Pillai HOC College of Engineering and Technology, Rasayani

Department of Computer Engineering

Class/Sem: S.E/ III   CBCS   Course Name: Applied Mathematics - III

The students will be able to:

Course Code	Course Outcome Statements
CSC301.1	Understand complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic function.
CSC301.2	Plot the image of the curve by a complex transformation from z-plane to w-plane.
CSC301.3	Expand the periodic function by using Fourier series and complex form of Fourier series.
CSC301.4	Understand the concept of Laplace transform and inverse Laplace transform of various functions and its application to solve ordinary differential equations.
CSC301.5	Apply the concept of Z- transformation and its inverse of the given sequence.
CSC301.6	Apply the concept of Correlation and Regression to the engineering problems.

Class/Sem: S.E./ III   CBCS   Course Name: Digital Logic Design and Analysis

The students will be able to:

Course Code	Course Outcome Statements
CSC302.1	Understand different number systems and their conversions.
CSC302.2	Analyze and minimize Boolean expressions.
CSC302.3	Design and analyze combinational circuits.
CSC302.4	Design and analyze sequential circuits
CSC302.5	Understand the basic concepts of VHDL.
CSC302.6	Study basics of TTL and CMOS Logic families.

Class/Sem: S.E./ III   CBCS   Course Name: Discrete Mathematics

The students will be able to:

Course Code	Course Outcome Statements
CSC303.1	Understand mathematical proofs and to apply them in problem solving.
CSC303.2	Analyse things logically.
CSC303.3	Understand relations, diagraphs and lattice.
CSC303.4	Express recursive functions of other subjects like Data Structures as recurrence relation.
CSC303.5	Apply the use of functions, graphs and trees in programming applications.
CSC303.6	Evaluate the algebraic structure.

Class/Sem: S.E. III   CBCS   Course Name: Electronic Circuits and
                                                    Communication Fundamentals

The students will be able to:

Course Code	Course Outcome Statements
CSC304.1	Understand the use of semiconductor devices in circuits and analyze them.
CSC304.2	Understand importance of oscillators and power amplifiers in communication system.
CSC304.3	Understand basic concepts of operational amplifier and their applications.
CSC304.4	Understand the fundamental concepts of electronic communication.
CSC304.5	Apply knowledge of electronic devices and circuits to communication applications.
CSC304.6	Study basic concepts of information theory.

Class/Sem: S.E./ III   CBCS   Course Name: Data Structures

The students will be able to:

Course Code	Course Outcome Statements
CSC305.1	Implement various linear and non-linear data structures.
CSC305.2	Handle operations like insertions, deletions, searching & traversing on data structures.
CSC305.3	Select appropriate sorting and searching technique for given problem.
CSC305.4	Apply the learned concepts in various domains like DBMS & Complier construction.
CSC305.5	Choose appropriate data structure for specified problem domain.
CSC305.6	Handle operations like insertions, deletions, searching & traversing on Trees.

The students will be able to:

Course Code	Course Outcome Statements
CSL 304.1	Differentiate java and other programming languages, understand Object Oriented Concepts.
CSL 304.2	Illustrate the concept of Packages, Classes and Objects.
CSL 304.3	Elaborate the concept of Strings, Arrays and Vectors.
CSL 304.4	Implement the concept of Inheritance and Interfaces.
CSL 304.5	Implement notion of Exception handling and Multithreading.
CSL 304.6	Develop GUI based application using Applets.

Class/Sem: S.E./ IV   CBCS   Course Name: Applied Mathematics - IV

The students will be able to:

Course Code	Course Outcome Statements
CSC 401.1	Apply the method of solving complex integration, computing residues & evaluate various contour integrals.
CSC 401.2	Demonstrate ability to manipulate matrices and compute Eigen values and Eigen vectors.
CSC 401.3	Apply the concept of probability distribution to the engineering problems.
CSC 401.4	Apply the concept of sampling theory to the engineering problems.
CSC 401.5	Use matrix algebra with its specific rules to solve the system of linear equation, using concept of Eigen value and Eigen vector to the engineering problems.
CSC 401.6	Apply the concept of Linear & Non-Linear Programming Problem to the engineering problems.

