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2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Department of Computer Engineering	
Subject Name :Engineering Mathematics III	
Subject Code : CSC301	
Course Code :CSC301	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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.
Subject Name :Discrete Structure & Graph Theory	
Subject Code : CSC302	
Course Code :CSC302	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
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

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Subject Name :Data Structure	
Subject Code : CSC303	
Course Code :CSC303	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC 303.1	Students will be able to implement Linear and Non-Linear data structures.
CSC 303.2	Students will be able to handle various operations like searching, insertion, deletion and traversals on various data structures.
CSC 303.3	Students will be able to explain various data structures, related terminologies and its types.
CSC 303.4	Students will be able to choose appropriate data structure and apply it to solve problems in various domains.
CSC 303.5	Students will be able to analyze and Implement appropriate searching techniques for a given problem.
CSC 303.6	Students will be able to demonstrate the ability to analyze, design, apply and use data structures to solve engineering problems and evaluate their solutions.
Subject Name :Digital Logic & computer organization and architecture	
Subject Code : CSC304	
Course Code :CSC304	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC304.1	Understand different number system and basics structure of computer system
CSC304.2	Demonstrate the arithmetic algorithms
CSC304.3	Understand the basic concept of digital components and processor organization
CSC304.4	Understand the generation of control signals of computer
CSC304.5	Demonstrate the memory organization
CSC304.6	Describe the concept of parallel processing and different buses
Subject Name :Computer Graphics	
Subject Code : CSC305	
Course Code :CSC305	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC305.1	Describe the basic concepts of Computer Graphics.
CSC305.2	Demonstrate various algorithms for basic graphics primitives.
CSC305.3	Apply 2-D geometric transformations on graphical objects.
CSC305.4	Use various Clipping algorithms on graphical objects
CSC305.5	Explore 3-D geometric transformations, curve representation techniques and projections methods.
CSC305.6	Explain visible surface detection techniques and Animation.

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Subject Name :Data Structure Lab	
Subject Code : CSL301	
Course Code :CSL301	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL 301.1	Students will be able to implement linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
CSL 301.2	Students will be able to implement nonlinear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
CSL 301.3	Students will be able to choose appropriate data structure and apply it in various problems.
CSL 301.4	Students will be able to select appropriate searching techniques for given problems.

Subject Name :Digital Logic & computer organization and architecture lab	
Subject Code : CSL302	
Course Code :CSL302	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL302.1	Understand the basics of digital components
CSL302.2	Design the basic building blocks of a computer: ALU, register, CPU And memory
CSL302.3	Recognize the importance of digital systems in computer architecture
CSL302.4	Implement various algorithms for arithmetic operations

Subject Name :Computer Graphics Lab	
Subject Code : CSL303	
Course Code :CSL303	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL303.1	Implement various output and filled area primitive algorithms
CSL303.2	Apply transformation, projection and clipping algorithms on graphical objects.
CSL303.3	Perform curve and fractal generation methods.
CSL303.4	Develop a Graphical application/Animation based on learned concept

2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Subject Name :Computer Graphics Lab	
Subject Code : CSL304	
Course Code :CSL304	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSL304.1	To apply fundamental programming constructs.
CSL304.2	To illustrate the concept of packages, classes and objects.
CSL304.3	To elaborate the concept of strings, arrays and vectors.
CSL304.4	To implement the concept of inheritance and interfaces.
CSL304.5	To implement the concept of exception handling and multithreading.
CSL304.6	To develop GUI based application.
Subject Name :Mini Project 1A	
Subject Code : CSM301	
Course Code :CSM301	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSM301.1	Identify problems based on societal /research needs
CSM301.2	Apply Knowledge and skill to solve societal problems in a group.
CSM301.3	Develop interpersonal skills to work as member of a group or leader.
CSM301.4	Draw the proper inferences from available results through theoretical/experimental/simulations.
CSM301.5	Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM301.6	Use standard norms of engineering practices
CSM301.7	Excel in written and oral communication.
CSM301.8	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.
CSM301.9	Demonstrate project management principles during project work.
Subject Name :Theoretical Computer Science	
Subject Code : CSC501	
Course Code :CSC501	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC501.1	Understand concepts of Theoretical Computer Science, difference and equivalence of DFA and NFA , languages described by finite automata and regular expressions.

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CSC501.2	Design Context free grammar, pushdown automata to recognize the language.
CSC501.3	Develop an understanding of computation through Turing Machine.
CSC501.4	Acquire fundamental understanding of decidability and undecidability
Subject Name :Software Engineering

Subject Name :Software Engineering	
Subject Code : CSC502	
Course Code :CSC502	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC502.1	Identify requirements & assess the process models.
CSC502.2	Plan, schedule and track the progress of the projects.
CSC502.3	Design the software projects.
CSC502.4	Do testing of software project.
CSC502.5	Identify risks, manage the change to assure quality in software projects.
Subject Name :Computer Network	
Subject Code : CSC503	
Course Code :CSC503	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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 transport layer protocols and congestion control algorithms.
CSC503.5	Explore protocols at application layer
Subject Name :Data Warehousing and Mining	
Subject Code : CSC504	
Course Code :CSC504	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC504.1	Understand data warehouse fundamentals and design data warehouse with dimensional modeling and apply OLAP operations.
CSC504.2	Understand data mining principles and perform Data preprocessing and Visualization.
CSC504.3	Identify appropriate data mining algorithms to solve real world problems.

