SIES Graduate School of Technology, Nerul

Department of Computer Engineering

Course Outcomes (CGCS)

Second Year: Sem III

Subject: Applied Mathematics III

CSC301.1	Student should be able to demonstrate all topics like Laplace Transform, Fourier Series, Complex variable, Z-Transform
CSC301.2	Student should be able to identify, formulate and solve the problems of related topics
CSC301.3	Student should be able to show the understanding of the impact of Engineering mathematics
CSC301.4	Student should be able to participate in the competitive exams like GATE, GRE or UPSC

Subject: **Object Oriented Programming Methodology**

CSL304.1	Student will be able to apply fundamental programming constructs
CSL304.2	Student will be able to illustrate fundamental features of an object oriented language such as object, classes and libraries of object collections
CSL304.3	Student will be able to develop program that efficiently implements concepts of strings, vectors and arrays.
CSL304.4	Student will be able to explain components of GUI based programming
CSL304.5	Student will be able to design user defined packages, interfaces and exception handling
CSC304.6	Student will be able to utilize the concept of multithreading

Subject: **Data Structures**

CSC305.1	Student will be able to explain and analyze various linear data structure structures like stacks , queues , linked list and perform operations like searching, insertion, deletion, traversing mechanism etc.
CSC305.2	Student will be able to explain and analyze various non-linear data structure structures like tree, graph and perform operations like searching, insertion, deletion, traversing mechanism etc.
CSC305.3	Student will be able to implement and analyze data structures, operations and algorithms.

CSC305.4	Student will be able to explain, implement and analyze various sorting and searching techniques.
CSC305.5	Student will be able to select appropriate data structure for the given problem and justify
CSC305.6	Student will be able to design and implement a system to a given real life problem using appropriate data structure and algorithm based on the desired needs and realistic constraints

Subject: **Digital Logic Design and Analysis**

CSC302.1	Student should be able to perform different number systems conversions
CSC302.2	Student should be able to analyze and minimize Boolean expressions.
CSC302.3	Student should be able to design and analyze combination circuits.
CSC302.4	Student should be able to design and analyze sequential circuits
CSC302.5	Student should be able to design basic circuit using VHDL
CSC302.6	Student should be able to compare TTL and CMOS Logic families.

Subject: **Discrete Structures**

CSC303.1	To infer the notion of logical thinking, mathematical proofs and to apply them in problem solving.
CSC303.2	Students will be able to explain and apply the properties of relation, digraphs , lattice , functions and their types in problem solving
CSC303.2	Students will be able to explain and solve probability ,counting, generating & recurring functions
CSC303.4	Students will be able to explain and solve graphs & its their types and applicability
CSC303.5	Students will be able to infer varied algebraic structures & group codes their applicability
CSC303.6	students should be able to work in team/group and enhance communication skill

Subject: **ECCF**

CSC306.1	Student will be able to understand the use of semiconductor devices in circuits and analyze them.
CSC306.2	Student will be able to understand importance of oscillators and power amplifiers in communication system.
CSC306.3	Student will be able to understand basic concepts of operational amplifier and their applications.

CSC306.4	Student will be able to understand the fundamental concepts of electronic communication
CSC306.5	Student will be able to apply knowledge of electronic devices and circuits to communication applications.
CSC306.6	Student will be able to study basic concepts of information theory.

Subject: **Digital Systems Laboratory**

CSL 301.1	Student should be able to identify various digital components.
CSL 301.2	Student should be able to design circuit using principles of design of combinational logic and sequential logic circuits using basic components.
CSL 301.3	Student should be able to recognize the importance of digital systems in computer architecture.
CSL 301.4	Student should be able to design and simulate the basic digital circuit.

Subject: **Data Structure Lab**

CSL 303.1	Students will be able to implement various linear and nonlinear data structures.
CSL 303.2	Students will be able to handle operations like insertion, deletion, searching and traversing on various data structures.
CSL 303.3	Students will be able to implement mini project by selecting appropriate data structure and algorithms.

