Late Shri. Vishnu Waman Thakur Charitable Trust's
VIVA INSTITUTE OF TECHNOLOGY
(Approved by AICTE, New Delhi, DTE, Govt. of Maharashtra and Affiliated to the University of Mumbai)
COMPUTER ENGINEERING DEPARTMENT

Academic Year : 2020-21

SEMESTER – III

C – SCHEME

Course Name : Applied Mathematics-III (CSC301)

Faculty Name : Prof. Jayesh Jain

Course Code	Course Outcome Statement
CSC301.1	Understand the concept of Laplace transform and its application to solve the real integrals
CSC301.2	Understand the concept of inverse Laplace transform of various functions and its applications in engineering problems.
CSC301.3	Expand the periodic function by using the Fourier series for real-life problems and complex engineering problems.
CSC301.4	Understand complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic functions.
CSC301.5	Apply the concept of Correlation and Regression to the engineering problems in data science, machine learning, and AI.
CSC301.6	Understand the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.

Course Name : Discrete Structures and Graph Theory (CSC302)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSC302.1	Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving.
CSC302.2	Ability to reason logically.
CSC302.3	Ability to understand relations, functions, Diagraph and Lattice.
CSC302.4	Ability to understand and apply concepts of graph theory in solving real world problems.
CSC302.5	Understand use of groups and codes in Encoding-Decoding
CSC302.6	Analyze a complex computing problem and apply principles of discrete mathematics to identify solutions

Course Name : Data Structure (CSC303)

Faculty Name : Prof. Monali Pimple

Course Code	Course Outcome Statement
CSC303.1	Students will be able to implement Linear and Non-Linear data structures.
CSC303.2	Students will be able to handle various operations like searching, insertion, deletion and traversals on various data structures.
CSC303.3	Students will be able to explain various data structures, related terminologies and its types.
CSC303.4	Students will be able to choose appropriate data structure and apply it to solve problems in various domains.
CSC303.5	Students will be able to analyze and Implement appropriate searching techniques for a given problem.
CSC303.6	Students will be able to demonstrate the ability to analyze, design, apply and use data structures to solve engineering problems and evaluate their solutions.

Course Name : Digital Logic & Computer Organization and Architecture (CSC304)

Faculty Name: Prof. Akshata Raut

Course Code	Course Outcome Statement
CSC304.1	To learn different number systems and basic structure of computer system.
CSC304.2	To demonstrate the arithmetic algorithms.
CSC304.3	To understand the basic concepts of digital components and processor organization.
CSC304.4	To understand the generation of control signals of computer.
CSC304.5	To demonstrate the memory organization.
CSC304.6	To describe the concepts of parallel processing and different Buses.

Course Name : Computer Graphics (CSC305)

Faculty Name : Prof. Reshma Chaudhari

Course Code	Course Outcome Statement
CSC305.1	Describe the basic concepts of Computer Graphics.
CSC305.2	Demonstrate various algorithms for basic graphics primitives.
CSC305.3	Apply 2-D geometric transformations on graphical objects.
CSC305.4	Use various Clipping algorithms on graphical objects
CSC305.5	Explore 3-D geometric transformations, curve representation techniques and projections methods.
CSC305.6	Explain visible surface detection techniques and Animation.

Course Name : Data Structure Lab (CSL301)

Faculty Name : Prof. Monali Pimple

Course Code	Course Outcome Statement
CSL301.1	Implement linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
CSL301.2	Implement nonlinear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
CSL301.3	Choose appropriate data structure and apply it in various problems
CSL301.4	Select appropriate searching techniques for given problems.

Course Name : Digital Logic & Computer Organization and Architecture Lab (CSL302)

Faculty Name : Prof. Akshata Raut

Course Code	Course Outcome Statement
CSL302.1	To understand the basics of digital components
CSL302.2	Design the basic building blocks of a computer: ALU, registers, CPU and memory
CSL302.3	To recognize the importance of digital systems in computer architecture
CSL302.4	To implement various algorithms for arithmetic operations.