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CSC504.4	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
Subject Name :Internet Programming	
Subject Code : CSDLO5012	
Course Code :CSDLO5012	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSDLO5012.1	Implement interactive web page(s) using HTML and CSS.
CSDLO5012.2	Design a responsive web site using JavaScript and demonstrate database connectivity using JDBC
CSDLO5012.3	Demonstrate Rich Internet Application using Ajax and demonstrate and differentiate various Web Extensions
CSDLO5012.4	Demonstrate web application using Reactive Js
Subject Name :Software Engineering Lab	
Subject Code : CSL501	
Course Code :CSL501	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL501.1	Identify requirements and apply software process model to selected case study.
CSL501.2	Develop architectural models for the selected case study
CSL501.3	Use computer-aided software engineering (CASE) tools.
Subject Name :Computer Network Lab	
Subject Code : CSL502	
Course Code :CSL502	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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.
Subject Name :Data Warehousing and Mining Lab	
Subject Code : CSL503	
Course Code :CSL503	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	

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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

Subject Name :Professional Communication & Ethics II	
Subject Code : CSL504	
Course Code :CSL504	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL504.1	Plan and prepare effective business/ technical documents which will in turn provide solid foundation for their future managerial roles
CSL504.2	Strategize their personal and professional skills to build a professional image and meet the demands of the industry.
CSL504.3	Emerge successful in group discussions, meetings and result-oriented agreeable solutions in group communication situations.
CSL504.4	Deliver persuasive and professional presentations.
CSL504.5	Develop creative thinking and interpersonal skills required for effective professional communication.
CSL504.6	Apply codes of ethical conduct, personal integrity and norms of org

Subject Name :Mini Project – 2A	
Subject Code :CSM501	
Course Code :CSM501	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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	Analyze and evaluate the impact of solution/product/research/innovation/entrepreneurship towards societal/environmental/sustainable development
CSM501.5	Use standard norms of engineering practices and project management principles during project work
CSM501.6	Communicate through technical report writing and oral presentation. ● The work may result in

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	research/white paper/ article/blog writing and publication ● The work may result in business plan for entrepreneurship product created ● The work may result in patent filing.
CSM501.7	Gain technical competency towards participation in Competitions, Hackathons, etc.
CSM501.8	Demonstrate capabilities of self-learning, leading to lifelong learning.
CSM501.9	Develop interpersonal skills to work as a member of a group or as leader

Subject Name :Digital Signal and Image Processing	
Subject Code : CSC701	
Course Code :CSC701	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC701.1	Apply the concept of DT Signal and DT Systems.
CSC701.2	Classify and analyze discrete time signals and systems
CSC701.3	Implement Digital Signal Transform techniques DFT and FFT.
CSC701.4	Use the enhancement techniques for digital Image Processing
CSC701.5	Differentiate between the advantages and disadvantages of different edge detection techniques

Subject Name :Mobile Communication & Computing	
Subject Code : CSC702	
Course Code :CSC702	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC702.1	Identify basic concepts and principles in mobile communication & computing, cellular architecture.
CSC702.2	Describe the components and functioning of mobile networking.
CSC702.3	Classify variety of security techniques in mobile network.
CSC702.4	Apply the concepts of WLAN for local as well as remote applications.
CSC702.5	To describe and apply the concepts of mobility management
CSC702.6	Describe Long Term Evolution (LTE) architecture and its interfaces

Subject Name :Artificial Intelligence & Soft Computing	
Subject Code : CSC703	
Course Code :CSC703	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC703.1	Identify the various characteristics of Artificial Intelligence and Soft Computing techniques.

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CSC703.2	Choose an appropriate problem solving method for an agent to find a sequence of actions to reach the goal state.
CSC703.3	Analyse the strength and weakness of AI approaches to knowledge representation, reasoning and planning.
CSC703.4	Construct supervised and unsupervised ANN for real world applications.
CSC703.5	Design fuzzy controller system.
CSC703.6	Apply Hybrid approach for expert system design.
Subject Name :Big Data & Analytics
Subject Code :CSDLO7032
Course Code :CSDLO7032
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
CSDLO7032.1	Understand the key issues in big data management and its associated applications for business decisions and strategy.
CSDLO7032.2	Develop problem solving and critical thinking skills in fundamental enabling techniques like Hadoop, Mapreduce and NoSQL in big data analytics.
CSDLO7032.3	Collect, manage, store, query and analyze various forms of Big Data.
CSDLO7032.4	Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.
CSDLO7032.5	Adapt adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.
CSDLO7032.6	Solve Complex real world problems in various applications like recommender systems, social media applications, health and medical systems, etc.
Subject Name :Cyber Security and Laws
Subject Code : ILO 7016
Course Code :ILO 7016
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
ILO 7016.1	Understand the concept of cybercrime and its effect on outside world
ILO 7016.2	Interpret and apply IT law in various legal issues
ILO 7016.3	Distinguish different aspects of cyber law
ILO 7016.4	Apply Information Security Standards compliance during software design and development
ILO 7013.1	Explain how information systems Transform Business
ILO 7013.2	Identify the impact information systems have on an organization