Second Year: Sem IV

Subject: Applied Mathematics IV

CSC401.1	Student will be able to find Eigen values and eigenvectors of a matrix
CSC401.2	Student will be able to find the minimal polynomial and diagonalizable the Square matrix
CSC401.3	Student will be able to evaluate integral using Cauchy's theorem, Residue theorem
CSC401.4	Student will be able to use Binomial, Poisson and Normal distribution to solve statistical problems
CSC401.5	Student will be able to analyze the problem by using Large and Small Sampling theory

CSC401.6	Student will be able to optimize the solution of LPP and NLPP

Subject: Computer Organization and Architecture

CSC403.1	Student should be able to explain basic structure of computer, control unit operations and i/o organizations, processor
CSC403.2	Student should be able to demonstrate the arithmetic algorithms for solving alu operations
CSC403.3	Student should be able to describe instruction level parallelism and hazards in typical processor pipelines
CSC403.4	Student should be able to describe superscalar architectures, multi-core architecture and their advantages
CSC403.5	Student should be able to demonstrate memory mapping techniques
CSC403.6	Student should be able to develop good communication skills and team work through active learning strategies, seminars on advanced topics of coa and mini projects

Subject: Computer Graphics

CSC404.1	Student will be able to explain the basic concepts of Computer Graphics.
CSC404.2	Student should be able to explore the working principle, utility of various input/output devices.
CSC404.3	Student will be able to demonstrate various algorithms for scan conversion and filling of basic objects and their
CSC404.4	Student should be able to apply geometric transformations, viewing and clipping on graphical objects.
CSC404.5	student should be able to explore solid model representation techniques and projections.
CSC404.6	Student should be able to describe visible surface detection techniques and illumination models

Subject: Operating System

CSC405.1	Student will be able to understand role of operating system in terms of process, memory, file and i/o management.
CSC405.2	Student will be able to apply and analyze the concept of a process, thread, mutual exclusion and deadlock.
CSC405.3	Student will be able to evaluate performance of process scheduling algorithms and ipc

CSC405.4	Student will be able to apply and analyze the concepts of memory management techniques.
CSC405.5	Student will be able to evaluate the performance of memory allocation and replacement techniques.
CSC405.6	Student will be able to apply and analyze different techniques of file and i/o management.

Subject: Open Source Tech Lab

CSL405.1	Students will be able to apply basic concepts in python and perl.
CSL405.2	Students will be able to experiment the programs on contents of files, directories and text processing, data structure using built in functions with python
CSL405.3	Students will be able to use django web framework for developing python based web application.
CSL405.4	Students will be able To understand file handling and database handling using perl.
CSL405.5	Students will be able To explore basics of two way communication between client and server using python and perl.
CSL405.6	Students will be able To develop good communication skills and teamwork through seminars and mini project.

Subject: Processor Architecture Laboratory

CSL403.1	Student should be able to assemble personal computer
CSL403.2	student should be able to design the basic building blocks of a computer: arithmetic-logic unit, registers, central processing unit, and memory
CSL403.3	Student should be able to implement various algorithms like booth‟s algorithm for arithmetic operations
CSL403.4	Student should be able to describe various i/o buses with merits and demerits
CSL403.5	Student should be able to design ripple carry adder and carry look ahead adder.
CSL403.6	Student should be able to develop good communication skills, team work and ethics through mini projects

Subject: Operating System Lab

CSL404 .1	Students should be able to understand basic operating system commands
CSL404.2	Students should be able to understand and explore various system calls
CSL404.3	Students should be able to write shell scripts and shell commands using kernel APIs
CSL404.4	Students should be able to implement and analyze different process scheduling algorithms and different memory management algorithms
CSL404.5	Students should be able to evaluate process management techniques and deadlock handling using simulator
CSL404.6	Students should be able to undertake problem definition related to Operating System and carry out a mini project on it.