Course Name : Computer Graphics Lab (CSL303)

Faculty Name : Prof. Reshma Chaudhari

Course Code	Course Outcome Statement
CSL303.1	Implement various output and filled area primitive algorithms
CSL303.2	Apply transformation, projection and clipping algorithms on graphical objects.
CSL303.3	Perform curve and fractal generation methods.
CSL303.4	Develop a Graphical application/Animation based on learned concept

Course Name : Skill base Lab course : Object Oriented Programming with Java (CSL304)

Faculty Name : Prof. Janhavi Sangoi/ Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSL304.1	To apply fundamental programming constructs.
CSL304.2	To illustrate the concept of packages, classes and objects.
CSL304.3	To elaborate the concept of strings, arrays and vectors.
CSL304.4	To implement the concept of inheritance and interfaces.
CSL304.5	To implement the concept of exception handling and multithreading.
CSL304.6	To develop GUI based application.

Course Name : Mini Project –1 A (CSM301)

Faculty Name : Prof. Janhavi Sangoi / Prof. Monali Pimple / Prof. Akshata Raut / Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSM301.1	Identify problems based on societal /research needs.
CSM301.2	Apply Knowledge and skill to solve societal problems in a group.
CSM301.3	Develop interpersonal skills to work as member of a group or leader.
CSM301.4	Draw the proper inferences from available results through theoretical/ experimental/simulations. development.
CSM301.5	Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM301.6	Use standard norms of engineering practices
CSM301.7	Excel in written and oral communication.
CSM301.8	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.
CSM301.9	Demonstrate project management principles during project work.

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SEMESTER – IV

C – SCHEME (R'19)

Course Name : Applied Mathematics -IV (CSC401)

Faculty Name : Prof. Bhagyashree Netke

Course Code	Course Outcome Statement
CSC401.1	Apply the concepts of eigenvalues and eigenvectors in engineering problems.
CSC401.2	Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
CSC401.3	Apply the concept of Z- transformation and inverse in engineering problems.
CSC401.4	Use the concept of probability distribution and sampling theory to engineering problems.
CSC401.5	Apply the concept of Linear Programming Problems to optimization.
CSC401.6	Solve Non-Linear Programming Problems for optimization of engineering problems.

Course Name : Analysis of Algorithm (CSC402)

Faculty Name : Prof. Akshata Raut

Course Code	Course Outcome Statement
CSC402.1	Analyze the running time and space complexity of algorithms.
CSC402.2	Describe, apply and analyze the complexity of divide and conquer strategy.
CSC402.3	Describe, apply and analyze the complexity of greedy strategy.
CSC402.4	Describe, apply and analyze the complexity of dynamic programming strategy.
CSC402.5	Explain and apply backtracking, branch and bound.
CSC402.6	Explain and apply string matching techniques.

Course Name : Database Management System (CSC403)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSC403.1	Recognize the need of database management system
CSC403.2	Design ER and EER diagram for real life applications
CSC403.3	Construct relational model and write relational algebra queries.
CSC403.4	Formulate SQL queries
CSC403.5	Apply the concept of normalization to relational database design.
CSC403.6	Describe the concept of transaction, concurrency and recovery.

Course Name : Operating System (CSC404)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSC404.1	Understand the objectives, functions and structure of OS
CSC404.2	Analyze the concept of process management and evaluate performance of process scheduling algorithms.
CSC404.3	Understand and apply the concepts of synchronization and deadlocks
CSC404.4	Evaluate performance of Memory allocation and replacement policies
CSC404.5	Understand the concepts of file management.
CSC404.6	Apply concepts of I/O management and analyze techniques of disk scheduling.

Course Name : Microprocessor (CSC405)

Faculty Name : Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSC405.1	Describe core concepts of 8086 microprocessors.
CSC405.2	Interpret the instructions of 8086 and write assembly and Mixed language programs.
CSC405.3	Identify the specifications of peripheral chips.
CSC405.4	Design 8086 based system using memory and peripheral chips.
CSC405.5	Appraise the architecture of advanced processors
CSC405.6	Understand hyper threading technology

Course Name : Analysis of Algorithms Lab (CSL401)

Faculty Name : Prof. Akshata Raut

Course Code	Course Outcome Statement
CSL401.1	Implement the algorithms using different approaches.
CSL401.2	Analyze the complexities of various algorithms.
CSL401.3	Compare the complexity of the algorithms for specific problem.