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ILO 7013.3	Describe IT infrastructure and its components and its current trends
ILO 7013.4	Understand the principal tools and technologies for accessing information from databases to improve business performance and decision making
ILO 7013.5	Identify the types of systems used for enterprise-wide knowledge management and how they provide value for businesses

Subject Name :Digital Signal & Image Processing Lab	
Subject Code : CSL701	
Course Code :CSL701	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL701.1	Sample and reconstruct the signal.
CSL701.2	Implement and apply operations like Convolution, Correlation, DFT and FFT on DT signals
CSL701.3	Implement spatial domain Image enhancement techniques.
CSL701.4	Implement Edge detection techniques using first order derivative filters.
Subject Name :Mobile Application Development Lab	
Subject Code : CSL702	
Course Code :CSL702	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL702.1	To develop and demonstrate mobile applications using various tools
CSL702.2	Students will articulate the knowledge of GSM, CDMA & Bluetooth technologies and demonstrate it.
CSL702.3	Students will able to carry out simulation of frequency reuse , hidden terminal problem
CSL702.4	To develop security algorithms for mobile communication network
CSL702.5	To demonstrate simulation and compare the performance of Wireless LAN
CSL702.6	To implement and demonstrate mobile node discovery and route maintains.
Subject Name :Artificial Intelligence & Soft Computing Lab	
Subject Code : CSL703	
Course Code :CSL703	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL703.1	To realize the basic techniques to build intelligent systems
CSL703.2	To create knowledge base and apply appropriate search techniques used in problem solving.
CSL703.3	Apply the supervised/unsupervised learning algorithm.
CSL703.4	Design fuzzy controller system.

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Subject Name :Computational Lab-I	
Subject Code : CSL704	
Course Code :CSL704	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL704.1	Acquire practical knowledge within the chosen area of technology for project development.
CSL704.2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.

Subject Name :Major Project-I	
Subject Code :CSP705	
Course Code :CSP705	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSP705.1	Identify the problem from in real world scenario
CSP705.2	Review literature, analyze current trends in society and industry .
CSP705.3	Formulate the problem statement
CSP705.4	Design engineering solutions to complex problems utilizing a systematic approach.
CSP705.5	Illustrate team work, communication skills for presentation of project related activities.

Subject Name :Engineering Mathematics IV	
Subject Code : CSC401	
Course Code :CSC401	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC401.1	Apply the concepts of Eigen values and Eigen vectors 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 its 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 of optimization
CSC401.6	Solve Non-Linear Programming Problems to engineering problems of optimization.

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Subject Name :Analysis of Algorithms	
Subject Code : CSC402	
Course Code :CSC402	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
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

Subject Name :Database Management System	
Subject Code : CSC403	
Course Code :CSC403	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC403.1	Understand the need of database management systems.
CSC403.2	Design ER and EER diagram for real life applications.
CSC403.3	Convert ER and EER model to Relational Model.
CSC403.4	Design database using SQL.
CSC403.5	Apply the concept of normalization to relational database design.
CSC403.6	Understand the concept of transaction, concurrency and recovery.

Subject Name :Database Management System	
Subject Code : CSC404	
Course Code :CSC404	
Course Code	Course Outcomes
After the completion of the course the student should be able to	
CSC404.1	Understand the objectives, functions and structure of OS
CSC404.2	Analyze the concept of process management and evaluate performance of process scheduling algorithms.
CSC404.3	Understand and apply the concepts of synchronization and deadlocks
CSC404.4	Evaluate performance of Memory allocation and replacement policies
CSC404.5	Understand the concepts of file management.
CSC404.6	Apply concepts of I/O management and analyze techniques of disk scheduling.

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Subject Name :Microprocessor	
Subject Code : CSC405	
Course Code :CSC405	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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
Subject Name :Analysis of Algorithms Lab	
Subject Code : CSL401	
Course Code :CSL401	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL401.1	Implement the algorithms using different approaches.
CSL401.2	Analyze the complexities of various algorithms.
CSL401.3	Compare the complexity of the algorithms for specific problem
Subject Name :Database Management System Lab	
Subject Code : CSL402	
Course Code :CSL402	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL402.1	Design ER /EER diagram and convert to relational model for the real-world application.
CSL402.2	Apply DDL & DML commands.
CSL402.3	Apply integrity constraints and able to provide security to data.
CSL402.4	Implement Complex & Nested queries in SQL.
CSL402.5	Implement Joins, Views & Triggers in SQL
CSL402.6	Implement database connectivity (using any programming language).
Subject Name :Operating System Lab	
Subject Code : CSL403	
Course Code :CSL403	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL403.1	Demonstrate basic Operating system Commands, Shell scripts, System Calls and API wrt Linux

