Academic Year : 2018 - 19

SEMESTER – III

REV-16

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

Course Name : Applied Mathematics-III (CSC301)

Faculty Name : Prof. Yogendra Vishwakarma

Course Code	Course Outcome Statement
CSC301.1	To understand the concept of complex variables, C – R equations , harmonic functions and its conjugate and mapping in complex plane.
CSC301.2	To learn the complex mapping , standard mappings, cross ratios and fixed point.
CSC301.3	To learn the Laplace Transform, Inverse Laplace transform of various function, its application and Z-transform.
CSC301.4	To understand the concept of Fourier Series, its complex form and enhance the problem solving skill.

Course Name : Digital Logic Design and Analysis (CSC301)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSC302.1	To understand different number system and their conversions.
CSC302.2	To analyze and minimize Boolean expression.
CSC302.3	To design and analyze combinational circuits.
CSC3024	To design and analyze sequential circuits
CSC302.5	To understand basic concept of VHDL
CSC302.6	To study basics of TTL and CMOS logic families

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

Course Name : Discrete Mathematics (CSC303)

Faculty Name : Prof. Akshata Raut

Course Code	Course Outcome Statement
CSC303.1	Understand the notion of mathematical thinking, mathematical proofs and the apply them in problem solving.
CSC303.2	Ability to reason logically.
CSC303.3	Ability to understand relations, Diagraph and lattice.
CSC303.4	Ability to understand use of functions, graphs and their use in programming applications.
CSC303.5	Understand use of groups and codes in Encoding – Decoding.
CSC303.6	Apply discrete structures into their other computing problems such as format specification, verification, artificial intelligence, cryptography, Data Analysis and Data mining etc.

Course Name : Electronic Circuits and Communication Fundamentals (CSC304)

Faculty Name : Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSC304.1	To understand the use of semiconductor devices in circuits and analyze them.
CSC304.2	To understand importance of oscillators and power amplifier in communication system.
CSC304.3	To understand basic concept of operational amplifier and their application.
CSC304.4	Ability to understand use of functions, graphs and their use in programming applications.
CSC304.5	To understand the fundamental concepts of electronic communication.
CSC304.6	To apply knowledge of electronic devices and circuits to communication applications.

Course Name : Data Structure (CSC305)

Faculty Name : Prof. Monali Pimple

Course Code	Course Outcome Statement
CSC305.1	Students will be able to implement various linear and nonlinear data structures.
CSC305.2	Student will be able to handle operations like insertion, deletion, searching and traversing on various data structures.
CSC305.3	Students will be able to select appropriate sorting techniques for given problem.
CSC305.4	Students will be able to select appropriate searching technique for given problem
CSC305.5	Students will be able to apply the learned concepts in various domains like DBMS and Compiler Construction..
CSC305.6	Students will be able to choose appropriate data structure for specifies problem domain.

Course Name : Digital System Lab (CSL301)

Faculty Name : Prof. Vinit Raut

Course Code	Course Outcome Statement
CSL301.1	Understand the basics of various digital components.
CSL301.2	Understand the principles of design of combinational logic and sequential logic circuits using basic components.
CSL301.3	Recognize the importance of digital systems in Computer Architecture.
CSL301.4	Design and simulate the basic digital circuit.

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

Course Name : Basic Electronics Lab (CSL302)

Faculty Name: Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSL302.1	Understand the basics of various semiconductor devices, electronic components and instruments.
CSL302.2	Understand the working of electronic circuits using components.
CSL302.3	Recognize the importance of electronic circuits in electronic communications.
CSL302.4	Study the fundamental concepts of various modulation methods.

Course Name : Data Structure Lab (CSL303)

Faculty Name: Prof. Monali Pimple

Course Code	Course Outcome Statement
CSL303.1	Students will be able to implement various linear and nonlinear data structures.
CSL303.2	Student will be able to handle operations like insertion, deletion, searching and traversing on various data structures.

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

Course Name: OOPM (JAVA) Lab (CSL304)

Faculty Name: Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSL304.1	To apply Fundamental programming constructs.
CSL304.2	To illustrates 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 notion of exception handling and multithreading.
CSL304.6	To develop GUI based application.

SEMESTER – IV
REV-16

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

Course Name : Applied Mathematics -IV (CSC401)

Faculty Name : Prof. Bhagyashree Netke

Course Code	Course Outcome Statement
CSC401.1	Students in this course will be able to apply the method of solving complex integration, computing residues & evaluate various contour integrals.
CSC401.2	Demonstrates ability to manipulate matrices and compute Eigen values and Eigen vectors.
CSC401.3	Apply the concept of probability distribution to the engineering problems.
CSC401.4	Apply the concept of sampling theory to the engineering problems
CSC401.5	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.
CSC401.6	Apply the concept of linear & Non-linear Programming Problem to the engineering problems.

