database approach, data models, DBMS architecture and data independence.	**CO 1** Understand the fundamental characteristics of the database approach, data models, DBMS architecture, and data independence. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Entity types, relationships, SQL-99: Schema Definition, constraints, and object modelling.	**CO 2** Define and model entity types and relationships, apply SQL-99 schema definitions, constraints, and object modelling. **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Basic concepts, relational constraints, relational algebra, SQL queries.	**CO 3** Comprehend relational concepts, relational constraints, relational algebra, and formulate SQL queries. **Level 2 - Understand, Level 3 - Apply**
UNIT 4 ER and EER to relational mapping, functional dependencies, normal forms up to third normal form.	**CO 4** Analyze ER and EER to relational mapping, understand functional dependencies, and normalize databases up to the third normal form. **Level 4 - Analyze**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: II** **Credit: 2**
Course Title: Database Management Systems
Course Code: CMSGCOR02P

Course Content	Course Outcome
UNIT 1 DDL Commands	**CO 1** Understand and apply DDL commands to define and manage database schemas., Create and modify database objects such as tables, indexes, and views. Implement data integrity constraints to ensure data accuracy and consistency. **Level 1 – Remember, Level 2 – Understand, Level 3- Apply**
UNIT 2 DML Commands	**CO 2** Understand and apply DML commands to manipulate data within the database. Perform data insertion, updates, and deletions efficiently. Retrieve and filter data to generate meaningful reports and insights. Utilize joins to combine data from multiple tables. **Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: III** **Credit: 4**
Course Title: OS
Course Code: CMSGCOR03T

Course Content	Course Outcome
UNIT 1 System Software, Resource Abstraction, OS strategies.	**CO 1** Understand the fundamentals of system software, resource abstraction, and operating system strategies. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Multiprogramming, Batch, Time Sharing, Single user and Multiuser, Process Control & Real Time Systems.	**CO 2** Identify and differentiate between various types of operating systems. **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Factors in operating system design, basic OS functions, implementation consideration; process modes, methods of requesting system services – system calls and system programs.	**CO 3** Understand the factors involved in OS design and implementation, including system calls and programs. **Level 2 - Understand, Level 3 - Apply**
UNIT 4 System view of the process and resources, initiating the OS, process address space, process abstraction, resource abstraction, process hierarchy, Thread model	**CO 4** Analyze the system view of processes and resources, and understand process and resource abstraction. **Level 4 - Analyze**
UNIT 5 Scheduling Mechanisms, Strategy selection, non-pre-emptive and pre-emptive strategies.	**CO 5** Understand and evaluate scheduling mechanisms and strategies. **Level 4 - Analyze, Level 5 - Evaluate**
UNIT 6 Mapping address space to memory space, memory allocation strategies, fixed partition, variable partition, paging, virtual memory	**CO 6** Understand and apply memory management techniques. Understand and apply memory management techniques. **Level 3 - Apply, Level 4 - Analyze**
UNIT 7 Shell introduction and Shell Scripting	**CO 7** Learn the basics of shell and shell scripting. **Level 3 - Apply, Level 4 - Analyze**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: III** **Credit: 2**
Course Title: Software Lab based on Operating Systems
Course Code: CMSGCOR03P

Course Content	Course Outcome
UNIT 1 Introduction to Linux/Unix, Basic commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd. File manipulation commands: cal, cat, mv, cp, man, date	**CO 1** Understanding basic commands and their usage, writing simple scripts for basic tasks. **Level 1 - Remember**
UNIT 2 File permissions and management: chmod, grep, Screen management: tput Basic calculations: bc	**CO 2** Using intermediate commands effectively, Writing scripts with conditional statements and loops. **Level 2 - Understand**
UNIT 3 Writing and executing basic shell scripts, Conditional statements and loops, Input and output in shell scripts	**CO 3** Writing complex scripts for file manipulation and data processing., Performing mathematical and logical operations using scripts. **Level 3 - Apply**
UNIT 4 Writing scripts to check prime numbers, Modifying cal command for custom outputs, Accepting and validating user inputs, Formatting date outputs, Sorting and displaying command outputs	**CO 4** Developing efficient and error-free scripts for system administration tasks., Customizing scripts for specific user requirements and scenarios. **Level 4 - Analyze**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: III** **Credit: 2**
Course Title: Programming in Python
Course Code: CMSSSEC01M