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Course Code	Course Outcomes
CSL403.2	Implement various process scheduling algorithms and evaluate their performance.
CSL403.3	Implement and analyze concepts of synchronization and deadlocks.
CSL403.4	Implement various Memory Management techniques and evaluate their performance.
CSL403.5	Implement and analyze concepts of virtual memory.
CSL403.6	Demonstrate and analyze concepts of file management and I/O management techniques.
Subject Name :Microprocessor Lab
Subject Code : CSL404
Course Code :CSL404
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
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
Subject Name :Skill base Lab course: Python Programming
Subject Code : CSL405
Course Code :CSL405
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
CSL405.1	To understand basic concepts in python.
CSL405.2	To explore contents of files, directories and text processing with python
CSL405.3	To develop program for data structure using built in functions in python.
CSL405.4	To explore django web framework for developing python based web application.
CSL405.5	To understand multithreading concept using python.
CSL405.6	To understand concept of NumPy and Pandas.
Subject Name : Mini Project 1-B
Subject Code: CSM 401
Course Code :CSM 401
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
CSM 401.1	Identify problems based on societal /research needs.
CSM 401.2	Apply Knowledge and skill to solve societal problems in a group.
CSM 401.3	Develop interpersonal skills to work as member of a group or leader.
CSM 401.4	Draw the proper inferences from available results through theoretical/ experimental/simulations.
CSM 401.5	Analyze the impact of solutions in societal and environmental context for sustainable development.
CSM 401.6	Use standard norms of engineering practices
CSM 401.7	Excel in written and oral communication.
CSM 401.8	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.

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CSM 401.9	Demonstrate project management principles during project work.
Subject Name : System Programming and Compiler Construction	
Subject Code: CSC601	
Course Code :CSC601	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC601.1	Identify the relevance of different system programs.
CSC601.2	Explain various data structures used for assembler and macroprocessor design.
CSC601.3	Distinguish between different loaders and linkers and their contribution in developing efficient user applications.
CSC601.4	Understand fundamentals of compiler design and identify the relationships among different phases of the compiler.
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.
Subject Name : Cryptography & System Security	
Subject Code: CSC602	
Course Code :CSC602	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC602.1	Understand system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory
CSC602.2	Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
CSC602.3	Apply different message digest and digital signature algorithms to verify integrity and achieve authentication and design secure applications
CSC602.4	Understand network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP
CSC602.5	Analyse and apply system security concept to recognize malicious code
Subject Name : Mobile Computing	
Subject Code: CSC603	
Course Code :CSC603	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC603.1	To identify basic concepts and principles in computing, cellular architecture.
CSC603.2	To describe the components and functioning of mobile networking.
CSC603.3	To classify variety of security techniques in mobile network.

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CSC603.4	To apply the concepts of WLAN for local as well as remote applications.
CSC603.5	To describe Long Term Evolution (LTE) architecture and its interfaces.
Subject Name : Artificial Intelligence	
Subject Code:CSC604	
Course Code :CSC604	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSC604.1	Ability to develop a basic understanding of AI building blocks presented in intelligent agents.
CSC604.2	Ability to choose an appropriate problem solving method and knowledge representation technique.
CSC604.3	Ability to analyze the strength and weaknesses of AI approaches to knowledge– intensive problem solving.
CSC604.4	Ability to design models for reasoning with uncertainty as well as the use of unreliable information.
CSC604.5	Ability to design and develop AI applications in real world scenarios
Subject Name : Quantitative Analysis	
Subject Code: CSDLO6013	
Course Code :CSDLO6013	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSDLO6013.1	Recognize the need of Statistics and Quantitative Analysis
CSDLO6013.2	Apply the data collection and the sampling methods.
CSDLO6013.3	Analyze using concepts of Regression, Multiple Linear Regression
CSDLO6013.4	Formulate Statistical inference drawing methods.
CSDLO6013.5	Apply Testing of hypotheses
Subject Name : System Programming and Compiler Construction Lab	
Subject Code: CSL601	
Course Code :CSL601	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL601.1	Generate machine code by implementing two pass assemblers.
CSL601.2	Implement Two pass macro processor.
CSL601.3	Parse the given input string by constructing Top down/Bottom-up parser.
CSL601.4	Identify and Validate tokens for given high level language and Implement synthesis phase of compiler.
CSL601.5	Explore LEX & YACC tools.

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Subject Name : Cryptography & System Security Lab	
Subject Code: CSL602	
Course Code :CSL602	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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 and use tools like LEX and YACC.
Subject Name : Mobile Computing Lab	
Subject Code: CSL603	
Course Code :CSL603	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL603.1	Develop and demonstrate mobile applications using various tools .
CSL603.2	Articulate the knowledge of GSM, CDMA & Bluetooth technologies and demonstrate it.
CSL603.3	Implement security algorithms for mobile communication network
CSL603.4	Explore the different network reconnaissance tools to gather information about networks.
CSL603.5	Demonstrate simulation and compare the performance of Wireless LAN
Subject Name : Artificial Intelligence Lab	
Subject Code:CSL604	
Course Code :CSL604	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL604.1	Identify languages and technologies for Artificial Intelligence
CSL604.2	Understand and implement uninformed and informed searching techniques for real world problems.
CSL604.3	Create a knowledge base using any AI language.
CSL604.4	Design and implement expert systems for real world problems.
Subject Name :Skill base Lab Course: Cloud Computing	