Course Name : Analysis of Algorithm (CSC402)

Faculty Name : Prof. Pallavi Vartak/ Prof. Vinit 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 and string-matching techniques to deal with some hard problems.
CSC402.6	Describe the classes P, NP and Np-complete and be able to prove that a certain problem is NP-complete.

Course Name : Computer Organization and Architecture (CSC403)

Faculty Name: Prof. Vinit Raut

Course Code	Course Outcome Statement
CSC401.1	To describe basic structure of the computer system.
CSC401.2	To demonstrate the arithmetic algorithms for solving ALU operations.
CSC401.3	To describe instruction level parallelism and hazards in typical processor pipelines.
CSC401.4	To describe superscalar architecture, multi-core architecture and their advantages.
CSC401.5	To demonstrates the memory mapping techniques.
CSC401.6	To identify various types of buses, interrupts and I/O operations in a computer system.

Course Name : Computer Graphics (CSC404)

Faculty Name: Prof. Reshma Chaudhari/ Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSC401.1	Understand basic concept of computer graphics.
CSC401.2	Demonstrate Various Algorithms for scan conversion and filling of basic objects and their comparative analysis.
CSC401.3	Apply geometric transformation, viewing and clipping on graphical objects.
CSC401.4	Explore solid model representation techniques and projections.
CSC401.5	Understand visible surface detection techniques and illumination models.

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

Course Name : Operating System (CSC405)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSC405.1	Understand role of Operating System in terms of process, memory, file and I/O management.
CSC405.2	Apply and analyse the concept of process, thread, mutual exclusion and deadlock.
CSC405.3	Evaluate performance of process scheduling algorithms and IPC.
CSC405.4	Apply and analyse the concepts of memory management techniques.
CSC405.5	Evaluate the performance of memory allocation and replacement techniques.
CSC405.6	Apply and analyse different techniques of file and I/O management.

Course Name : Analysis of Algorithms Lab (CSL401)

Faculty Name: Prof. Akshata Raut / Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSL401.1	Analyse the complexities of various problems in different domains.
CSL401.2	Prove the correctness and analyse the running time of the basic algorithms for those classic problems in various domains.
CSL401.3	Develop the efficient algorithm for the new problem with suitable designing techniques.
CSL401.4	Implement the algorithms using different strategies.

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

Course Name : Computer Graphics Lab (CSL402)

Faculty Name: Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CSL402.1	Explore the working principle, utility of various input/output devices and graphical tool.
CSL402.2	Implement various output and filled area primitive algorithms using C/ OpenGL.
CSL402.3	Apply transformation and clipping algorithms on graphical objects.
CSL402.4	Implementation of curve and fractal generation.
CSL402.5	Develop a graphical application based on learned concept

Course Name : Processor Architecture Lab (CSL403)

Faculty Name: Prof. Vinit Raut

Course Code	Course Outcome Statement
CSL403.1	Assemble Personal computer.
CSL403.2	Design the basic building blocks of a computer, arithmetic logic unit. Registers, central processing unit and memory
CSL403.3	Implement various algorithms like Booth's algorithm for arithmetic operations.
CSL403.4	Describe various I/O buses with merits/demerits.

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

Course Name : Operating System Lab (CSL404)

Faculty Name: Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSL404.1	Understand basic operating system commands.
CSL404.2	Understand and explore various system calls.
CSL404.3	Write shell scripts and shell commands using kernel APIs.
CSL404.4	Implement and analyse different process scheduling algorithms.
CSL404.5	Implement and analyse different memory management algorithms
CSL404.6	Evaluate process management techniques and deadlock handling using simulator.

Course Name : Open Source Technology Lab (CSL405)

Faculty Name: Prof. Dnyaneshwar Bhabad

Course Code	Course Outcome Statement
CSL405.1	To understand concepts of python and perl.
CSL405.2	To explore contents of files, directories and text processing with python.
CSL405.3	To develop program for data structure using bult-in function in python.
CSL405.4	To explore Django web framework for developing python based web application.
CSL405.5	To understand File handling and database handling using perl
CSL405.6	To understand basic of two way communication between client and server using python and perl.

SEMESTER – V
REV-16

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

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. Sunita Naik

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.

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

Course Name : Computer network (CSC503)

Faculty Name : Prof. Pratiksha Deshmukh

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.

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

Course Name : Multimedia System (CSDLO5011)

Faculty Name : Prof. Pallavi Vartak

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.

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

Course Name : Computer Network Lab (CSL502)

Faculty Name : Prof. Pratiksha Deshmukh

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. Sunita Naik

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.)

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

Course Name : Web Design Lab (CSL504)

Faculty Name : 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. Avinash 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.

SEMESTER – VI
REV-16

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

Course Name : Software Engineering (CSC601)

Faculty Name : Prof. Pallavi Vartak

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. Monali Pimple

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.

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

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. Pallavi Vartak

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. Monali Pimple

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.

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

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.