Course Content	Course Outcome
UNIT 1 Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.	**CO 1** Understand the concept of problem solving, including problem definition, program design, debugging, types of errors, and documentation. **Level 2 - Understand**
UNIT 2 Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	**CO 2** Apply techniques of problem solving such as flowcharting, decision tables, algorithms, and structured programming concepts. **Level 3 - Apply**
UNIT 3 Structure of a Python Program, Elements of Python.	**CO 3** Understand the structure and basic elements of a Python program. **Level 2 - Understand**
UNIT 4 Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)	**CO 4** Use the Python interpreter and understand the basics of Python, including operators and syntax. **Level 2 - Understand, Level 3 - Apply**
UNIT 5 Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, exit function, Difference between break, continue and pass.), Defining Functions, default arguments.	**CO 5** Create Python programs using input/output statements, control structures, and functions. **Level 3 - Apply**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: IV** **Credit: 4**
Course Title: Computer System Architecture
Course Code: CMSGCOR04T

Course Content	Course Outcome
UNIT 1 Logic gates, Boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexors, registers, counters, and memory units.	**CO 1** Understand the basics of logic gates, Boolean algebra, combinational circuits, circuit simplification, flip-flops, sequential circuits, decoders, multiplexors, registers, counters, and memory units. **Level 2 - Understand**
UNIT 2 Number systems, complements, fixed and floating-point representation, character representation, addition, subtraction, magnitude comparison.	**CO 2** Understand and apply knowledge of number systems, complements, fixed and floating-point representation, character representation, and basic arithmetic operations. **Level 3 - Apply**
UNIT 3 Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt.	**CO 3** Understand the organization of computer registers, bus systems, instruction sets, timing and control, instruction cycles, memory reference, input-output, and interrupt systems. **Level 2 - Understand, Level 3 - Apply**
UNIT 4 Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control.	**CO 4** Analyze and understand register organization, arithmetic and logical micro-operations, stack organization, and microprogrammed control. **Level 4 - Analyze**
UNIT 5 Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming.	**CO 5** Understand and apply knowledge of instruction formats, addressing modes, instruction codes, machine language, assembly language, and input-output programming. **Level 3 - Apply**
UNIT 6 Peripheral devices, I/O interface, Modes of data transfer, direct memory access.	**CO 6** Understand peripheral devices, I/O interfaces, modes of data transfer, and direct memory access. **Level 2 - Understand**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: IV** **Credit: 2**
Course Title: Computer System Architecture
Course Code: CMSGCOR04P

Course Content	Course Outcome
UNIT 1 Overview of computer systems, Basic components: CPU, memory, I/O devices, Introduction to binary numbers and logic gates	**CO 1** Understanding the fundamental components and operations of computer systems. **Level 1 - Remember**
UNIT 2 CPU organization and architecture, Instruction set architecture (ISA), Fetch-decode-execute cycle, Types of processors: RISC vs. CISC	**CO 2** Understanding CPU organization and instruction set architectures, explaining the fetch-decode-execute cycle. **Level 2 - Understand**
UNIT 3 Types of memory: cache, main memory, secondary storage, Memory hierarchy and performance, Memory management techniques, Virtual memory and paging	**CO 3** Applying concepts of memory hierarchy and management, and optimizing memory performance. **Level 3 - Apply**
UNIT 4 I/O devices and interfaces, Interrupts and DMA, I/O performance and optimization, Bus systems and protocols	**CO 4** Analyzing and optimizing I/O systems for better performance. **Level 4 - Analyze**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: IV** **Credit: 2**
Course Title: R Programming
Course Code: CMSSSEC02M