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Subject Code:CSL605	
Course Code :CSL605	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
CSL605.1	Implement different types of virtualization techniques.
CSL605.2	Analyze various cloud computing service models and implement them to solve the given problems.
CSL605.3	Design and develop real world web applications and deploy them on commercial cloud(s).
CSL605.4	Explain major security issues in the cloud and mechanisms to address them.
CSL605.5	Explore various commercially available cloud services and recommend the appropriate one for the given application.
Subject Name : Human Machine Interaction	
Subject Code:CSC801	
Course Code :CSC801	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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.
Subject Name : Distributed Computing	
Subject Code:CSC802	
Course Code :CSC802	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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
Subject Name :Natural Language Processing	
Subject Code:DLO8012	
Course Code :DLO8012	
Course Code	**Course Outcomes**

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After the completion of the course the student should be able to	
DLO8012.1	Have a broad understanding of the field of natural language processing.
DLO8012.2	Have a sense of the capabilities and limitations of current natural language technologies,
DLO8012.3	Be able to model linguistic phenomena with formal grammars.
DLO8012.4	Be able to Design, implement and test algorithms for NLP problems
DLO8012.5	Understand the mathematical and linguistic foundations underlying approaches to the various areas in NLP
DLO8012.6	Apply NLP techniques to design real world NLP applications such as machine translation, text categorization, text summarization, information extraction...etc
Subject Name : Environmental Management	
Subject Code:ILO8029	
Course Code :ILO8029	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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
Subject Name : Human Machine Interactions Lab	
Subject Code:CSL801	
Course Code :CSL801	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
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
Subject Name : Distributed Computing Lab	
Subject Code:CSL802	
Course Code :CSL802	
Course Code	**Course Outcomes**
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.

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Course Code	Course Outcomes
CSL802.4	Design and implement application programs on distributed systems.
Subject Name : Cloud Computing Lab
Subject Code:CSL803
Course Code :CSL803
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
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.
Subject Name : Computational Lab II
Subject Code:CSL804
Course Code :CSL804
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
CSL804.1	Acquire practical knowledge within the chosen area of technology for project development.
CSL804.2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
Subject Name : Major Project- II
Subject Code:CSP805
Course Code :CSP805
Course Code	**Course Outcomes**
After the completion of the course the student should be able to
CSP805.1	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
CSP805.2	Develop technological solution for the chosen problem statement
CSP805.3	Write test cases to demonstrate the results of the project
CSP805.4	Analyze the obtained results,
CSP805.5	Report the findings in documented format
CSP805.6	Apply professional ethics to demonstrate knowledge using project management

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Course Name: ECC 301 Engineering Mathematics- III Year of Study: 2021-22	
ECC 301.1	Understand the concept of Laplace Transform of and its application to solve the real integrals in Engineering Problem .
ECC 301.2	Understand the concept of Inverse Laplace Transform of various function and its application to solve the real integrals in Engineering Problem .
ECC 301.3	Expand the periodic function by using Fourier series for real life problems and Complex Engineering Problem .
ECC 301.4	Understand Complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic function.
ECC 301.5	Use Matrix Algebra to solve to solve the Engineering problems.
ECC 301.6	Apply the concept of vector calculus in real life problems.
Course Name: ECC302 Electronic Devices and Circuits I (DSE EXTC) Year of Study: 2021-22	
ECC302.1	Analyze small signal model of bipolar junction transistor & Metal Oxide field effect transistor for voltage gain, input impedance, output impedance, voltage gain.
ECC302.2	Evaluate frequency response to understand behavior of electronic circuits.
ECC302.3	Design & simulate series fed Class A power amplifier for given specification & calculate its efficiency
ECC302.4	Design & simulate enhancement type metal oxide semiconductor field effect transistor differential amplifier for given specifications
Course Name: ECC302 Electronic Devices and Circuits I Year of Study: 2021-22	
ECC302.1	Understand current voltage characteristics of semiconductor devices
ECC302.2	Analyze DC biasing circuits of Bipolar junction transistor & Metal Oxide field effect transistor for Quiescent point & stability factor
ECC302.3	Analyze small signal model of bipolar junction transistor & Metal Oxide field effect transistor for voltage gain, input impedance, output impedance, voltage gain.
ECC302.4	Evaluate frequency response to understand behavior of electronic circuits.
ECC302.5	Design & simulate series fed Class A power amplifier for given specification & calculate its efficiency
ECC302.6	Design & simulate enhancement type metal oxide semiconductor field effect transistor differential amplifier for given specifications
Course Name: ECC303 Digital System Design Year of Study: 2021-22	
ECC303.1	Perform number conversions and arithmetic operations on binary number systems
ECC303.2	Explain various logic families and logic gates using truth table
ECC303.3	Design combinational logic circuits using K-Maps and logic gates
ECC303.4	Design sequential logic circuits using state diagram-Maps and logic gates
ECC303.5	Classify memories and programmable logic devices based on characteristics and operations
ECC303.6	Understand VHDL and its application in design of combinational and sequential logic circuits
Course Name: ECC304 Network Theory Year of Study: 2021-22	