Subject: Analysis of Algorithms Lab

CSL401.1	Students should be able to analyze the complexities of various problems in different domains.
CSL401.2	Students should be able to prove the correctness and analyze the running time of the basic algorithms for those classic problems in various domains.
CSL401.3	Students should be able to develop the efficient algorithms for the new problem with suitable designing techniques.
CSL401.4	Students will be able to Implement the algorithms using different strategies.

Subject: Computer Graphics Lab

CSL402.1	Student will be able to explore the working principle, utility of various input/ output devices and graphical tools.
CSL402.2	Student will be able to implement various output and filled area primitive algorithms using C/ OpenGL
CSL402.3	Student will be able to apply transformation and clipping algorithms on graphical objects.
CSL402.4	Student will be able to implementation of curve and fractal generation.
CSL402.5	Student will be able to develop a Graphical application based on learned concept

Second Year: Sem V

Subject: Microprocessor

CSC501.1	Student will be able to describe architecture of x86 processors
CSC501.2	Student will be able to interpret the instructions of 8086 and write assembly and mixed language programs
CSC501.3	Student will be able to explain the concept of interrupts
CSC501.4	Student will be able to identify the specifications of peripheral chip
CSC501.5	Student will be able to design 8086 based system using memory and peripheral chips
CSC501.6	Student will be able to appraise the architecture of advanced processors

Subject: Database Management

CSC502.1	Student will be able to explain the fundamentals of a database system.
CSC502.2	Student will be able to design and draw ER and EER diagram for the real life problem.
CSC502.3	Student will be able to convert conceptual model to relational model and formulate relational algebra queries.
CSC502.4	Student will be able to design and querying database using SQL.
CSC502.5	Student will be able to analyze and apply concepts of normalization to relational database design.
CSC502.6	Student will be able to describe the concept of transaction, concurrency and recovery.

Subject: Computer Network

CSC503.1	Student will be able to demonstrate the concepts of data communication at physical layer and compare iso - osi model with tcp/ip model.
CSC503.2	Student will be able to demonstrate the knowledge of networking protocols at data link layer.
CSC503.3	Student will be able to design the network using ip addressing and sub netting / super netting schemes.
CSC503.4	Student will be able to anlyze various routing algorithms and protocols at network layer.

CSC503.5	Student will be able to analyze transport layer protocols and congestion control algorithms.
CSC503.6	Student will be able to utilize protocols at application layer

Subject: Theory of Computer

CSC504.1	Student will be able to identify the central concepts in theory of computation and differentiate between deterministic and nondeterministic automata, also obtain equivalence of nfa and dfa.
CSC504.2	Student will be able to infer the equivalence of languages described by finite automata and regular expressions.
CSC504.3	Student will be able to devise regular, context free grammars while recognizing the strings and tokens
CSC504.4	Student will be able to design pushdown automata to recognize the language and develop an understanding of computation through turing machine
CSC504.5	Student will be able to develop an understanding of computation through turing machine
CSC504.6	Student will be able to acquire fundamental understanding of decidability and undecidability

Subject: Web Technologies Laboratory

CPL501.1	Students will be able to describe the core concepts and features of Web Techno log
CPL501.2	Students will be able to Design static web pages using HTML5 and CSS3
CPL501.3	Students will be able to Apply the concept of client side validation and design dynamic web pages using JavaScript and JQuery.
CPL501.4	Students will be able to Evaluate client and server side technologies and create Interactive web pages using PHP , AJAX with database connectivity using
CPL501.5	Students will be able to describe the basics of XML, DTD and XSL and develop web pages using XML / XSLT.
CPL501.6	Students will be able to Analyze end user requirements and Create web application using appropriate web technologies and web development

Subject: Multimedia System

CPL5011.1	Student will be able to identify basics of multimedia and multimedia system architecture.
CPL5011.2	Student will be able to explain different multimedia components.
CPL5011.3	Student will be able to explain file formats for different multimedia components.
CPL5011.4	Student will be able to analyze the different compression algorithms.
CPL5011.5	Student will be able to describe various multimedia communication techniques.
CPL5011.6	Student will be able to apply different security techniques in multimedia environment.