Course Content	Course Outcome
UNIT 1 Overview and History of R, Getting Help, Data Types, Sub setting, Vectorized (5L) Operations, Reading and Writing Data.	**CO 1** Understand the basics of R, including history, data types, subletting, vectorized operations, and reading/writing data. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Control Structures, Functions, lapply, tapply, split, mapply, apply, Coding Standards.	**CO 2** Understand and apply control structures, functions, and apply family functions in R, along with coding standards. **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Scoping Rules, Debugging Tools, Simulation, R Profiler.	**CO 3** Analyze and apply scoping rules, debugging tools, simulation techniques, and the R profiler. **Level 4 - Analyze, Level 3 - Apply**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: V** **Credit: 6**
Course Title: Programming in JAVA
Course Code: CMSGDSE01T

Course Content	Course Outcome
UNIT 1 Features of Java, JDK Environment	**CO 1** Understand the features of Java and the JDK environment. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Overview of Programming, Paradigm, Classes, Abstraction, Encapsulation, Inheritance, Polymorphism, Difference between C++ and JAVA	**CO 2** Understand programming paradigms, classes, abstraction, encapsulation, inheritance, polymorphism, and the differences between C++ and Java. **Level 2 - Understand**
UNIT 3 Structure of java program, Data types, Variables, Operators, Keywords, Naming Convention, Decision Making (if, switch), Looping (for, while), Type Casting	**CO 3** Understand and apply Java programming fundamentals including data types, variables, operators, keywords, decision making, looping, and type casting. **Level 2 - Understand, Level 3 - Apply**
UNIT 4 Creating Classes and objects, Memory allocation for objects, Constructor, Implementation of Inheritance, Implementation of Polymorphism, Method Overloading, Method Overriding, Nested and Inner classes	**CO 4** Apply knowledge to create classes and objects, understand memory allocation, implement inheritance, polymorphism, method overloading and overriding, and work with nested and inner classes. **Level 3 - Apply**
UNIT 5 Arrays, Creating an array, Types of Arrays, String class Methods, String Buffer methods.	**CO 5** Understand and apply concepts of arrays, create arrays, work with different types of arrays, and use string class and string buffer methods. **Level 2 - Understand, Level 3 - Apply**
UNIT 6 Modifiers and Access Control, Abstract classes and methods, Interfaces, Packages Concept, Creating user defined packages	**CO 6** Understand and apply modifiers and access control, abstract classes and methods, interfaces, and the concept of packages, including creating user-defined packages. **Level 2 - Understand, Level 3 - Apply**
UNIT 7 Exception types, Using try catch and multiple catch, Nested try, throw, throws and finally, Creating User defined Exceptions.	**CO 7** Understand and apply exception handling in Java including types of exceptions, using try, catch, and multiple catch blocks, nested try, throw, throws, finally, and creating user-defined exceptions. **Level 3 - Apply**
UNIT 8 Byte Stream, Character Stream, File IO Basics, File Operations, creating file, reading file, Writing File	**CO 8** Understand and apply concepts of file handling in Java including byte and character streams, basic file I/O operations, creating, reading, and writing files. **Level 2 - Understand, Level 3 - Apply**
UNIT 9 Introduction, Types Applet, Applet Life cycle, Creating Applet, Applet tag	**CO 9** Understand the introduction to applets, types of applets, applet lifecycle, creating applets, and using applet tags. **Level 2 - Understand, Level 3 - Apply**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: V** **Credit: 6**
Course Title: Discrete Structures
Course Code: CMSGDSE02T