Class/Sem: S.E./ IV   CBCS   Course Name: Analysis of Algorithms

The students will be able to:

Course Code	Course Outcome Statements
CSC 402.1	Learn to analyze the running time and space complexity of algorithms.
CSC 402.2	Learn to describe, apply and analyze the complexity of Divide and Conquer strategy.
CSC 402.3	Learn to describe, apply and analyze the complexity of greedy strategy.
CSC 402.4	Learn to describe, apply and analyze the complexity of dynamic programming strategy.
CSC 402.5	Learn to explain and apply backtracking, branch and bound and string matching techniques to deal with some hard problems.
CSC 402.6	Learn to describe the classes P, NP and NP-complete and be able to prove that a certain problem is NP-Complete.

Class/Sem: S.E./ IV   CBCS   Course Name: Computer Organization and Architecture

The students will be able to:

Course Code	Course Outcome Statements
CSC 403.1	Describe and understand basic structure, organization and data representation.
CSC 403.2	Understand parallelism, hazards and demonstrate arithmetic operation for solving ALU operations.
CSC 403.3	Understand various control unit design methods.
CSC 403.4	Apply and analyse the concepts of memory management techniques.
CSC 403.5	Apply and analyse different techniques of I/O management.
CSC 403.6	Analyse parallel processing.

Class/Sem: S.E./ IV   CBCS   Course Name: Computer Graphics

The students will be able to:

Course Code	Course Outcome Statements
CSC 404.1	Understand the basic concepts of Computer Graphics.
CSC 404.2	Demonstrate various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CSC 404.3	Apply geometric transformations, viewing and clipping on graphical objects.
CSC 404.4	Explore solid model representation techniques and projections.
CSC 404.5	Understand different visible surface detection techniques.
CSC 404.6	Understand illumination model and surface rendering.

Class/Sem: S.E./ IV   CBCS   Course Name: Operating System

The students will be able to:

Course Code	Course Outcome Statements
CSC 405.1	Understand role of Operating System in terms of process, memory, file and I/O management.
CSC 405.2	Apply and analyse the concept of a process, thread, mutual exclusion and deadlock.
CSC 405.3	Evaluate performance of process scheduling algorithms and IPC.
CSC 405.4	Apply and analyse the concepts of memory management techniques.
CSC 405.5	Evaluate the performance of memory allocation and replacement techniques.
CSC 405.6	Apply and analyze different techniques of file and I/O management.

Class/Sem: S.E./ IV   CBCS   Course Name: Open Source Tech Lab

The students will be able to:

Course Code	Course Outcome Statements
CSL405.1	Understand basic concepts in python and perl.
CSL405.2	Explore contents of files, directories and text processing with python.
CSL405.3	Develop program for data structure using built in functions in python.
CSL405.4	Explore django web framework for developing python based web application.
CSL405.5	Understand file handling and database handling uses perl.
CSL405.6	Explore basics of two way communication between client and server using python and perl.

The students will be able to:

Course Code	Course Outcome Statements
CSC501.1	Describe architecture of x86 processors.
CSC501.2	Interpret the instructions of 8086 and write assembly and Mixed language programs.
CSC501.3	Explain the concept of interrupts
CSC501.4	Identify the specifications of peripheral chip
CSC501.5	Design 8086 based system using memory and peripheral chips
CSC501.6	Appraise the architecture of advanced processors

The students will be able to:

Course Code	Course Outcome Statements
CSC502.1	Understand the fundamentals of a database systems
CSC502.2	Design and draw ER and EER diagram for the real life problem
CSC502.3	Convert conceptual model to relational model and formulate relational algebra queries.
CSC502.4	Design and querying database using SQL.
CSC502.5	Analyze and apply concepts of normalization to relational database design.
CSC502.6	Understand the concept of transaction, concurrency and recovery.

The students will be able to:

Course Code	Course Outcome Statements
CSC503.1	Demonstrate the concepts of data communication at physical layer and compare ISO - OSI model with TCP/IP model.
CSC503.2	Demonstrate the knowledge of networking protocols at data link layer.
CSC503.3	Design the network using IP addressing and sub netting / super netting schemes.
CSC503.4	Analyze various routing algorithms and protocols at network layer.
CSC503.5	Analyze transport layer protocols and congestion control algorithms.
CSC503.6	Explore protocols at application layer.