Subject: Advance Operating System

CSDL5012.1	Student will be able to describe design issues of advanced operating systems and compare different types of operating systems.
CSDL5012.2	Student will be able to analyze design aspects and data structures used for file subsystem, memory subsystem and process subsystem of unix os.
CSDL5012.3	Student will be able to explain different architectures used in multiprocessor os and analyze the design and data structures used in
CSDL5012.4	Student will be able to differentiate between threads and processes and compare different processor scheduling algorithms used in multiprocessor
CSDL5012.5	Student will be able to classify real time os and analyze various real time scheduling algorithms.
CSDL5012.6	Student will be able to explore architectures and design issues of mobile os, virtual os, cloud os.

Subject: Advance Algorithm

CPL5013.1	Students will be able to Describe analysis techniques for algorithms.
CPL5013.2	Students will be able to Identify appropriate data structure and design techniques for different problems
CPL5013.3	Students will be able to Identify appropriate algorithm to be applied for the various application like geometric modeling, robotics, networking, etc.
CPL5013.4	Students will be able to Apply probability theory and randomization in the analysis of algorithm

CPL5013.5	Students will be able to Analyze various algorithms.
CPL5013.6	Student will be able to differentiate polynomial and non deterministic polynomial algorithms

Subject: Microprocessor

CSL501.1	Student will be able to use appropriate instructions to program microprocessor to perform various tasks
CSL501.2	Student will be able to develop the program in assembly/mixed language for intel 8086 processor
CSL501.3	Student will be able to demonstrate the execution and debugging of assembly language program
CSL501.4	Student will be able to demonstrate the interfacing of peripheral device with microprocessor
CSL501.5	Student will be able to test the use of flag register
CSL501.6	Student will be able to demonstrate the execution and debugging of mixed language program

Subject: Computer Network Lab

CSL502.1	Student will be able to design and setup networking environment in Linux.
CSL502.2	Student will be able to simulate using network tools and simulators such as ns2, Wireshark etc. to explore networking algorithms and protocols.
CSL502.3	Student will be able to implement programs using core programming APIs for understanding networking concepts.
CSL502.4	Student will be able to design a network case study using CISCO packet tracer.

Subject: Database & Information System Lab

CSL503.1	Student will be able to design and draw ER and EER diagram for the real life problem with software tool.
CSL503.2	Student will be able to create and update database and tables with different DDL and DML statements.
CSL503.3	Student will be able to apply /Add integrity constraints and able to provide security to data.
CSL503.4	Student will be able to Implement and execute Complex queries.
CSL503.5	Student will be able to apply triggers and procedures for specific module/task
CSL503.6	Student will be able to demonstrate concurrent transactions and able to access data through front end.

Sem-VI

Subject: Software Engineering

CSC601.1	Student will be able to explain and demonstrate basic knowledge in software engineering
CSC601.2	Student will be able to identify requirements, analyze and prepare models
CSC601.3	Student will be able to plan, schedule and track the progress of the projects
CSC601.4	Student will be able to design and develop the software projects.
CSC601.5	Student will be able to identify risks, manage the change to assure quality in software projects.
CSC601.6	Student will be able to apply testing principles on software project and maintenance concepts.

Subject: System Software and Compiler construction

CSC602.1	Student will be able to identify the relevance of different system programs.
CSC602.2	Student will be able to describe the various data structures and passes of assembler design.
CSC602.3	Student will be able to identify the need for different features and designing of macros
CSC602.4	Student will be able to distinguish different loaders and linkers and their contribution in developing efficient user applications.
CSC602.5	Student will be able to construct different parsers for given context free grammars
CSC602.6	Student will be able to justify the need of synthesis phase to produce optimized object code in terms of high execution speed and less memory usage

Subject: Data Warehousing

CSC603.1	Student will be able to explain data warehouse fundamentals, data mining principles
CSC603.2	Student will be able to design data warehouse with dimensional modeling and apply olap operations.
CSC603.3	Student will be able to identify appropriate data mining algorithms to solve real world problems
CSC603.4	Student will be able to compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
CSC603.5	Student will be able to describe complex data types with respect to spatial and web mining.
CSC603.6	Student will be able to benefit the user experiences towards research and innovation.

