Mahatma Education Society's
Pillai HOC College of Engineering and Technology, Rasayani
Department of Computer Engineering
Computer Engineering Program Course outcomes:

Scheme: R-2019

A graduate in Computer Engineering is expected to

1. Apply knowledge of mathematical foundations, algorithmic principles and computer science in modelling and design of computer based systems.
2. Gather requirements, design and implement software projects using modern tools.
3. Solve real time problems by providing automated solutions in diverse fields of human endeavour.
4. Optimize the use of resources in problem solving and work as a team player.

The course outcomes for the graduate program in Computer Engineering are listed below;

Course outcomes: Semester III

Course Code: CSC301	**Course Name: Engineering Mathematics-III**
CSC301.1	Understand the concept of Laplace transform and its application to solve the real integrals in engineering problems
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 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 function.
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 Code: CSC302	Course Name: Discrete Structures and Graph Theory
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 Code: CSC303	Course Name: Data Structure
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 Code: CSC304	Course Name: Digital Logic & Computer Organization and Architecture
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 Code: CSC305	Course Name: Computer Graphics
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.
CSC301.6	Explain visible surface detection techniques and Animation.

Course Code: CSL301	Course Name: Data Structures Lab
CSL301.1	Students will be able to implement linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
CSL301.2	Students will be able to implement nonlinear data structures & be able to handle operations like insertion, deletion, searching and traversing on them
CSL301.3	Students will be able to choose appropriate data structure and apply it in various problems
CSL301.4	Students will be able to select appropriate searching techniques for given problems

Course Code: CSL302	Course Name: Digital Logic & computer organization and Architecture lab
CSL301.1	To understand the basics of digital components
CSL301.2	Design the basic building blocks of a computer: ALU, registers, CPU, Memory
CSL301.3	To recognize the importance of digital systems in computer architecture
CSL301.4	To implement various algorithms for arithmetic operations

Course Code: CSL303	Course Name: Computer Graphics Lab
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 learned concept

Course Code: CSL304 Course Name: Skill based Lab Course: Object Oriented Programming with Java	
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 applications.

Course Code: CSM301 Course Name: Mini Project A	
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 a member of a group or leader.
CSM301.4	Use standard norms of engineering practices
CSM301.5	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.
CSM301.6	Demonstrate project management principles during project work.

Course outcomes: Semester IV

Course Code: CSC401	Course Name: Engineering Mathematics-IV
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 Nonlinear Programming Problems for optimization of engineering problems

Course Code: CSC402	Course Name: Analysis of Algorithms
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 Code: CSC403	Course Name: Database Management System
CSC403.1	Understand the fundamentals of a database systems
CSC403.2	Mold the real world scenarios into ER diagram using Relational Database
CSC403.3	Create the real world application using various feature of SQL
CSC403.4	Analyze and apply the concepts of normalization to relational database design
CSC403.5	Apply the concept of procedures ,triggers and functions
CSC403.6	Optimize the queries using the concept of transaction management, concurrency and recovery

Course Code: CSC404	Course Name: Operating System
CSC404.1	Understand the objectives, functions and structure of OS
CSC404.2	Analyze the concept of Process Management and evaluate the 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 the concept of I/O management and analyze the techniques of disk scheduling.

Course Code: CSC405	Course Name: Microprocessor
CSC405.1	Describe core concepts of 8086 microprocessor.
CSC405.2	Interpret the instructions of 8086 and write assembly and Mixed language programs.
CSC405.3	Identify the specifications of peripheral chip.
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 Code: CSL401	Course Name: Analysis of Algorithms Lab
CSL401.1	Implement the algorithms using different approaches
CSL401.2	Analyze the complexity of Various algorithms
CSL401.3	Compare the complexity of the algorithms for specific problems.