Course Name : Database Management system Lab (CSL402)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSL402.1	Design ER /EER diagram and convert to relational model for the real world application.
CSL402.2	Apply DDL, DML, DCL and TCL commands
CSL402.3	Write simple and complex queries
CSL402.4	Use PL / SQL Constructs.
CSL402.5	Demonstrate the concept of concurrent transactions execution and frontend-backend connectivity

Course Name : Operating System Lab (CSL403)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSL403.1	Understand the objectives, functions and structure of OS
CSL403.2	Analyze the concept of process management and evaluate performance of process scheduling algorithms.
CSL403.3	Understand and apply the concepts of synchronization and deadlocks
CSL403.4	Evaluate performance of Memory allocation and replacement policies
CSL403.5	Understand the concepts of file management.
CSL403.6	Apply concepts of I/O management and analyze techniques of disk scheduling.

Course Name : Microprocessor Lab (CSL404)

Faculty Name : Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSL404.1	Use appropriate instructions to program microprocessor to perform various task
CSL404.2	Develop the program in assembly/ mixed language for Intel 8086 processor
CSL404.3	Demonstrate the execution and debugging of assembly/ mixed language program

Course Name : Skill Base Lab Course: Python Programming (CSL405)

Faculty Name : Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSL405.1	To understand basic concepts in python.
CSL405.2	To explore contents of files, directories and text processing with python
CSL405.3	To develop program for data structure using built in functions in python.
CSL405.4	To explore django web framework for developing python-based web application.
CSL405.5	To understand Multithreading concepts using python.

Course Name : Mini Project –1 B (CSM401)

Faculty Name : Prof. Janhavi Sangoi / Prof. Umesh Mohite / Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSM401.1	Identify problems based on societal /research needs.
CSM401.2	Apply Knowledge and skill to solve societal problems in a group.
CSM401.3	Develop interpersonal skills to work as member of a group or leader.
CSM401.4	Draw the proper inferences from available results through theoretical / experimental / simulations.
CSM401.5	Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM401.6	Use standard norms of engineering practices
CSM401.7	Excel in written and oral communication.
CSM401.8	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.
CSM401.9	Demonstrate project management principles during project work.

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SEMESTER – V
Choice Based (R'16)

Course Name : Microprocessor (CSC501)

Faculty Name : Prof. Umesh Mohite

Course Code	Course Outcome Statement
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.

Course Name : Database Management System (CSC502)

Faculty Name : Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
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.

Course Name : Computer network (CSC503)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSC503.1	Discuss all computer network topology, communication services, reference models and recognize network software and hardware components.
CSC503.2	Differentiate and relate appropriate network devices and media for communication.
CSC503.3	Demonstrate the knowledge for selecting appropriate error solving techniques and familiarize with Data link layer concept.
CSC5034	Examine different protocols and routing algorithms at network layer.
CSC503.5	Examine TCP and UDP, transport service primitives, TCP flow control and try to execute TCP congestion control techniques.
CSC503.6	Use different Application layer protocols such as DNS, HTTP, SMTP, Telnet, FTP, DHCP.

Course Name : Theory of Computer Science (CSC504)

Faculty name : Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSC504.1	Identify the central concepts in theory of computation and differentiate between DFA and NFA, 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.

Course Name : Multimedia System (CSDLO5011)

Faculty Name : Prof. Saniket Kudoo

Course Code	Course Outcome Statement
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 different compression algorithms.
CSDLO5011.5	To describe various multimedia communication techniques.
CSDLO5011.6	To apply different security techniques in multimedia environment.

Course Name : Microprocessor Lab (CSL501)

Faculty Name : Prof. Umesh Mohite

Course Code	Course Outcome Statement
CSL501.1	The fundamental knowledge and basic technical competence in the field of Microprocessors.
CSL501.2	To emphasize on instruction set and logic to build assembly language Programs.
CSL501.3	Logic to build mixed level language programs.
CSL501.4	Logic to build mixed level language programs by using String Instructions.

Course Name : Computer Network Lab (CSL502)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSL502.1	Execute different networking commands on Linux and add/delete routes by network commands.
CSL502.2	Implement the working of error detection and correction code and data transmission techniques.
CSL502.3	Relate different Network Routing concepts and congestion control strategies.
CSL502.4	Examine packet analyzers, network simulators to explore network layers and demonstrate network configuration.
CSL502.5	Implement socket programming and use Application layer protocols such as DNS, FTP, Telnet.