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

Course Name : Mini-Project (CSP605)

Faculty Name : Prof. Sunita Naik / Dr. Tatwadarshi P N / Prof. Umesh Mohite

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

SEMESTER – VII
REV-12

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

Course Name : Digital Signal Processing (CPC701)

Faculty Name : Prof. Reshma Chaudhari

Course Code	Course Outcome Statement
CPC701.1	To understand the concept of DT Signal and perform Signal manipulation.
CPC701.2	To perform analysis of DT system in time domain.
CPC701.3	To develop FFT flow-graph and Fast DSP Algorithms.
CPC701.4	To design DSP system for real time signal Processing.

Course Name : Cryptography and System Security (CPC702)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
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.

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

Course Name : Artificial Intelligence (CPC703)

Faculty Name : Dr. Tatwadarshi P N

Course Code	Course Outcome Statement
CPC703.1	Ability to develop a basic understanding of AI building blocks presented in intelligent agents.
CPC703.2	Ability to choose an appropriate problem solving method and knowledge representation technique.
CPC703.3	Ability to analyze the strength and weaknesses of AI approaches to knowledge– intensive problem solving.
CPC703.4	Ability to design models for reasoning with uncertainty as well as the use of unreliable information.
CPC703.5	Ability to design and develop the AI applications in real world scenario.

Course Name : Advanced Algorithms (CPE7021)

Faculty Name : Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CSDLO7031.1	Identify and use suitable data structures for given problem from different domains
CSDLO7031.2	Appreciate the role of Graph algorithms in solving variety of problems
CSDLO7031.3	Appreciate the role of Optimization by using linear programing
CSDLO7031.4	Analyze the various algorithms from different domains

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

Course Name : Network threats and attacks Laboratory (CPL701)

Faculty Name : Prof. Janhavi Sangoi / Prof. Tatwadarshi P N / Prof. Bhavika Thakur

Course Code	Course Outcome Statement
CPL701.1	Use network-based tools for network analysis
CPL701.2	Use techniques for Network scaning
CPL701.3	Identify network vulnerability
CPL701.4	Use tools to simulate intrusion detection system
CPL701.5	To understand and install a firewall

SEMESTER – VIII
REV-12

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

Course Name : Data Warehousing and Mining (CPC801)

Faculty Name : Prof. Ashwini Save

Course Code	Course Outcome Statement
CPC801.1	Enable students to understand and implement classical algorithms in data mining and data warehousing
CPC801.2	Students will be able to assess the strengths and weaknesses of the algorithms, identify the application area of algorithms, and apply them.
CPC801.3	Students would learn data mining techniques as well as methods in integrating and interpreting the data sets and improving effectiveness, efficiency and quality for data analysis.
CPC801.4	Improving effectiveness, efficiency and quality for data analysis.

Course Name : Human Machine Interaction (CPC802)

Faculty Name: Prof. Saniket Kudoo

Course Code	Course Outcome Statement
CPC802.1	To design user centric interfaces.
CPC802.2	To design innovative and user friendly interfaces.
CPC802.3	To apply HMI in their day-to-day activities.
CPC802.4	To criticise existing interface designs, and improve them.
CPC802.5	To Design application for social and technical 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

Course Name : Parallel and Distributed Systems (CPC803)

Faculty Name: Prof. Sunita Naik

Course Code	Course Outcome Statement
CPC803.1	Apply the principles and concept in analyzing and designing the parallel and distributed system
CPC803.2	Reason about ways to parallelize problems.
CPC803.3	Gain an appreciation on the challenges and opportunities faced by parallel and distributed systems.
CPC803.4	Understand the middleware technologies that support distributed applications such as RPC, RMI and object based middleware.
CPC803.5	Improve the performance and reliability of distributed and parallel programs.

Course Name : Machine Learning (CPE8031)

Faculty Name: Dr. Tatwadarshi P N

Course Code	Course Outcome Statement
CPE8031.1	Ability to analyze and appreciate the applications which can use Machine Learning Techniques.
CPE8031.2	Ability to understand regression, classification, clustering methods.
CPE8031.3	Ability to understand the difference between supervised and unsupervised learning methods.
CPE8031.4	Ability to appreciate Dimensionality reduction techniques.
CPE8031.5	Students would understand the working of Reinforcement learning.

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

Course Name : Cloud Computing Laboratory (CPL801)

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

Course Code	Course Outcome Statement
CPL801.1	Appreciate cloud architecture
CPL801.2	Create and run virtual machines on open source OS
CPL801.3	Implement Infrastructure , storage as a Service.
CPL801.4	Install and appreciate security features for cloud

Course Name : Major Project 2 (CPP802)

Faculty Name: Prof. Janhavi Sangoi

Course Code	Course Outcome Statement
CPP802.1	Ability to acquire the thinking pattern which explores wide range of topics for innovation
CPP802.2	Ability to learn the technique of analysis, classification and then selection of appropriate literature
CPP802.3	Ability to learn the methodology to apply the problem solving approaches
CPP802.4	Ability to learn to communicate effectively with others to discuss technical, social needs and find an engineering solution
CPP802.5	Ability to develop skills for writing a technical document
CPP802.6	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.