Course Code: CSL402	Course Name: Database Management system Lab
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	UsePL / SQL Constructs.
CSL402.5	Demonstrate the concept of concurrent transactions execution and frontend-backend connectivity

Course Code: CSL403	Course Name: Operating System Lab
CSL403.1	Demonstrate basic Operating system commands, shell scripts, system calls and API wrt Linux
CSL403.2	Implement various process scheduling algorithms and evaluate their performance
CSL403.3	Implement and analyze the concepts of synchronization and deadlocks.
CSL403.4	Implement various memory management techniques and evaluate their performance.
CSL403.5	Implement and analyze the concept of virtual memory
CSL403.6	Demonstrate and analyze the concept of file management and I/O management techniques.

Course Code: CSL404	Course Name: Microprocessor Lab
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 Code: CSL405	Course Name: Skill Base Lab Course: python programming
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 the django web framework for developing python-based web application.
CSL405.5	To understand Multithreading concepts using python.
CSL405.6	To understand data series and data frames using pandas.

Course Code:CSM4O1	Course Name: Mini Project B
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 a member of a group or leader.
CSM401.4	Use standard norms of engineering practices
CSM401.5	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.
CSM401.6	Demonstrate project management principles during project work.

Course outcomes: Semester V

Course Code: CSC501	Course Name: Theoretical Computer Science
CSC501.1	Understand, design, construct, analyze and interpret Regular languages, Expression and Grammars.
CSC501.2	Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.
CSC501.3	Use the pumping lemma and closure properties to prove that some problems cannot be solved by particular machines.
CSC501.4	Design Context free grammar, pushdown automata to recognize the language.
CSC501.5	Develop an understanding of computation through Turing Machine.
CSC501.6	Acquire fundamental understanding of decidability and undecidability

Course Code: CSC502	Course Name: Software Engineering
CSC502.1	To understand and demonstrate basic knowledge in software engineering.
CSC502.2	To identify requirements, assess processes models.
CSC502.3	To plan, schedule and track the progress of the projects.
CSC502.4	To design & develop the software projects
CSC502.5	To do testing of software projects.
CSC502.6	To identify risks, manage the change to assure quality in software projects

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

Course Code: CSC504	Course Name: Data Warehousing and Mining
CSC504.1	Understand data warehouse fundamentals and design data warehouse with dimensional modelling and apply OLAP operations.
CSC504.2	Understand data mining principles and perform Data pre-processing and Visualization.
CSC504.3	Identify appropriate data mining algorithms to solve real world problems.
CSC504.4	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
CSC504.5	Describe complex information and social networks with respect to web mining

Course Code: CSD5012	Course Name: Internet Programming
CSD5012.1	Implement interactive web page(s) using HTML and CSS.
CSD5012.2	To get familiar with the basics of JSON
CSD5012.3	Design a responsive web site using JavaScript and demonstrate database connectivity using JDBC
CSD5012.4	Demonstrate Rich Internet Application using Ajax and demonstrate and differentiate various Web Extensions
CSD5012.5	To get familiar with the basics of PHP
CSD5012.6	Demonstrate web application using Reactive Js

Course Code: CSL501	**Course Name: Software Engineering Lab**
CSL501.1	To Identify requirements and apply software process models to selected case study.
CSL501.2	To Plan, schedule and track the progress of the projects.
CSL501.3	To develop architectural models for the selected case study.
CSL501.4	To do testing of software projects
CSL501.5	To identify risks, manage the change to assure quality in software projects.
CSL501.6	To Use computer-aided software engineering (CASE) tools.

Course Code:CSL502	**Course Name: Computer Network Lab**
CSL502.1	Design and setup networking environment in Linux
CSL502.2	Use Network tools and simulators such as NS2, Wireshark etc. to explore networking algorithms and protocols
CSL502.3	Implement programs using core programming APIs for understanding networking concepts.
CSL502.4	Design FTP & TELNET using cisco packet tracer
CSL502.5	To get Familiar with different types of wire and crimping tools

Course Code:CSL503	**Course Name: Data Warehousing and Mining Lab**
CSL503.1	Design data warehouse and perform various OLAP operations.
CSL503.2	Implement data mining algorithms like classification.
CSL503.3	Implement clustering algorithms on a given set of data sample.
CSL503.4	Implement Association rule mining & web mining algorithm.