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ECC304.1	Apply their knowledge in analyzing Circuits by using network theorems.
ECC304.2	Apply the time and frequency method of analysis.
ECC304.3	Evaluate circuit using graph theory.
ECC304.4	Find the various parameters of two port network.
ECC304.5	Apply network topology for analyzing the circuit.
ECC304.6	Synthesize the network using passive elements.
Course Name: ECC305 Electronic Instrumentation and Control System Year of Study: 2021-22	
ECC305.1	Learn measurement of physical parameters using various transducer and sensors.
ECC305.2	Learn principle of operation for various sensors.
ECC305.3	Describe functional Control system.
ECC305.4	Apply the concepts of control systems in calculating the transfer functions for given system.
ECC305.5	Calculate the stability of given system using appropriate criteria in time domain.
ECC305.6	Calculate the stability of given system using appropriate criteria in frequency domain.
Course Name: ECC305 Electronic Instrumentation and Control System (DSE) Year of Study: 2021-22	
ECC305.1	Learn measurement of physical parameters using various transducer and sensors.
ECC305.2	Calculate the stability of given system using appropriate criteria in time domain.
ECC305.3	Calculate the stability of given system using appropriate criteria in frequency domain.
Course Name: ECL301 Electronic Devices and Circuits I Laboratory Year of Study: 2021-22	
ECL301.1	Understand current voltage characteristics of semiconductor devices
ECL301.2	Design & Simulate Bipolar junction transistor & Metal Oxide Semiconductor Field effect transistor
ECL301.3	Evaluate frequency response to understand behavior of electronic circuits
ECL301.4	Design & simulate two stage Bipolar junction transistor amplifier for given specification
ECL301.5	Design & simulate series fed Class A power amplifier for given specification & calculate its efficiency
ECL301.6	Design & simulate enhancement type metal oxide semiconductor field effect transistor differential amplifier for given specifications
Course Name: ECL302 Digital System Design Laboratory Year of Study: 2021-22	
ECL302.1	Verify logic gates using virtual tools
ECL302.2	Implement arithmetic circuits using virtual tools to verify operation
ECL302.3	Implement combinational logic circuits using virtual tools to verify operation
ECL302.4	Implement sequential logic circuits using virtual tools to verify operation
Course Name: ECL303 Electronics Instrumentation & Control System Laboratory Year of Study: 2021-22	
ECL303.1	Validate the performance characteristics of transducers.
ECL303.2	Validate the characteristics of various temperature, pressure and level transducers.
ECL303.3	Plot frequency response of first-order electrical system.
ECL303.4	Analyze time response of second-order electrical system and calculate the steady-state error
ECL303.5	Validate the effect of damping factor on the response of second order system.

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ECL303.6	Analyze the frequency response specifications of systems by using bode-plot, Polar plot, Nyquist-plot techniques, and comment on the stability of system
Course Name: ECL303 Electronics Instrumentation & Control System Laboratory Year of Study: 2021-22	
ECL303.1	Analyze the performance characteristics of transducers.
ECL303.2	Plot frequency response of first-order electrical system.
ECL303.3	Simulate the input and output relation of a control system.
Course Name: ECL304 Skill Lab-: C++ and Java Programming Year of Study: 2021-22	
ECL304.1	Understand the basic principles of Object Oriented Programming
ECL304.2	Apply Object Oriented Programming principles for effective programming
ECL304.3	Develop programming applications using OOP language.
ECL304.4	Implement different programming applications using packaging.
ECL304.5	Apply the concepts of Exception handling & Multithreading.
ECL304.6	Understand the concepts of Applets
Course Name: ECM301 Mini Project 1-A Year of Study: 2021-22	
ECM301.1	Create the electrons circuit for particular application/experiment.
ECM301.2	Design and simulate the circuit by putting together analog and digital components.
ECM301.3	Learn the technique of soldering and circuit implementation on general purpose printed circuit board (GPP).
ECM301.4	Apply PCB design process and gain up-to-date knowledge of PCB design software.
ECM301.5	Apply the basic electronic tool and equipment's like (DMM, CRO, DSO etc.) studied to implement the project.
ECM301.6	Analysis of hardware fault (fault detection and correction)
Course Name: ECC401 Engineering Mathematics IV Year of Study: 2021-22	
ECC401.1	Use the concept of Complex Integration for evaluating integrals computing residues & evaluate various contour integrals.
ECC401.2	Apply concept of correlation and regression to the engineering problem in Data science, AT & Machine learning .
ECC401.3	Apply the concept of Probability and expectation for getting the spread of the data and distribution of probabilities.
ECC401.4	Apply the concept of vector spaces and orthogonalization process in engineering problems.
ECC401.5	Use the concept of Quadratic form and singular value decomposition which are very useful tool in Engineering application.
ECC401.6	Find the extremals of the functional using concept of calculus of variation.
Course Name: ECC402 Microcontrollers Year of Study: 2021-22	
ECC402.1	Explain microprocessor architecture with program counter, stack pointer, interrupt, subroutine and Direct memory access.
ECC402.2	Explain primary, secondary, virtual, cache, semiconductor memory systems.
ECC402.3	Explain architecture of 8051 using block diagram, pin diagram and programming model.
ECC402.4	Write 8051 assembly language programs and interfacing programs.