Subject: Cryptography & System Security

CSC604.1	Student should be able to explain system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory
CSC604.2	Student should be able to compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
CSC604.3	Student should be able to 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	Student should be able to apply different digital signature algorithms to achieve authentication and design secure applications
CSC604.5	Student should be able to explain network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like ssl, ipsec, and pgp.
CSC604.6	Student should be able to analyze and apply system security concept to recognize malicious code.

Subject: Machine Learning

CSDLO6021.1	Student will be able to gain knowledge about basic concepts of machine learning
CSDLO6021.2	Student will be able to identify machine learning techniques suitable for a given problem
CSDLO6021.3	Student will be able to solve the problems using various machine learning techniques
CSDLO6021.4	Student will be able to apply dimensionality reduction techniques.
CSDLO6021.5	Student will be able to design application using machine learning techniques

CSDLO6021.6	Student will be able to understand concepts of neural networks for machine learning

Subject: Advance Database System

CSDLO6022.1	Student will be able to build indexing mechanism for efficient retrieval of information from database
CSDLO6022.2	Student will be able to measure query cost and optimize query execution
CSDLO6022.3	Student will be able to design distributed database for better resource management
CSDLO6022.4	Student will be able to demonstrate the understanding of concepts of document oriented database
CSDLO6022.5	Student will be able to apply appropriate security techniques database systems
CSDLO6022.6	Student will be able to implement advanced data models for real life applications

Subject: Enterprise Resource Planning

CSDLO6023.1	Student will be able to understand the basic structure of erp.
CSDLO6023.2	Student will be able to identify implementation strategy used for erp
CSDLO6023.3	Student will be able to apply design principles for various business modules in erp
CSDLO6023.4	Student will be able to apply different emerging technologies for implementation of erp
CSDLO6023.5	Student will be able to analyze security issues in erp
CSDLO6023.6	Student will be able to acquire erp concepts for real world applications

Subject: System Software Lab

CSL602.1	Student will be able to generate machine code by using various databases generated in pass one of two pass assembler
CSL602.2	Student will be able to construct different databases of single pass macro processor
CSL602.3	Student will be able to identify and validate different tokens for given high level language code
CSL602.4	Student will be able to parse the given input string by constructing top down /bottom up parser.
CSL602.5	Student will be able to implement synthesis phase of compiler with code optimization techniques
CSL602.6	Student will be able to explore various tools like lex and yacc.

Subject: System Security Laboratory

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 and use of tools like sniffers, port scanners and other related tools for analyzing packets in a network.
CSL604.5	To be able to set up firewalls and intrusion detection systems using open source technologies and to explore email security.
CSL604.6	To be able to explore various attacks like buffer-overflow, and web-application attacks.

Subject: Mini Project

CSL605.1	Student will be able to acquire practical knowledge within the chosen area of technology for project development.

CSL605.2	Student will be able to identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach
CSL605.3	Student will be able to contribute as an individual or in a team in development of technical projects
CSL605.4	Student will be able to develop effective communication skills for presentation of project related activities

Sem-VII

Subject: Digital Signal & Image Processing

CSC701.1	Student will be able to apply the concept of DT Signal and DT Systems
CSC701.2	Student will be able to classify and analyze discrete time signals and systems
CSC701.3	Student will be able to implement Digital Signal Transform techniques DFT and FFT.
CSC701.4	Student will be able to use the enhancement techniques for digital Image Processing
CSC701.5	Student will be able to differentiate between the advantages and disadvantages of different edge detection techniques
CSC701.6	Student will be able to develop small projects of 1-D and 2-D Digital Signal Processing