Course Code: CSL504	**Course Name: Professional Communication and Ethics -II**
CSL504.1	Plan and prepare effective style of writing important technical documents which will provide solid foundation for managerial roles
CSL504.2	Strategize their personal and professional skills to build professional image and meet industry demands
CSL504.3	Emerge successful in business meetings, GD , result oriented agreeable solution in group communication situation
CSL504.4	Deliver persuasive and professional presentation
CSL504.5	Develop creative thinking and interpersonal skills required for effective professional communication
CSL504.6	Apply code of ethical conduct ,personal integrity and norms of organizational behaviour

Course Code:CSM5O1	**Course Name: Mini Project 2A**
CSM501.1	Identify societal/research/innovation/entrepreneurship problems through appropriate literature surveys
CSM501.2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it
CSM501.3	Validate, Verify the results using test cases/benchmark data/theoretical/inferences/experiments/simulations
CSM501.4	Use standard norms of engineering practices and project management principles during project work
CSM501.5	Demonstrate capabilities of self-learning, leading to lifelong learning.
CSM501.6	Develop interpersonal skills to work as a member of a group or as leader

Course outcomes: Semester VI

Course Code: CPC601 Course Name: System Programming Compiler Construction	
CPC601.1	Identify different system software
CPC601.2	Use Lex tool used for generating lexical analyser.
CPC601.3	Write macros as and when required to increase readability and productivity
CPC601.4	Design hand written lexical analyzer
CPC601.5	Design new language structures with the help of grammars
CPC601.6	Appreciate the role of Operating System functions such as memory management a s pertaining to run time storage management
CPC601.7	Appreciate role of Intermediate Code Generation in connection with language des igning
CPC601.8	Apply optimization principles on given code
CPC601.9	Implement various parser types and use YACC.

Course Code: CPC602 Course Name: Software Engineering	
CPC602.1	Students will demonstrate basic knowledge in software engineering.
CPC602.2	Students will be able to plan, design, develop and validate the software project.
CPC602.3	Students will be apply advance software methodology to create high quality Web Apps.
CPC602.4	Students will have an understanding of impact of sound engineering principles.

Course Code: CPC603 Course Name: Distributed Databases	
CPC603.1	Design and implement distributed database for enterprise application.
CPC603.2	Provides solutions for heterogeneous database
CPC603.3	Use XML for schema integration.

Course Code: CPC604 Course Name: Mobile Communication and Computing	
CPC604.1	Understand GSM and CDMA Cellular architecture.
CPC604.2	Setup and configure wireless access points.
CPC604.3	Use Network Simulator tool to simulate mobile network.

CPC604.4	Implement small android based applications.

Course Code: CPE6011 Course Name: **Operations Research**	
CPE6011.1	Model and solve problem using linear programming techniques
CPE6011.2	Implement algebraic solution using simplex method
CPE6011.3	Define transportation model and apply transportation algorithm in a known situati on.
CPE6011.4	Use Monte Carlo simulation technique
CPE6011.5	Use the spread sheet as a tool effectively for OR topics

Course Code: CPE6012 Course Name: **Software Project Management**	
CPE6012.1	Learner will be able to define characteristics of a project,
CPE6012.2	Learner will be able to appreciate project management principles, risk in environment and the management challenges for effective project management.
CPE6012.3	Learner will be able to apply the project management principles across all phases of a project.
CPE6012.4	Learner will be able to demonstrate use of tools and techniques for themanagement of a project plan, monitor and controlling a project schedule and b udget, tracking project progress.