The students will be able to:

Course Code	Course Outcome Statements
CSC504.1	Identify the central concepts in theory of computation and differentiate between deterministic and nondeterministic automata, also obtain equivalence of NFA and DFA.
CSC504.2	Infer the equivalence of languages described by finite automata and regular expressions.
CSC504.3	Devise regular, context free grammars while recognizing the strings and tokens.
CSC504.4	Design pushdown automata to recognize the language.
CSC504.5	Develop an understanding of computation through Turing Machine.
CSC504.6	Acquire fundamental understanding of decidability and undecidability.

The students will be able to:

Course Code	Course Outcome Statements
CSDLO5011.1	To identify basics of multimedia and multimedia system architecture.
CSDLO5011.2	To understand different multimedia components.
CSDLO5011.3	To explain file formats for different multimedia components.
CSDLO5011.4	To analyze the different compression algorithms.
CSDLO5011.5	To describe various multimedia communication techniques.
CSDLO5011.6	To apply different security techniques in multimedia environment

Class/Sem: T.E./ V   CBCS   Course Name: Microprocessor Lab

The students will be able to:

Course Code	Course Outcome Statements
CSL 501.1	Use appropriate instructions to program microprocessor to perform various task
CSL 501.2	Develop the program in assembly/ mixed language for Intel 8086 processor
CSL 501.3	Demonstrate the execution and debugging of assembly/ mixed language program

Class/Sem: T.E./ V   CBCS   Course Name: Computer Network Lab

The students will be able to:

Course Code	Course Outcome Statements
CSL 502.1	Design and setup networking environment in Linux.
CSL 502.2	2. Use Network tools and simulators such as NS2, Wireshark etc. to explore networking algorithms and protocols.
CSL 502.3	3. Implement programs using core programming APIs for understanding networking concepts

Class/Sem: T.E./ V   CBCS   Course Name: Database & Information System Lab

The students will be able to:

Course Code	Course Outcome Statements
CSL 503.1	Design and draw ER and EER diagram for the real life problem with software tool.
CSL 503.2	Create and update database and tables with different DDL and DML statements.
CSL 503.3	Apply /Add integrity constraints and able to provide security to data.
CSL 503.4	Implement and execute Complex queries.
CSL 503.5	Apply triggers and procedures for specific module/task
CSL 503.6	Handle concurrent transactions and able to access data through front end (using JDBC ODBC connectivity.

Pillai HOC College of Engineering and Technology, Rasayani

Department of Computer Engineering

Class/Sem: III   CBGS   Course Name: Applied Mathematics III

The students will be able to:

Course Code	Course Outcome Statements
CSC301.1	Understand Analytic functions, Cauchy's Reimann equations.
CSC301.2	Understand conformal mapping and bilinear transformations.
CSC301.3	Understand the Laplace transforms and their applications to differential equations.
CSC301.4	Understand Fourier series, half range Fourier series and complex form of Fourier series.
CSC301.5	Understand Vector differentiation and integration, Green's theorem, Stoke's theorem and Gauss divergence theorem.
CSC301.6	Understand Z-Transform, Inverse Z-Transform and their properties.

Class/Sem: III   CBGS   Course Name: Object Oriented Programming Methodology

The students will be able to:

Course Code	Course Outcome Statements
CSC302.1	Differentiate java and other programming languages, understand Object Oriented Concepts & make a machine java enabled.
CSC302.2	Understand various java programming concepts, write, compile and execute java programs using various control structures.
CSC302.3	Solve real world problems by implementing Object Oriented Concepts.
CSC302.4	Develop program on real world scenarios using classes and their relationships.
CSC302.5	Create and implement multithreaded programs and packages.
CSC302.6	Develop simple GUI application using Applets.