Subject: Mobile Communication

CSC702.1	Student will be able to identify basic concepts and principles in mobile communication & computing, cellular architecture.
CSC702.2	Student will be able to describe the components and functioning of mobile networking.
CSC702.3	Student will be able to classify variety of security techniques in mobile network
CSC702.4	Student will be able to apply the concepts of WLAN for local as well as remote applications
CSC702.5	Student will be able to describe and apply the concepts of mobility management

CSC702.6	Student will be able to describe Long Term Evolution (LTE) architecture and its interfaces

Subject: Artificial Intelligence & Soft Computing

CSC7O3.1	Student will be able to identify the various characteristics of Artificial Intelligence and Soft Computing techniques.
CSC7O3.2	Student will be able to choose an appropriate problem solving method for an agent to find a sequence of actions to reach the goal state.
CSC7O3.3	Student will be able to analyse the strength and weakness of AI approaches to knowledge representation, reasoning and planning.
CSC7O3.4	Student will be able to construct supervised and unsupervised ANN for real world applications.
CSC7O3.5	Student will be able to design fuzzy controller system.
CSC7O3.6	Student will be able to apply Hybrid approach for expert system design.

Subject: Big Data & Analytics

CSDLO7032.1	Students should be able to understand the key issues in big data management and its associated applications for business decisions and strategy.
CSDLO7032.2	Students should be able to develop problem solving and critical thinking skills in fundamental enabling techniques like Hadoop, Mapreduce and NoSQL in big data analytics
CSDLO7032.3	Students should be able to collect, manage, store, query and analyze various forms of Big Data analytics
CSDLO7032.4	Students should be able to interpret business models and scientific computing paradigms and apply software tools for big data analytics
CSDLO7032.5	Students should be able to adapt adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc
CSDLO7032.6	Students should be able to solve complex real world problems in various applications like recommender systems, social media applications, health and medical systems, etc.

Subject: Big Data & Analytics Lab

CSL704.1	Students should be able to apply map reduce programming model to any sorts of programs
CSL704.2	Students should be able to apply and use the ecosystem components to the scenarios applicable

CSL704.3	Students should be able to implement NoSQL databases and understand its importance
CSL704.4	Students should be able to implement SPARK and apply the knowledge of SCALA for analytics
CSL704.5	Students should be able to implement machine learning techniques for big data analytics

Subject ILO: Cyber Security and Laws

ILO 7019.1	Student should be able to understand the concept of cybercrime and its effect on outside world
ILO 7019.2	Student should be able to understand different cyber offences and cyber crime on different environment
ILO 7019.3	Student should be able to analyse various tools used in performing cybercrime
ILO 7019.4	Student should be able to understand the legal requirement of cyberspace
ILO 7019.5	Student should be able to distinguish different aspects of cyber law
ILO7019.6	Student should be able to Identify the need for different Information Security Standards compliance during software design and development

Subject ILO: Product Life cycle management

ILO 7011.1	Students should be able to explain the phases of PLM, PLM strategies and methodology for PLM feasibility study and PDM implementation.
ILO 7011.2	Students should be able to illustrate various approaches and techniques for designing and developing products.
ILO 7011.3	Students should be able to apply product engineering guidelines / thumb rules in designing products for moulding, machining, sheet metal working etc.
ILO 7011.4	Students should be able to acquire knowledge in applying virtual product development tools for components, machining and manufacturing plant
ILO7011.5	Students should be able to illustrate various environmental aspects in product design
ILO7011.6	Students should be able to demonstrate the relevance between Understand product lifecycle assessment and life cycle cost analysis.