Course Name : Database & Info. System Lab (CSL503)

Faculty Name : Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSL503.1	Design and draw ER and EER diagram for the real life problem with software tool.
CSL503.2	Create and update database and tables with different DDL and DML statements.
CSL503.3	Apply /Add integrity constraints and able to provide security to data.
CSL503.4	Implement and execute Complex queries.
CSL503.5	Apply triggers and procedures for specific module/task.
CSL503.6	Handle concurrent transactions and able to access data through front end (using JDBC ODBC connectivity.)

Course Name : Web Design Lab (CSL504)

Faculty Name : Prof. Saniket Kudoo / Prof. Akshata Raut

Course Code	Course Outcome Statement
CSL504.1	To understand basic concepts and features of Web Technology
CSL504.2	To design and implement static web pages using HTML5 and CSS3.
CSL504.3	To apply the concept of client side validation and design dynamic web pages using JavaScript and JQuery.
CSL504.4	To understand server side technologies and develop web pages using PHP and AJAX.
CSL504.5	To understand the basics of XML and develop web pages using XML.
CSL504.6	To implement end user requirements and create web application using appropriate web technologies.

Course Name : Business Comm. & Ethics (CSL505)

Faculty Name : Prof. Trupti Patil / Prof. Prashant Pawar

Course Code	Course Outcome Statement
CSL505.1	Design a technical document using precise language, suitable vocabulary and apt style.
CSL505.2	Develop the life skills/interpersonal skills to progress professionally by building stronger relationships.
CSL505.3	Demonstrate awareness of contemporary issues and knowledge of professional and ethical responsibilities.
CSL505.4	Apply the traits of a suitable candidate for a job/higher education , upon being trained in the techniques of holding a group discussion, facing interviews and writing resume/SOP.
CSL505.5	Deliver formal presentations effectively implementing the verbal and non-verbal skills.

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SEMESTER – VI

Choice Based (R'16)

Course Name : Software Engineering (CSC601)

Faculty Name : Prof. Saniket Kudoo / Prof. Akshata Raut

Course Code	Course Outcome Statement
CSC601.1	Understand and demonstrate basic knowledge in software engineering.
CSC601.2	Identify requirements, analyze and prepare models.
CSC601.3	Plan, schedule and track the progress of the projects.
CSC601.4	Design & develop the software projects.
CSC601.5	Identify risks, manage the change to assure quality in software projects.
CSC601.6	Apply testing principles on software project and understand the maintenance concepts.

Course Name : System Programming And Compiler Construction (CSC602)

Faculty Name : Prof. Reshma Chaudhari

Course Code	Course Outcome Statement
CSC602.1	Identify the relevance of different system programs.
CSC602.2	Describe the various data structures and passes of assembler design.
CSC602.3	Identify the need for different features and designing of macros.
CSC602.4	Distinguish different loaders and linkers and their contribution in developing efficient user applications.
CSC602.5	Construct different parsers for given context free grammars.
CSC602.6	Justify the need synthesis phase to produce object code optimized in terms of high execution speed and less memory usage

Course Name : Data Warehousing and Mining (CSC603)

Faculty Name : Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSC603.1	Understand Data Warehouse fundamentals, Data Mining Principles
CSC603.2	Design data warehouse with dimensional modelling and apply OLAP operations.
CSC603.3	Identify appropriate data mining algorithms to solve real world problems
CSC603.4	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
CSC603.5	Describe complex data types with respect to spatial and web mining.
CSC603.6	Benefit the user experiences towards research and innovation.

Course Name : Cryptography and System Security (CSC604)

Faculty Name : Prof. Umesh Mohite

Course Code	Course Outcome Statement
CSC604.1	Understand system security goals and concepts, classical encryption techniques
CSC604.2	Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
CSC604.3	Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.
CSC604.4	Apply different digital signature algorithms to achieve authentication and design secure applications
CSC604.5	Understand network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols
CSC604.6	Analyze and apply system security concept to recognize malicious code.

Course Name : Machine Learning (CSDLO6021)

Faculty Name : Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSDLO6021.1	Understand the basic concepts of Machine Learning.
CSDLO6021.2	Understand the concept of neural networks with its structure and working.
CSDLO6021.3	Choose appropriate optimization techniques for machine learning algorithms.
CSDLO6021.4	Implement learning with regression and decision trees.
CSDLO6021.5	Implement learning with classification and clustering.
CSDLO6021.6	Examine various Dimensionality reduction techniques.