Class/Sem: III   CBGS   Course Name: Data Structures

The students will be able to:

Course Code	Course Outcome Statements
CSC303.1	Know an introduction about algorithms and various data structures.
CSC303.2	Choose appropriate data structure and perform operation based on problem definition.
CSC303.3	Use various searching and sorting methods for solving real world problems.
CSC303.4	Apply insertion and deletion methods for learning concepts in various domains like DBMS, compiler construction etc.
CSC303.5	Implement linear and non - linear data structure like stacks, queues, linked list etc.
CSC303.6	Develop different new applications using data structures.

Class/Sem: III   CBGS   Course Name: Digital Logic Design and Analysis

The students will be able to:

Course Code	Course Outcome Statements
CSC304.1	Understand the difference between Analog and digital signals and data.
CSC304.2	Interpret logic gates and basic arithmetic circuits.
CSC304.3	Comprehend Combinational logic circuits and able to analyze, transform and minimize those circuits.
CSC304.4	Analyze and design sequential circuits applications.
CSC304.5	Design digital system and components; characterize the different type of memory.
CSC304.6	Utilize the skill of testing used in various fields of computing, communication etc.

Class/Sem: III   CBGS   Course Name: Discrete Structures

The students will be able to:

Course Code	Course Outcome Statements
CSC305.1	Understand discrete mathematical concepts.
CSC305.2	Acquire the knowledge of relations and digraphs.
CSC305.3	Analyse the mathematical induction and logical operation.
CSC305.4	Apply the use of functions, graphs and trees in programming applications.
CSC305.5	Evaluate the algebraic structure.
CSC305.6	Express recursive functions of other subjects like Data Structures as recurrence relation.

Class/Sem: III   CBGS   Course Name: Electronic Circuits and Communication
Fundamentals

The students will be able to:

Course Code	Course Outcome Statements
CSC306.1	Understand and use semiconductor devices in circuits
CSC306.2	Analyze the given circuit.
CSC306.3	Understand concept of feedback and oscillations
CSC306.4	Use operational amplifier in various applications.
CSC306.5	Understand fundamental concepts of communication.
CSC306.6	Apply knowledge of electronic devices and circuits to communication applications.

Class/Sem: IV CBGS Course Name: Applied Mathematics IV

The students will be able to:

Course Code	Course Outcome Statements
CSC401.1	Understand Complex integration, Residue theorem and their applications.
CSC401.2	Understand Eigen values, Eigen vectors and their applications.
CSC401.3	Understand the concept of correlation and regression.
CSC401.4	Understand the concept of Probability theory and their applications.
CSC401.5	Understand the concept of Sampling theory and their applications.
CSC401.6	Understand the concept of Linear Programming problem, Simplex method, and Non - Linear Programming problem.

Class/Sem: IV   CBGS   Course Name: Analysis of Algorithms

The students will be able to:

Course Code	Course Outcome Statements
CSC402.1	Understand fundamentals of space and time complexity, Growth of function, Randomized algorithms and Recursive algorithms.
CSC402.2	Understand different problem solving strategies such as Divide and Conquer, Greedy Method, Dynamic Programming.
CSC402.3	Calculate and analyze time complexity and space complexity of an algorithm.
CSC402.4	Solve problems on based on knapsack , Job sequencing with deadlines, Sum of subsets with appropriate problem solving strategies.
CSC402.5	Understand and analyze different string matching algorithms.
CSC402.6	Solve string matching problems, Evaluate and analyze problems based on various algorithms.

Class/Sem: IV   CBGS   Course Name: Computer Organization and Architecture

The students will be able to:

Course Code	Course Outcome Statements
CSC403.1	Understand and conceptualize various components of computer system, computer organization and architecture.
CSC403.2	Provide the knowledge and concepts of processor organization.
CSC403.3	Design memory organization for different word size operation and measure the performance.
CSC403.4	Analyze processor performance improvement using instruction level parallelism
CSC403.5	Analyze and synthesize various data transfer techniques in digital computer.
CSC403.6	Perform computer arithmetic operations using different algorithms.

Class/Sem: IV   CBGS   Course Name: Database Management System

The students will be able to:

Course Code	Course Outcome Statements
CSC404.1	Understand and differentiate between file based system and DBMS.
CSC404.2	Describe data models and schemas in DBMS.
CSC404.3	Mold the real world scenario into ER diagram using relational database.
CSC404.4	Create the real world application using various features of SQL.
CSC404.5	Design functional dependencies and normalizing relation.
CSC404.6	Optimize the queries using concept of transaction management.