Course Code: CPE6013 Course Name: **Elective – Foreign Language – German**	
CPE6013.1	Read and understand simple German / French text
CPE6013.2	Describe basic family structure , culture and work culture
CPE6013.3	Draft emails and create simple presentations

Course Code: CPE6014 Course Name: **Elective – Foreign Language – French**	
CPE6014.1	Read and understand simple German / French text
CPE6014.2	Describe basic family structure , culture and work culture
CPE6014.3	Draft emails and create simple presentations

Course Code: CPL605 Course Name: **Network Programming Laboratory**	
CPL605.1	Configure Linux Network FTP server DNS server
CPL605.2	View and edit routing tables

CPL605.3	Configure Linux Router
CPL605.3	Configure Linux
CPL605.4	Install and Configure
CPL605.5	Install and configure web server

Course outcomes: Semester VII

Course Code:CPC701 Course Name: **Digital Signal Processing**	
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 Code: CPC702 **Course Name**: **Cryptography and System Security**	
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.

Course Code: CPC703 **Course Name**: **Artificial Intelligence**	
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 Code: CPE7021 Course Name: **Artificial Intelligence**	
CPE7021.1	Identify and use suitable data structures for given problem from different domains
CPE7021.2	Appreciate the role of Graph algorithms in solving variety of problems
CPE7021.3	Appreciate the role of Optimization by using linear programing
CPE7021.4	Analyze the various algorithms from different domains

Course Code:CPE7023 Course Name: **Image Processing**	
CPE7023.1	Understand the concept of Digital Image and Video Image.
CPE7023.2	Explain image enhancement and Segmentation technique.
CPE7023.3	Develop fast image transform flow graph
CPE7023.4	Solve Image compression and decompression techniques
CPE7023.5	Perform Binary Image Processing Operations

Course Code:CPE7024 Course Name: **Software Architecture**	
CPE7024.1	Visualize the architectural concepts in development of large, practical software intensive applications.
CPE7024.2	Rather than focusing on one method, notation, tool, or process, this new course widely surveys software architecture techniques, enabling us to choose the right tool for the job at hand.

Course Code: CPE7025 Course Name: Soft Computing	
CPE7025.1	Ability to analyze and appreciate the applications which can use fuzzy logic.
CPE7025.2	Ability to design inference systems.
CPE7025.3	Ability to understand the difference between learning and programming and explore practical applications of Neural Networks (NN).
CPE7025.4	Ability to appreciate the importance of optimizations and its use in computer engineering fields and other domains.
CPE7025.5	Students would understand the efficiency of a hybrid system and how Neural Network and fuzzy logic can be hybridized to form a Neuro-fuzzy network and its various applications.

Course Code: CPE7026 Course Name: Enterprise Resource Planning and Supply Chain Management (ERP & SCM)	
CPE7026.1	To conceptualize the basic structure of ERP and SCM
CPE7026.2	To identify implementation strategy used for ERP and SCM.
CPE7026.3	To apply design principles for various business module in ERP and SCM.
CPE7026.4	To apply different emerging technologies for implementation of ERP and SCM.

Course Code: CPE7022 Course Name: Computer Simulation and Modelling	
CPE7022.1	Apply simulation concepts to achieve in business, science, engineering, industry and services goals
CPE7022.2	Demonstrate formulation and modelling skills.
CPE7022.3	Perform a simulation using spread sheets as well as simulation language/package
CPE7022.4	Generate pseudorandom numbers using the Linear Congruential Method
CPE7022.5	Evaluate the quality of a pseudorandom number generator using statistical tests
CPE7022.6	Analyze and fit the collected data to different distributions

Course Code: CPL701 Course Name: Network threats and attacks Laboratory	
CPL701.1	Use network-based tools for network analysis
CPL701.2	Use techniques for Network scanning
CPL701.3	Identify network vulnerability
CPL701.4	Use tools to simulate intrusion detection system
CPL701.5	To understand and install a firewall

Course Code: CSC801 Course Name: Human Machine Interaction	
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 Code: CSC802	**Course Name: Distributed Computing**
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 Code: DLO8011	**Course Name: High Performance Computing**
DLO8011.1	Memorize parallel processing approaches
DLO8011.2	Describe different parallel processing platforms involved in achieving High Performance Computing.
DLO8011.3	Discuss different design issues in parallel programming
DLO8011.4	Develop efficient and high performance parallel programming
DLO8011.5	Learn parallel programming using message passing paradigm using open source APIs.