Course Content	Course Outcome
UNIT 1 Introduction to Sets, Finite and Infinite Sets, Unaccountably Infinite Sets. Introduction to Functions and relations, Properties of Binary relations, Closure, Partial Ordering Relations.	**CO 1** Introduce sets, functions, relations, and their properties. **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Pigeonhole Principle, Permutation and Combinations, Mathematical Induction, Principle of Inclusion and Exclusion.	**CO 2** Understand and apply principles of counting and mathematical induction. **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Asymptotic Notations	**CO 3** Understand and apply asymptotic notations. **Level 2 - Understand, Level 3 - Apply**
UNIT 4 Introduction, Generating Functions, Linear Recurrence Relations with constant coefficients and their solution.	**CO 4** Understand and apply recurrence relations and generating functions. **Level 2 - Understand, Level 3 - Apply**
UNIT 5 Basic Terminology of Graphs, Models and Types, Multigraphs, Weighted Graphs, Graph Representation. Graph Isomorphism Graph Connectivity, Euler and Hamiltonian Paths and Circuits, Planar Graphs, Graph Colouring, Basic Terminology of Trees, Properties of Trees, Spanning Trees.	**CO 5** Understand various aspects of graph theory including graph properties, connectivity, paths, circuits, and graph coloring. **Level 2 - Understand, Level 3 - Apply, Level 4 - Analyze**
UNIT 6 Introduction, Logical Connectives, Well Formed Formulas, Tautologies, Equivalence	**CO 6** Understand logical connectives, well-formed formulas, tautologies, and equivalence in inference theory. **Level 2 - Understand**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: VI** **Credit: 6**
Course Title: Software Engineering
Course Code: CMSGDSE03T

Course Content	Course Outcome
UNIT 1 Introduction, S/W Engineering Paradigm, life cycle models (water fall, incremental, spiral, evolutionary, prototyping, object oriented), System engineering, computer-based system, verification, validation, life cycle process, development process, system engineering hierarchy.	**CO 1** Software Process **Level 1 - Remember, Level 2 Understand**
UNIT 2 Functional and non-functional, user, system, requirement engineering process, feasibility studies, requirements, elicitation, validation and management, software prototyping, prototyping in the software process, rapid prototyping techniques, user interface prototyping, S/W document. Analysis and modelling, data, functional and behavioural models, structured analysis, and data dictionary	**CO 2** Software requirements **Level 2 - Understand, Level 3 - Apply**
UNIT 3 Design process and concepts, modular design, design heuristic, design model and document, Architectural design, software architecture, data design, architectural design, transform and transaction mapping, user interface design, user interface design principles. Real time systems, Real time software design, system design, real time executives, data acquisition system, monitoring and control system.	**CO 3** Design Concepts and Principles **Level 3 - Apply, Level 4 - Analyze**
UNIT 4 The SCM process, Version control, Change control, Configuration audit, SCM standards.	**CO 4** Software Configuration Management **Level 4 - Analyze**
UNIT 5 Measures and measurements, S/W complexity and science measure, size measure, data and logic structure measure, information flow measure. Estimations for Software Projects, Empirical Estimation Models, Project Scheduling.	**CO 5** Software Project Management **Level 5 - Evaluate**
UNIT 6 Taxonomy of software testing, levels, test activities, types of s/w test, black box testing boundary conditions, structural testing, test coverage criteria based on data flow, mechanisms, regression testing, testing in the large. S/W testing strategies, strategic approach and issues, unit testing, integration testing, validation testing, system testing and debugging.	**CO 6** Testing **Level 4 - Analyze, Level 5 - Evaluate**
UNIT 7 Reverse Engineering and Re-engineering – wrappers – Case Study of CASE tools.	**CO 7** Trends in Software Engineering **Level 5 - Evaluate, Level 6 - Create**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

NAHATA JNMS MAHAVIDYALAYA
North 24 Parganas, W.B.
Course Outcome

Department: Computer Science **Semester: VI** **Credit: 6**
Course Title: Computer Networks
Course Code: CMSGDSE04T