The students will be able to:

Course Code	Course Outcome Statements
CSC405.1	Understand concepts and fundamentals of Grammars and Languages.
CSC405.2	Build concept of theoretical design of basic machine, deterministic and non deterministic and pushdown automata.
CSC405.3	Develop understanding of different types of Turing machines and their use.
CSC405.4	Compare different types of languages and machines.
CSC405.5	Understand the concept of undecidability.
CSC405.6	Apply theoretical knowledge in practice by synthesizing machine.

Class/Sem: IV   CBGS   Course Name: Computer Graphics

The students will be able to:

Course Code	Course Outcome Statements
CSC406.1	Understand basic concepts of computer graphics.
CSC406.2	Acquire knowledge about drawing basic shapes such as lines, circle, ellipse, polygon in computer graphics.
CSC406.3	Implement the interaction with mouse and keyboard using OpenGL programming.
CSC406.4	Apply the basic transformation and composite transformation of 2D and 3D.
CSC406.5	Synthesize different illumination models and surface rendering.
CSC406.6	Evaluate and analyze problems based on various algorithms and curves, fractals of computer Graphics.

The students will be able to:

Course Code	Course Outcome Statements
CPC501.1	Understand basic architecture of 16 bit and 32 bit microprocessors.
CPC501.2	Understand interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
CPC501.3	Design system using memory chips and peripheral chips for 16 bit 808 microprocessor.
CPC501.4	Apply Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors .
CPC501.5	Distinguish between RISC and CISC processors.
CPC501.6	Synthesize Memory Interfacing: SRAM, ROM and DRAM (using DRAM Controller Intel 8203)

Class/Sem: T.E. / V CBGS Course Name Operating System

The students will be able to:

Course Code	Course Outcome Statements
CPC502.1	Understand basic knowledge, functions and services of Operating system as system software.
CPC502.2	Design functions and services and learn various algorithms.
CPC502.3	Analyze, study and implementation of resource control, scheduling, I/O and file management.
CPC502.4	Solve the deadlock problems and apply various techniques.
CPC502.5	Identify the role of process synchronisation towards increasing throughput of the system.
CPC502.6	Recognize the various data structures used by different OS like Windows XP, Linux and Unix.

Class/Sem: T.E. / V   CBGS   Course Name: Structured and Object Oriented
Analysis and Design

The students will be able to:

Course Code	Course Outcome Statements
CPC503.1	Understand and apply techniques to get the system requirements and present it in standard format.
CPC503.2	Apply key modelling concepts to both the traditional structured approach and the object-oriented approach.
CPC503.3	Use traditional approach to design real time software system development life cycle models.
CPC503.4	Use static diagrams (class, object, and component diagrams) and behaviour diagrams (activity diagrams, state charts, use cases, sequence diagrams, deployment diagrams) for development of the system.
CPC503.5	Understand the fundamental principles of OOP, implementation and validating systems with modern tools.
CPC503.6	Learn requirements elicitation, requirements analysis, system design, and object design, feasibility analysis and document those in UML (Unified Modelling Language).

Class/Sem: T.E. / V   CBGS   Course Name: Computer Network

The students will be able to:

Course Code	Course Outcome Statements
CPC504.1	Understand fundamentals of computer networks, OSI Layers, TCP / IP Model.
CPC504.2	Solve complex problem on error detection and error correction.
CPC504.3	Analyze different routing algorithms and methods to improve performance.
CPC504.4	Analyze the transport layer protocols and congestion control methods.
CPC504.5	Describe different application layer services and congestion control.
CPC504.6	Describe various application layer services and network management components.

Class/Sem: T.E. / V   CBGS   Course Name: Web Technology Laboratory

The students will be able to:

Course Code	Course Outcome Statements
CPL501.1	Understand the basic HTML tags by using it to create web pages
CPL501.2	Identify difference between HTML and XML documents and to create web pages using CSS.
CPL501.3	Understand concepts of Java Scripts.
CPL501.4	Understand difference between JSP and Servlets and Installation of Tomcat process.
CPL501.5	Create application by using JSP and Servlets.
CPL501.6	Apply JDBC and ODBC technologies to create database.