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ECC402.5	Explain ARM7 using block diagram, pin diagram and programming model.
ECC402.6	Describe applications of 8 bit microcontrollers namely NXP 89v51RD2, Atmega 328P and PIC16F886.
Course Name: ECC403 Linear Integrated Circuits Year of Study: 2021-22	
ECC403.1	Understand fundamental properties of operational amplifiers.
ECC403.2	To analyze linear application of operational amplifier.
ECC403.3	To analyze non-linear application of operational amplifier.
ECC403.4	To understand 555 timer IC & its application.
ECC403.5	To explain concept of voltage regulator.
ECC403.6	To explain special purpose integrated circuit.
Course Name: ECC404 Signals & Systems Year of Study: 2021-22	
ECC 404.1	Classify and Analyze Different types of signal and systems.
ECC 404.2	Analyze continuous time LTI signals and systems in transform domain.
ECC 404.3	Analyze and realize discrete time LTI signals and systems in transform domain.
ECC 404.4	Represent Signals and systems using Fourier Series and Analyze the systems using the Fourier transform.
ECC 404.5	Analyze the signals and systems using Laplace Transform and z-transform.
ECC 404.6	Demonstrate the concept learnt in signals and systems course using the modern engineering tools.
Course Name: ECC405 Principles of Communication Engineering Year of Study: 2021-22	
ECC405.1	Understand the basic components and types of noises in communication system.
ECC405.2	Analyze the concepts of amplitude modulation and demodulation.
ECC405.3	Analyze the concepts of angle modulation and demodulation.
ECC405.4	Compare the performance of AM and FM receivers.
ECC405.5	Describe analog and digital pulse modulation techniques.
ECC405.6	Illustrate the principles of multiplexing and demultiplexing techniques
Course Name: ECL401 Microcontrollers Laboratory Year of Study: 2021-22	
ECL401.1	Study editor, assembler, cross assembler, compiler, cross compiler, linker, simulator, emulator development tools
ECL401.2	Write 8051 assembly language programs for arithmetic and logical operations, code conversion and data transfer operations.
ECL401.3	Write 8051 assembly language programs for general purpose I/O, Timers and interrupts
ECL401.4	Interface 8051 with Input output devices and write programs for it.
ECL401.5	Develop microcontroller based applications using NXP 89v51RD2, Atmega328P and PIC16F886 .
Course Name: ECL402 Linear Integrated Circuits Laboratory Year of Study: 2021-22	
ECL402.1	Describe the fundamentals properties of Operational Amplifier

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ECL402.2	Analyze Operational Amplifier as Inverting, Noninverting adder, subtractor, differentiator, integrator
ECL402.3	Analyze Linear & Nonlinear application of operational Amplifier
ECL402.4	Describe the functioning voltage regulator & IC 555 timer
Course Name: ECL403 Principles of Communication Engineering Laboratory Year of Study: 2021-22	
ECL403.1	Understand the concept of noise and its measurement in communication.
ECL403.2	Analyze amplitude and angle modulation and demodulation techniques used in analog communication
ECL403.3	Analyze analog pulse modulation and demodulation techniques used in analog communication
ECL403.4	Analyze transmitter and receiver circuits used for analog communication
ECL403.5	Understand multiplexing and de-multiplexing of signals and their need in communication
Course Name: ECL404 SKILL LAB :Python Programming Year of Study: 2020-201	
ECL404.1	Describe the numbers, math functions, strings, list, tuples and dictionaries in Python
ECL404.2	Demonstrate Functions and File handling operations
ECL404.3	Interpret Object oriented programming in Python
ECL404.4	Demonstrate GUI Applications and different database operations in python
ECL404.5	Design Mathematical Functions of NumPy array, Data frame
ECL404.6	Design Support Vector Machines
Course Name: ECM401 Mini Project 1-B Year of Study: 2020-201	
ECM401.1	Write basic codes for the Arduino board using the IDE for utilizing the onboard resources.
ECM401.2	Apply the knowledge of interfacing different devices to the Arduino board to accomplish a given task.
ECM401.3	Design Arduino based projects for a given problem.
ECM401.4	Write code using python language using IDE for utilizing the onboard resources.
ECM401.5	Apply the knowledge of interfacing different devices to raspberry Pi board to accomplish a given task.
ECM401.6	Design Raspberry Pi based projects for a given problem.
Course Name: ECC501 Digital Communication Year of Study: 2021-22	
ECC501.1	Understand the basics of digital communication, probability theory.
ECC501.2	Apply fundamental concept of information theory in source coding.
ECC501.3	Understand the basics of significance of line coding in digital communication
ECC501.4	Evaluate the effect of ISI on digital communication system
ECC501.5	Compare bandpass modulation and baseband modulation techniques.
ECC501.6	Evaluate performance of error control codes.
Course Name: ECC502 Discrete Time Signal Processing Year of Study: 2021-22	