Course Content	Course Outcome
UNIT 1 Components of data communication, standards and organizations, Network Classification, Network Topologies; network protocol; layered network architecture; overview of OSI reference model; overview of TCP/IP protocol suite.	**CO 1** Basic concepts **Level 1 - Remember, Level 2 - Understand**
UNIT 2 Cabling, Network Interface Card, Transmission Media Devices- Repeater, Hub, Bridge, Switch, Router, Gateway.	**CO 2** Physical Layer **Level 2 - Understand**
UNIT 3 Framing techniques; Error Control; Flow Control Protocols; Shared media protocols - CSMA/CD and CSMA/CA.	**CO 3** Data Link Layer **Level 2 - Understand, Level 3 - Apply**
UNIT 4 Virtual Circuits and Datagram approach, IP addressing methods – Subnetting; Routing Algorithms (adaptive and non-adaptive)	**CO 4** Network Layer **Level 3 - Apply, Level 4 - Analyze**
UNIT 5 Transport services, Transport Layer protocol of TCP and UDP	**CO 5** Transport Layer **Level 2 - Understand, Level 3 - Apply**
UNIT 6 Application layer protocols and services – Domain name system, HTTP, WWW, telnet, FTP, SMTP	**CO 6** Application Layer **Level 2 - Understand, Level 3 - Apply**
UNIT 7 Common Terms, Firewalls, Virtual Private Networks	**CO 7** Network Security **Level 2 - Understand, Level 4 - Analyze**
BT: Level 1 – Remember, Level 2 – Understand, Level 3- Apply, Level 4- Analyze, Level 5- Evaluate, Level 6- Create	

Program Specific Outcomes (PSO)

After successful completion of B.Sc. Programme in Computer Science, students grasp the Knowledge of the following:

PSO 1: CMSGCOR01T: Problem Solving with Computer Understand basic programming concepts and techniques Develop problem-solving skills using computer programming. Gain proficiency in writing simple programs in a chosen programming language.

PSO 2: CMSGCOR01P: Problem Solving with Computer Apply theoretical knowledge to solve practical problems. Develop and test small-scale programs. Enhance debugging and troubleshooting skills.

PSO 3: CMSGCOR02T: DBMS Understand the fundamentals of database management systems. Learn SQL and database design concepts. Explore data models and database architectures.

PSO 4: CMSGCOR02P: DBMS Implement database designs using SQL. Perform database operations like queries, updates, and management. Gain hands-on experience with database management tools.

PSO 5: CMSGCOR03T: OS Understand the principles and concepts of operating systems. Learn about process management, memory management, and file systems. Explore different types of operating systems and their functionalities.

PSO 6: CMSGCOR03P: LINUX Gain practical knowledge of the Linux operating system. Perform basic and advanced operations in Linux. Develop scripts and manage system resources in a Linux environment.

PSO 7: CMSSEC01M: Programming in Python (SEC1) Understand the syntax and semantics of Python programming. Develop Python programs for various applications. Enhance problem-solving skills using Python.

PSO 8: CMSGCOR04T: Computer System Architecture Understand the basic structure and organization of computer systems. Learn about instruction sets, CPU architecture, and memory hierarchy. Explore pipelining, parallelism, and system performance optimization.

PSO 9: CMSGCOR04P: Computer System Architecture Apply theoretical concepts to practical scenarios. Perform experiments to understand CPU operations and memory management. Develop small-scale projects to reinforce system architecture concepts.

PSO 10: CMSSEC02M: R Programming (SEC2) Understand the basics of R programming and its applications. Develop statistical and data analysis programs using R. Enhance data visualization skills with R.

PSO 11:

Course (Choose any one):
(Programming in JAVA): Understand the core concepts of Java programming. Develop object-oriented programs in Java. Enhance problem-solving skills using Java.
(Discrete Structures): Understand the fundamental concepts of discrete mathematics. Apply discrete structures in computer science problems. Enhance logical reasoning and problem-solving skills.

PSO 12:

Course (Choose any one):
(Software Engineering): Understand the principles and practices of software engineering. Learn about software development life cycle and methodologies. Develop skills in software design, testing, and maintenance.
(Computer Networks): Understand the basic concepts and protocols of computer networks. Learn about network architectures and topologies. Explore data communication and network security.