Subject ILO : Operation search

ILO 7015.1	Student should be able to understand the theoretical workings of the simplex method, the relationship between a linear program and its dual, including
ILO 7015.2	Student should be able to perform sensitivity analysis to determine the direction and magnitude of change of a model‘s optimal solution as the data
ILO 7015.3	Student should be able to solve specialized linear programming problems like the transportation and assignment problems, solve network models like the
ILO 7015.4	Student should be able to understand the applications of integer programming and a queuing model and compute important performance measures

Subject ILO: Disaster Management & Mitigation Measures

ILO 7017.1	Understanding foundations of hazards, disasters and associated natural/social phenomena
ILO 7017.2	Familiarity with disaster management theory (cycle, phases)
ILO 7017.3	Get to know natural as well as manmade disaster and their extent and possible effects
ILO 7017.4	Plan of national importance structures based upon the previous history.
ILO 7017.5	Get acquainted with government policies, acts and various organizational structure
ILO 7017.6	Get to know the simple do‘s and don‘ts in such extreme events and act accordingly

Subject: Project Phase 1

CSP-705.1	Student should be able to identify quality problem on the basis of industry visit, literature survey or current trends
CSP-705.2	Student should be able to define the problem clearly which will have solution that can be applied to solve real world problems.
CSP-705.3	Student should be able to formulate the problem which will be specific to certain domain Like machine learning, Data mining ,networking.
CSP-705.4	Student should be able to clearly define objective and scope of identified problems
CSP-705.5	Student should be able to position their problem based on identification of gap based on literature survey.

Subject: Mobile App. Development.

CSL702.1	Students should be able 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	Students should be able to develop security algorithms for mobile communication network
CSL702.5	Students should be able to demonstrate simulation and compare the performance of Wireless LAN
CSL702.6	Students should be able to implement and demonstrate mobile node discovery and route maintains.

Sem-VIII

Subject: Human Machine Interaction

CSC801.1	Students should be able to identify User Interface (UI) design principles.
CSC801.2	Students should be able to analyze of effective user friendly interfaces.
CSC801.3	Students should be able to apply Interactive Design process in real world applications.
CSC801.4	Students should be able to evaluate UI design and justify
CSC801.5	Students should be able to create application for social.
CSC801.6	Students should be able to create application for technical task

Subject: Distributed Computing

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

distributed applications.

Subject: High Performance Computing

CSDLO.1	Students should be able to memorize parallel processing approaches
CSDLO.2	Students should be able to describe different parallel processing platforms involved in achieving High Performance Computing.
CSDLO.3	Students should be able to discuss different design issues in parallel programming
CSDLO.4	Students should be able to design parallel algorithms considering decomposition and Mapping Techniques for Load Balancing
CSDLO.5	Students should be able to develop efficient and high performance parallel programming
CSDLO.6	Students should be able to learn parallel programming using message passing paradigm using open source APIs.

Subject: Natural Language Processing

DLO8012.1	Students should have a broad understanding of the field of natural language processing.
DLO8012.2	Students should have a sense of the capabilities and limitations of current natural language technologies,
DLO8012.3	Students should be able to model linguistic phenomena with formal grammars.
DLO8012.4	Students should be able to Design, implement and test algorithms for NLP problems
DLO8012.5	Students should be able to understand the mathematical and linguistic foundations underlying approaches to the various areas in NLP
DLO8012.6	Students should be able to apply NLP techniques to design real world NLP applications such as machine translation, text

Subject: HMI Lab

CSL801.1	Students should be able to design user centric interfaces.
CSL801.2	Students should be able to design innovative and user friendly interfaces.

CSL801.3	Students should be able to apply HMI in their day-to-day activities.
CSL801.4	Students should be able to criticize existing interface designs, and improve them.
CSL801.5	Students should be able to design application for social Task.
CSL801.6	Students should be able to design application for Technical Tasks

Subject: Adhoc Wireless Networks

DLO8013.1	Students should be able to describe the issues, characteristics and features of Adhoc Wireless Networks.
DLO8013.2	Students should be able to analyze the comparative performance of the MAC protocols for Adhoc Wireless Networks.
DLO8013.3	Students should be able to apply and Analyze different routing protocols for Adhoc Wireless Networks.
DLO8013.4	Students should be able to analyze different transport layer protocol solutions.
DLO8013.5	Students should be able to analyze security principles for link layer attacks and routing in Adhoc Wireless Networks.
DLO8013.6	Students should be able to apply the concepts of Adhoc wireless networks in VANETs.