Class/Sem: T.E. / V   CBGS   Course Name: Business Communication and Ethics

The students will be able to:

Course Code	Course Outcome Statements
CPL502.1	Understand the business communication process, ethics and its effective application.
CPL502.2	Synthesize and apply report writing, proposal writing and the project management skills.
CPL502.3	Apply appropriate analytical skills in project report presentations, group discussions and to communicate effectively in various formal settings.
CPL502.4	Understand and learn various roles in group and organization understanding the interpersonal skills like emotional intelligence, leadership, negotiation, time management and teamwork.
CPL502.5	Participate and achieve success in competitive exams and campus placements.
CPL502.6	Enhance social skills, business perspectives and inculcate employment skills.

Class/Sem: T.E./ VI   CBGS   Course Name: System Programming and Compiler
                                                                 Construction

The students will be able to:

Course Code	Course Outcome Statements
CPC601.1	Understand functionalities and components of different system software.
CPC601.2	Understand the structure of compilers and basic techniques used in compiler construction such as lexical analysis, top-down, bottom-up parsing.
CPC601.3	Design new language structures with the help of grammars.
CPC601.4	Apply optimizing techniques, principles and analyse the role of intermediate code generation for language design.
CPC601.5	Appreciate the role of Operating System functions such as memory management as pertaining to run time storage management
CPC601.6	Use tools as Lex and YACC for design compiler.

The students will be able to:

Course Code	Course Outcome Statements
CPC602.1	Demonstrate basic knowledge in software engineering.
CPC602.2	Understanding of impact of sound engineering principles.
CPC602.3	Apply advanced software methodology to create high quality WebApps.
CPC602.4	Analyze risk in software design and quality.
CPC602.5	Plan, design, develop and validate the software project.
CPC602.6	Understand the methodology and apply the concepts of advance software.

Class/Sem: T.E./ VI   CBGS   Course Name: Distributed Databases

The students will be able to:

Course Code	Course Outcome Statements
CPC603.1	Understand Distributed Databases along with its architecture and multi-database system.
CPC603.2	Apply various fragmentation techniques and obtain transparency in DDB.
CPC603.3	Analyse different models for transaction management, concurrency control and deadlock handling methods.
CPC603.4	Develop mini projects using various tools of Distributed Databases.
CPC603.5	Optimize and process various queries.
CPC603.6	Maintain the integrity of heterogeneous database and to apply various concepts of XML for data integration.

Class/Sem: T.E./ VI   CBGS   Course Name: Mobile Communication and Computing

The students will be able to:

Course Code	Course Outcome Statements
CPC604.1	Understand the fundamental concepts of GSM and Cellular architecture, Android operating system.
CPC604.2	Solve the complex problem of Cellular IP and different types of handoffs to analyse and identify the concept of mobile network.
CPC604.3	Setup and configure wireless access points. Implement small android based applications
CPC604.4	Use appropriate Network Simulator tool to simulate mobile network and easily understand the mobile communication and computing.
CPC604.5	Implement small android based applications.
CPC604.6	Recognize the need and explain recent research development in the field of Mobile communication, computing and Android development system.

The students will be able to:

Course Code	Course Outcome Statements
CPE6012.1	Define the Characteristic of a project management.
CPE6012.2	Appreciate project management principles and risk in project management environment.
CPE6012.3	Understand the Challenges for effective project management
CPE6012.4	Apply the project management principles across all phases of a project
CPE6012.5	Demonstrate use of tool and technique for management of project plan.
CPE6012.6	Monitor and control the project schedule and budget in tracking project progress

Class/Sem: T.E./ VI   CBGS   Course Name: Network Programming Laboratory

The students will be able to:

Course Code	Course Outcome Statements
CPL601.1	Configure Linux Network.
CPL601.2	Analyze and edit routing Table.
CPL601.3	Configure Linux Router.
CPL601.4	Configure Linux FTP Server.
CPL601.5	Install and configure DNS Server.
CPL601.6	Install and configure web Server.