Course Name : Software Engineering Lab (CSL601)

Faculty Name : Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CSL601.1	Identify requirements and apply process model to selected case study.
CSL601.2	Analyze and design models for the selected case study using UML modeling.
CSL601.3	Use various software engineering tools.

Course Name : System software Lab (CSL602)

Faculty Name : Prof. Reshma Chaudhari

Course Code	Course Outcome Statement
CSL602.1	Generate machine code by using various databases generated in pass one of two pass assembler.
CSL602.2	Construct different databases of single pass macro processor.
CSL602.3	Identify and validate different tokens for given high level language code.
CSL602.4	Parse the given input string by constructing Top down /Bottom up parser.
CSL602.5	Implement synthesis phase of compiler with code optimization techniques.
CSL602.6	Explore various tools like LEX and YACC.

Course Name : Data Warehousing & Mining Lab (CSL603)

Faculty Name : Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSL602.1	Design data warehouse and perform various OLAP operations.
CSL602.2	Implement classification, prediction, clustering and association rule mining algorithms.
CSL602.3	Demonstrate classifications, prediction, clustering and association rule mining algorithms on a given set of data sample using data mining tools.
CSL602.4	Implement spatial and web mining algorithms.

Course Name : System Security Lab (CSL604)

Faculty Name : Prof. Umesh Mohite

Course Code	Course Outcome Statement
CSL604.1	To be able to apply the knowledge of symmetric cryptography to implement simple ciphers.
CSL604.2	To be able to analyze and implement public key algorithms like RSA and El Gamal.
CSL604.3	To analyze and evaluate performance of hashing algorithms.
CSL604.4	To explore the different network reconnaissance tools to gather information about networks.
CSL604.5	To explore and use tools like sniffers, port scanners and other related tools for analyzing packets in a network
CSL604.6	To be able to set up firewalls and intrusion detection systems using open source technologies and to explore email security
CSL604.7	To be able to explore various attacks like buffer-overflow, and web-application attacks.

Course Name : Mini-Project (CSP605)

Faculty Name : Prof. Sunita Naik / Prof. Reshma Chaudhari / Dr. Tatwadarshi P N

Course Code	Course Outcome Statement
CSP605.1	Acquire practical knowledge within the chosen area of technology for project development.
CSP605.2	Identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach
CSP605.3	Gain an appreciation on the challenges and opportunities faced by distributed systems.
CSP605.4	Contribute as an individual or in a team in development of technical projects
CSP605.5	Develop effective communication skills for presentation of project related activities

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SEMESTER – VII

REV-16

Course Name : Digital Signal Image Processing (CSC701)

Faculty Name : Prof. Sunita Naik

Course Code	Course Outcome Statement
CSC701.1	Apply the concept of DT Signal and DT Systems
CSC701.2	Classify and analyze discrete time signals and systems
CSC701.3	Implement Digital Signal Transform techniques DFT and FFT
CSC701.4	Use the enhancement techniques for digital Image Processing
CSC701.5	Differentiate between the advantages and disadvantages of different edge detection techniques
CSC701.6	Develop small projects of 1-D and 2-D Digital Signal Processing.

Course Name : Mobile Communication & Computing (CSC702)

Faculty Name : Prof. Pallavi Raut

Course Code	Course Outcome Statement
CSC702.1	To identify basic concepts and principles in mobile communication & computing, cellular architecture.
CSC702.2	To describe the components and functioning of mobile networking.
CSC702.3	To classify variety of security techniques in mobile network.
CSC702.4	To apply the concepts of WLAN for local as well as remote applications
CSC702.5	To describe and apply the concepts of mobility management
CSC702.6	To describe Long Term Evolution (LTE) architecture and its interfaces

Course Name : Artificial Intelligence & Soft Computing (CSC703)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
CSC703.1	Identify the various characteristics of Artificial Intelligence and Soft Computing techniques.
CSC703.2	Choose an appropriate problem solving method for an agent to find a sequence of actions to reach the goal state.
CSC703.3	Analyse the strength and weakness of AI approaches to knowledge representation, reasoning and planning.
CSC703.4	Construct supervised and unsupervised ANN for real world applications.
CSC703.5	Design fuzzy controller system.
CSC703.6	Apply Hybrid approach for expert system design.