Subject: Distributed Computing Lab

CSL802.1	Students should be able to develop, test and debug RPC/RMI based client-server programs
CSL802.2	Students should be able to implement the main underline components of Distributed system
CSL802.3	Students should be able to implement various techniques of synchronization
CSL802.4	Students should be able to design and implement application programs on distributed systems

Subject: Cloud Computing Lab

CSL803.1	Students should be able to explain the cloud architecture and its services
CSL803.2	Students should be able to adapt different types of virtualization and increase resource utilization.

CSL803.3	Students should be able to build a private cloud using open source technologies.
CSL803.4	Students should be able to analyze security issues on cloud.
CSL803.5	Students should be able to develop real world web applications and deploy on commercial cloud.
CSL803.6	Students should be able to demonstrate various service models.

Subject : Project II

CSP805 .1	Student should be able to carry out literature survey/visit industry/analyse current trends in the proposed domain
CSP805 .2	Student should be able to define the problem based on identification of gaps based on literature survey.
CSP805 .3	student should be able to formulate the problem, clearly define objectives, investigate the scope of identified problems and design the methodology to solve the
CSP805 .4	Student should be able to implement the proposed design, specific to certain domain like image processing, machine learning,data mining ,networking using suitable tools.
CSP805 .5	Student should be able to perform validations,testing and thorough evaluation of the investigation carried out and signify the contributions from the study.
CSP805 .6	Student should be able to work effectively as an individual or in a team by managing the finance, timeline and produce the documents.

Subject: Project Management

ILO 8021.1	Students should be able to gain project management foundation and various organizational structures knowledge
ILO 8021.2	Students should be able to apply selection criteria and select an appropriate project from different options
ILO 8021.3	Students should be able to write work break down structure for a project and develop a schedule based on it.
ILO 8021.4	Students should be able to identify opportunities and threats to the project and decide an approach to deal with them strategically
ILO 8021.5	Students should be able to use Earned value technique and determine & predict status of the project
ILO 8021.6	Students should be able to capture lessons learned during project phases and document them for future reference

Subject: Digital Business Management

ILO 8028.1	Students should be able to summarize drivers of digital business.
ILO 8028.2	Students should be able to illustrate various approaches and techniques for E-business and management
ILO 8028.3	Students should be able to explain different digital business support services and technologies in E infrastructure
ILO 8028.4	Students should be able to explain various ethics and societal impacts of ecommerce
ILO 8028.5	Students should be able to identify the need of security and summarize various security techniques.
ILO 8028.6	Students should be able to develop E-business plan

Subject: Finance Management System

ILO 8022.1	Students should be able to explain the importance and components of the Indian Financial System
ILO 8022.2	Students should be able to estimate the risk & returns and present / future value of of various investments
ILO 8022.3	Students should be able to describe corporate finance and significance of financial statements & ratio analysis
ILO 8022.4	Students should be able to calculate capital budgeting using various investment appraisal criterias & also the working capital requirements
ILO 8022.5	Students should be able to explain the various sources of finance and capital structure theories & approaches
ILO 8022.6	Students should be able to describe the dividend policy theories & approaches

Subject: Environmental Management System

ILO8029.1	Students should be able to Identify environmental Issues relevant to India and Global concerns.
ILO 8029.2	Students should be able to understand and apply the concept of Environment Management and Sustainable development.
ILO 8029.3	Students should be able to relate to the scope of Environment Management and identify career opportunities.
ILO 8029.4	Students should be able to understand the concept of ecology, Ecosystem, its interdependence and food chain.
ILO 8029.5	Students should be able to demonstrate awareness of environment related legislations.
ILO 8029.6	Students should be able to develop awareness of EMS and ISO-14000.