Course Code: DLO8012	**Course Name:** Natural Language Processing
DLO8012.1	Have a broad understanding of the field of natural language
DLO8012.2	Have a sense of the capabilities and limitations of current natural language technologies, processing
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
DLO8012.6	Be able to apply NLP techniques to design real world NLP applications such as machine translation, text categorization, text summarization, information extraction...etc.

Course Code: DLO8013 **Course Name:** Adhoc Wireless Networks	
DLO8013.1	Identify the characteristics and features of Adhoc Networks.
DLO8013.2	Understand the concepts & be able to design MAC protocols for Ad Hoc networks
DLO8013.3	Implement protocols / Carry out simulation of routing protocols of Adhoc Networks
DLO8013.4	Implement protocols / Carry out simulation of routing protocols of Adhoc Networks
DLO8013.5	Interpret the flow control in transport layer of Ad Hoc Networks
DLO8013.6	Analyze security principles for routing of Ad Hoc Networks
DLO8013.7	Utilize the concepts of Adhoc Networks in VANETs

Course Code: ILO 8021 **Course Name:** Project Management	
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 Code: ILO 8022	**Course Name:** Finance Management
ILO 8022.1	Understand Indian finance system and corporate finance
ILO 8022.2	Take investment, finance as well as dividend decisions

Course Code: ILO8023	**Course Name:** Entrepreneurship Development and Management
ILO8023.1	Understand the concept of business plan and ownerships
ILO8023.2	Interpret key regulations and legal aspects of entrepreneurship in India
ILO8023.3	3Understand government policies for entrepreneurs

Course Code: ILO8024	**Course Name:** Human Resource Management
ILO8024.1	Understand the concepts, aspects, techniques and practices of the human resource management.
ILO8024.2	Understand the Human resource management (HRM) processes, functions, changes and challenges in today‘s emerging organizational perspective.
ILO8024.3	Gain knowledge about the latest developments and trends in HRM.
ILO8024.4	Apply the knowledge of behavioural skills learnt and integrate it with in inter personal and intergroup environment emerging as future stable engineers and managers.

Course Code: ILO8025	**Course Name:** Professional Ethics and Corporate Social Responsibility (CSR)
ILO8025.1	Understand rights and duties of business
ILO8025.2	Distinguish different aspects of corporate social responsibility
ILO8025.3	Demonstrate professional ethics
ILO8025.5	Understand legal aspects of corporate social responsibility

Course Code: ILO8026 **Course Name:** Professional Ethics and Corporate Social Responsibility (CSR)	
ILO8026.1	Prepare a preliminary research design for projects in their subject matter areas
ILO8026.2	Accurately collect, analyze and report data
ILO8026.3	Present complex data or situations clearly
ILO8026.4	Review and analyze research findings

Course Code:ILO8027 Course Name: IPR and Patenting	
ILO8027.1	understand Intellectual Property assets
ILO8027.2	assist individuals and organizations in capacity building
ILO8027.3	work for development, promotion, protection, compliance, and enforcement of Intellectual Property and Patenting

Course Code: ILO 8028 **Course Name:** Digital Business Management	
ILO 8028.1	Identify drivers of digital business
ILO 8028.2	Illustrate various approaches and techniques for E-business and management
ILO 8028.3	Prepare E-business plan

Course Code: ILO8029 **Course Name:** Environmental Management	
ILO8029.1	Understand the concept of environmental management
ILO8029.2	Understand ecosystem and interdependence, food chain etc.
ILO8029.3	Understand and interpret environment related legislations

Course Code: CSL801 **Course Name:** Human Machine Interactions Lab	
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 Code: CSL802 **Course Name:** Distributed Computing Lab	
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 Code: CSL803 **Course Name:** Cloud Computing Lab	
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 Code: CSL804 **Course Name:** Computational Lab II	
CSL804.1	Adapt different types of virtualization and increase resource utilization. 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