Class/Sem: B.E./VII   CBGS   Course Name: Digital Signal Processing

The students will be able to:

Course Code	Course Outcome Statements
CPC701.1	Plot discrete-time signals, evaluate their energy and power, check for periodicity and evaluate the period of a signal.
CPC701.2	Compute the linear and circular convolutions of discrete-time sequences.
CPC701.3	Evaluate the discrete-time Fourier transform (DTFT) of a sequence.
CPC701.4	Evaluate and plot the frequency (magnitude and phase) response of linear time-invariant systems, and identify all-pass.
CPC701.5	Conduct mat lab-based project(s) requiring some independent reading, programming, simulations, and technical writing
CPC701.6	Use Digital Signal Processing concepts in some selected applications in lecture and through the computer project.

Class/Sem: B.E./VII   CBGS   Course Name: Cryptography and System
Security

The students will be able to:

Course Code	Course Outcome Statements
CPC702.1	Understand the principles and practices of cryptographic techniques.
CPC702.2	Understand a variety of generic security threats and vulnerabilities, and identify & analyze particular security problems for given application.
CPC702.3	Appreciate the application of security techniques and technologies in solving real life security problems in practical systems.
CPC702.4	Apply appropriate security techniques to solve security problem.
CPC702.5	Design security protocols and methods to solve the specific security problems.
CPC702.6	Familiar with current research issues and directions of security.

Class/Sem: B.E./VII CBGS Course Name: Artificial Intelligence

The students will be able to:

Course Code	Course Outcome Statements
CPC703.1	Learn basic concepts of programming in artificial intelligence and NLP.
CPC703.2	Understand the working of different types of agents along with its environments and describe the expert system architecture.
CPC703.3	Solve various search problems using different learning algorithms.
CPC703.4	Explain knowledge and reasoning in uncertain domain.
CPC703.5	Develop a plan and represent it in STRIPES language.
CPC703.6	Evaluate applications for expert system and NLP.

Class/Sem: B.E./VII   CBGS   Course Name: Advanced Algorithms

The students will be able to:

Course Code	Course Outcome Statements
CPE7021.1	Understand fundamentals of space and time complexity, Growth of function, Randomized algorithms and Recursive algorithms.
CPE7021.2	Understand different problem solving strategies such as Divide and Conquer, Greedy Method, Dynamic Programming.
CPE7021.3	Calculate and analyze time complexity and space complexity of an algorithm.
CPE7021.4	Solve problems on based on knapsack, Job sequencing with deadlines, Sum of subsets with appropriate problem solving strategies.
CPE7021.5	Understand and analyze different string matching algorithms.
CPE7021.6	Solve string matching problems.

Class/Sem: B.E./VII   CBGS   Course Name: Image Processing

The students will be able to:

Course Code	Course Outcome Statements
CPE7023.1	Understand the basic concept of image processing and video processing.
CPE7023.2	Understand concepts of image enhancement.
CPE7023.3	Understand concepts of image segmentation technique.
CPE7023.4	Analyze fast image transform flow graph.
CPE7023.5	Understand different techniques of image compression and decompression.
CPE7023.6	Analyze binary image processing operations.

Class/Sem: B.E./VII   CBGS   Course Name: Software Architecture

The students will be able to:

Course Code	Course Outcome Statements
CPE7024.1	Understand the fundamental concepts, principles and techniques of software architecture.
CPE7024.2	Identify the common techniques for analysing and managing architectural knowledge.
CPE7024.3	Create existing architectural styles, patterns and design solutions for complex engineering problems.
CPE7024.4	Conduct investigations for complex modelling techniques and we use documentation techniques to communicate large systems.
CPE7024.5	Apply modern tools to understand the architecture designs and Create an existing software system.
CPE7024.6	Recognize the need and analysing recent research development in the field of software architecture.