Course Name : Advanced System Security and Digital Forensics (CSDLO7031)

Faculty Name : Prof. Monali Pimpale

Course Code	Course Outcome Statement
CSDLO7031.1	Understand cyber attacks and apply access control policies and control mechanisms.
CSDLO7031.2	Identify malicious code and targeted malicious code.
CSDLO7031.3	Detect and counter threats to web applications.
CSDLO7031.4	Understand the vulnerabilities of Wi-Fi networks and explore different measures to secure wireless protocols, WLAN and VPN networks.
CSDLO7031.5	Understand the ethical and legal issues associated with cyber crimes and be able to mitigate impact of crimes with suitable policies.
CSDLO7031.6	Use different forensic tools to acquire and duplicate data from compromised systems and analyse the same.

Course Name : Cyber Security and Laws (ILO 7016)

Faculty Name : Prof. Reshma Chaudhari / Prof. Monali Pimple

Course Code	Course Outcome Statement
ILO 7016.1	Ability to learn and Understand the concept of cybercrime
ILO 7016.2	Understand effects of cybercrime on outside world
ILO 7016.3	Ability to understand tools and methods used in cybercrime
ILO 7016.4	Ability to Distinguish different aspects of cyber law
ILO 7016.5	Ability to Interpret and apply IT law in various legal issues
ILO 7016.6	Ability to apply Information Security Standards compliance during software design and development

Course Name : Digital Signal and Image Processing Lab (CSL701)

Faculty Name : Prof. Sunita Naik

Course Code	Course Outcome Statement
CSL701.1	Sample and reconstruct the signal
CSL701.2	Implement and apply operations like Convolution, Correlation, DFT and FFT on DT signals
CSL701.3	Implement spatial domain Image enhancement techniques.
CSL701.4	Implement Edge detection techniques using first order derivative filters.

Course Name : Mobile Application Development Lab (CSL702)

Faculty Name : Prof. Pallavi Raut

Course Code	Course Outcome Statement
CSL702.1	To develop and demonstrate mobile applications using various tools
CSL702.2	Students will articulate the knowledge of GSM, CDMA & Bluetooth technologies and demonstrate it.
CSL702.3	Students will able to carry out simulation of frequency reuse , hidden terminal problem
CSL702.4	To develop security algorithms for mobile communication network
CSL702.5	To demonstrate simulation and compare the performance of Wireless LAN
CSL702.6	To implement and demonstrate mobile node discovery and route maintains.

Course Name : Artificial Intelligence & Soft Computing Lab (CSL703)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
CSL703.1	To realize the basic techniques to build intelligent systems
CSL703.2	To create knowledge base and apply appropriate search techniques used in problem solving.
CSL703.3	Apply the supervised/unsupervised learning algorithm.
CSL703.4	Design fuzzy controller system.

Course Name : Computational Lab-I (CSL703)

Faculty Name : Dr.Tatwadarshi P N

Course Code	Course Outcome Statement
CSL703.1	Acquire practical knowledge within the chosen area of technology for project development.
CSL703.2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.

Course Name : Major Project 1 (CSP705)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSP705.1	Ability to acquire the thinking pattern which explores wide range of topics for innovation
CSP705.2	Ability to learn the technique of analysis, classification and then selection of appropriate literature
CSP705.3	Ability to learn the methodology to apply the problem solving approaches
CSP705.4	Ability to learn to communicate effectively with others to discuss technical, social needs and find an engineering solution
CSP705.5	Ability to develop skills for writing a technical document
CSP705.6	Ability to practicing to maintain and prepare a Project Report/ Synopsis Report of the work done as an evidence of an ability to work independently and in a group for the given task.

Late Shri. Vishnu Waman Thakur Charitable Trust's
VIVA INSTITUTE OF TECHNOLOGY
(Approved by AICTE, New Delhi, DTE, Govt. of Maharashtra and Affiliated to the University of Mumbai)
COMPUTER ENGINEERING DEPARTMENT

SEMESTER – VIII

REV-16

Course Name : Human Machine Interaction (CSC801)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
CSC801.1	Identify User Interface (UI) design principles
CSC801.2	Analysis of effective user friendly interfaces.
CSC801.3	Apply Interactive Design process in real world applications
CSC801.4	Evaluate UI design and justify.
CSC801.5	Create application for social and technical task.

Course Name : Distributed Computing (CSC802)

Faculty Name : Prof. Sunita Naik

Course Code	Course Outcome Statement
CSC802.1	Demonstrate knowledge of the basic elements and concepts related to distributed system technologies;
CSC802.2	Illustrate the middleware technologies that support distributed applications such as RPC, RMI and Object based middleware
CSC802.3	Analyze the various techniques used for clock synchronization and mutual exclusion
CSC802.4	Demonstrate the concepts of Resource and Process management and synchronization algorithms
CSC802.5	Demonstrate the concepts of Consistency and Replication Management
CSC802.6	Apply the knowledge of Distributed File System to analyze various file systems like NFS, AFS and the experience in building large-scale distributed applications.

Course Name : Natural Language Processing (DLO8012)

Faculty Name : Dr. Tatwadarshi P N

Course Code	Course Outcome Statement
DLO8012.1	Have a broad understanding of the field of natural language processing.
DLO8012.2	Have a sense of the capabilities and limitations of current natural language technologies
DLO8012.3	Be able to model linguistic phenomena with formal grammars.
DLO8012.4	Be able to Design, implement and test algorithms for NLP problems
DLO8012.5	Understand the mathematical and linguistic foundations underlying approaches to the various areas in NLP
CSDC8023.6	Be able to apply NLP techniques to design real world NLP applications such as machine translation, text categorization, text summarization, information extraction...etc.

Course Name : Project Management (ILO 8021)

Faculty Name : Prof. Pallavi Raut

Course Code	Course Outcome Statement
ILO 8021.1	Apply selection criteria and select an appropriate project from different options.
ILO 8021.2	Write work break down structure for a project and develop a schedule based on it.
ILO 8021.3	Identify opportunities and threats to the project and decide an approach to deal with them strategically.
ILO 8021.4	Use Earned value technique and determine & predict status of the project.
ILO 8021.5	Capture lessons learned during project phases and document them for future reference

Course Name : Human Machine Interactions Lab (CSL801)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
CSL801.1	To design user centric interfaces
CSL801.2	To design innovative and user friendly interfaces
CSL801.3	To apply HMI in their day-to-day activities
CSL801.4	To criticize existing interface designs, and improve them
CSL801.5	To Design application for social Task.
CSL801.6	To Design application for Technical Tasks

Course Name : Distributed Computing Lab (CSL802)

Faculty Name : Prof. Sunita Naik

Course Code	Course Outcome Statement
CSL802.1	Develop, test and debug RPC/RMI based client-server programs
CSL802.2	Implement the main underlying components of distributed systems (such as IPC, name resolution, file systems etc.)
CSL802.3	Implement various techniques of synchronization
CSL802.4	Design and implement application programs on distributed systems

Course Name : Cloud Computing Lab (CSL803)

Faculty Name : Prof. Pallavi Raut / Prof. Vinit Raut

Course Code	Course Outcome Statement
CSL803.1	Adapt different types of virtualization and increase resource utilization
CSL803.2	Build a private cloud using open source technologies
CSL803.3	Analyze security issues on cloud.
CSL803.4	Develop real world web applications and deploy on commercial cloud.
CSL803.5	Demonstrate various service models.

Course Name : Computational Lab II (CSL804)

Faculty Name : Dr. Tatwadarshi P N

Course Code	Course Outcome Statement
CSL804.1	Acquire practical knowledge within the chosen area of technology for project development.
CSL804.2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach

Course Name : Major Project 2 (CSP805)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSP805.1	Ability to acquire the thinking pattern which explores wide range of topics for innovation
CSP805.2	Ability to learn the technique of analysis, classification and then selection of appropriate literature
CSP805.3	Ability to learn the methodology to apply the problem solving approaches
CSP805.4	Ability to learn to communicate effectively with others to discuss technical, social needs and find an engineering solution
CSP805.5	Ability to develop skills for writing a technical document
CSP805.6	Ability to practicing to maintain and prepare a Project Report/ Synopsis Report of the work done as an evidence of an ability to work independently and in a group for the given task.