Class/Sem: B.E./VII   CBGS   Course Name: Enterprise Resource Planning and
Supply Chain Management

The students will be able to:

Course Code	Course Outcome Statements
CPE7026.1	Conceptualize the basic structure of ERP and SCM.
CPE7026.2	Provide the knowledge and need of Enterprise Resource Planning.
CPE7026.3	Identify implementation strategy used for ERP and SCM.
CPE7026.4	Identify and describe typical functionality in an ERP and SCM system.
CPE7026.5	Apply design principles for various business module in ERP and SCM.
CPE7026.6	Apply different emerging technologies for implementation of ERP and SCM

Class/Sem: B.E./VII   CBGS   Course Name: Network Threats and Attacks
Laboratory

The students will be able to:

Course Code	Course Outcome Statements
CPL701.1	Understand the fundamental concepts & Use network-based tools for network analysis.
CPL701.2	Analyse particular security problems for given application by identifying variety of generic security threats ,vulnerabilities and use techniques for Network scanning.
CPL701.3	Appreciate the application security of network vulnerability and solving real- life security problems in practical systems.
CPL701.4	Use tools to simulate intrusion detection system.
CPL701.5	Understand and install a firewall.
CPL701.6	Implement small project on network application based applications.

Class/Sem: B.E./VIII   CBGS   Course Name: Data Warehousing and Mining

The students will be able to:

Course Code	Course Outcome Statements
CPC801.1	Understand the concept related to data warehouse such as its need, architecture and strategic.
CPC801.2	Design various types of data models.
CPC801.3	Analyse the various processes involved in ETL and OLAP.
CPC801.4	Explore the concepts and operations related to data mining.
CPC801.5	Synthesize the data using various classification methods and prediction models.
CPC801.6	Create cluster using various methods such as mining frequent pattern and association rules.

Class/Sem: B.E./VIII   CBGS   Course Name: Human Machine Interaction

The students will be able to:

Course Code	Course Outcome Statements
CPC802.1	Understand fundamentals of human machine interaction and importance of everyday things.
CPC802.2	Design goal oriented and user centric interfaces.
CPC802.3	Explore the good user interface design techniques.
CPC802.4	Build innovative applications which are user friendly.
CPC802.5	Apply the principles of user interface to create an application.
CPC802.6	Design application for technical and social needs.

Class/Sem: B.E./VIII CBGS Course Name: Parallel and Distributed Systems

The students will be able to:

Course Code	Course Outcome Statements
CPC803.1	Analyze and design the parallel and distributed system.
CPC803.2	Develop different ways to parallelize problems.
CPC803.3	Gain an appreciation on the challenges and opportunities faced by parallel and distributed systems.
CPC803.4	Understand middleware technologies that support distributed applications.
CPC803.5	Improve the performance and reliability of distributed and parallel program.
CPC803.6	Study about the various distributed file systems used in computing.

Class/Sem: B.E./VIII   CBGS   Course Name: Digital Forensics

The students will be able to:

Course Code	Course Outcome Statements
CPE8034.1	Understand the fundamental concepts of various types of cybercrime, Digital forensic and Incident response methodology.
CPE8034.2	Analyze initial response and collection of volatile data from windows system and Unix system.
CPE8034.3	Understand File systems, type of evidences and challenges in evidence handling procedure.
CPE8034.4	Apply forensic techniques using various forensic tools.
CPE8034.5	Compare the different types of network attack and analysis collecting network based evidence.
CPE8034.6	Identify the various types of law, levels of law and law related in computers

Class/Sem: B.E./VIII   CBGS   Course Name: Big Data Analytics

The students will be able to:

Course Code	Course Outcome Statements
CPE8035.1	Define the key issues in big data management and its associated applications in intelligent business and scientific computing.
CPE8035.2	Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in big data analytics.
CPE8035.3	Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.
CPE8035.4	Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications.
CPE8035.5	Design structure and workflow for live Data Streaming Analysis.
CPE8035.6	Create Application for the different perspective or scenarios of big data Analytics.

Class/Sem: B.E./VIII   CBGS   Course Name: Cloud Computing Laboratory

The students will be able to:

Course Code	Course Outcome Statements
CPL801.1	Understand various basic concepts related to cloud computing technologies.
CPL801.2	Understand the underlying principle of cloud virtualization, cloud storage, data management and data visualization.
CPL801.3	Install and appreciate security features in Cloud.
CPL801.4	Design and develop highly scalable cloud-based applications by creating and configuring virtual machines on the cloud and building private cloud.
CPL801.5	Create and Run Virtual Machines on Open Source OS.
CPL801.6	Develop scalable applications using AWS features.