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ECC502.1	Understand the concepts of discrete-time Fourier transform and fast Fourier transform.
ECC502.2	Apply the knowledge of design of IIR digital filters to meet arbitrary specifications.
ECC502.3	Apply the knowledge of design of FIR digital filters to meet arbitrary specifications.
ECC502.4	Apply the knowledge of DSP processors for various applications.
ECC502.5	Design and simulate digital filters
ECC502.6	Apply algorithms of DSP for real time applications
Course Name: ECC504 Random Signal Analysis Year of Study: 2021-22	
ECC504.1	Apply theory of probability in identifying and solving relevant problems
ECC504.2	Differentiate continuous and discrete random variables and their distributions.
ECC504.3	Analyze mean, variance, and distribution function of random variables and functions of random variables
ECC504.4	Understand the concept of Multiple Random Variables and Central Limit Theorem
ECC504.5	Define a random process, determine the type of the process and find the response of LTI system for WSS process.
ECC504.6	Explain linear regression algorithms and apply the same for predictive applications.
Course Name: ECL501 Digital Communication Lab Year of Study: 2021-22	
ECL501.1	Understand the basics of digital signal and significance of line coding in digital communication
ECL501.2	Apply fundamental concept of information theory in source coding
ECL501.3	Evaluate the effect of ISI on digital communication system
ECL501.4	Compare band pass modulation techniques
ECL501.5	Evaluate performance of error control codes
Course Name: ECL502 Discrete Time Signal Processing Lab Year of Study: 2021-22	
ECL502 .1	Understand the relation between different transforms
ECL502 .2	Understand the concepts of discrete-time Fourier transform, fast Fourier transform and apply in system analysis
ECL502 .3	Design digital IIR and FIR filters to satisfy the given specifications and evaluate the frequency response and polezero representations
ECL502 .4	Interpret the different realization structures of Digital IIR and FIR filters.
ECL502 .5	Analyze the impact of hardware limitations on the performance of digital filters
Course Name: ECL504 Professional Communication & Ethics-II Lab Year of Study: 2021-22	
ECL504.1	plan and prepare effective business/ technical documents which will in turn provide solid foundation for their future managerial roles.
ECL504.2	strategize their personal and professional skills to build a professional image and meet the demands of the industry.
ECL504.3	emerge successful in group discussions, meetings and result-oriented agreeable solutions in group communication situations.
ECL504.4	deliver persuasive and professional presentations.
ECL504.5	develop creative thinking and interpersonal skills required for effective professional communication.

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ECL504.6	apply codes of ethical conduct, personal integrity and norms of organizational behavior.
Course Name: ECC601 Electromagnetics and Antenna Year of Study: 2021-22	
ECC601.1	Describe electromagnetics field including static and dynamic in terms of Maxwell's equations.
ECC601.2	Apply Maxwell's equation to solve various electromagnetic phenomenon such as electromagnetic wave propagation in different medium, power in EM wave.
ECC601.3	Understand Basic of Antenna
ECC601.4	Derive the field equations for the basic radiating elements and describe basic antenna parameters like radiation pattern, directivity, gain etc.
ECC601.5	Implement different types of the antenna structures such as Antenna arrays, Microstrip antenna and reflector antenna etc.
ECC601.6	Understand the concept Electromagnetic Wave Propagation
Course Name: ECC602 Computer Communication Networks Year of Study: 2021-22	
ECC602.1	Analyze network topologies, hardware devices, addressing schemes and the protocol stacks
ECC602.2	Compare various transmission media and broadband technologies
ECC602.3	Analyze the flow control, error control and the medium access control techniques.
ECC602.4	Judge network layer addressing and routing schemes.
ECC602.5	Analyze connection oriented and connectionless services.
ECC602.6	Apply the knowledge of application layer protocols
Course Name: ECC603 Image Processing and Machine Vision Year of Study: 2021-22	
ECC603.1	Understand fundamentals of image processing and machine vision
ECC603.2	Able to enhance the quality of image using spatial and frequency domain techniques for image enhancement
ECC603.3	Able to apply image morphology and restoration techniques
ECC603.4	Able to perform image segmentation techniques based on principle of discontinuity and similarity using various algorithms
ECC603.5	Able to represent boundaries and shapes using standard techniques
ECC603.6	Able to classify the object using different classification methods
Computer Communication Networks Lab	
ECL602.1	Design a small or medium sized computer network including media types, end devices, and interconnecting devices that meets a customer 's specific needs.
ECL602.2	Perform basic configurations on routers and Ethernet switches.
ECL602.3	Demonstrate knowledge of programming for network communications.
ECL602.4	Simulate computer networks and analyze the simulation results.
ECL602.5	Troubleshoot connectivity problems in a host occurring at multiple layers of the OSI model.
ECL602.6	Develop knowledge and skills necessary to gain employment as computer network engineer and network administrator
Image Processing and Machine Vision Lab	

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ECL603.1	Perform enhancement of digital images in spatial and frequency domain
ECL603.2	Perform edge detection and morphological operations on digital images
ECL603.3	Classify patterns using standard Machine vision classification techniques like SVM
ECL603.4	Apply theoretical knowledge in image processing and machine vision to practical case studies
Skill Lab: Linux and Networking and Server Configuration	
ECL604.1	Install Linux using different platform and execute standard Linux commands.
ECL604.2	Describe the basic knowledge of Linux Operating System
ECL604.3	Deploy the system administrative functionality
ECL604.4	Solve the problems using shell script programming
ECL604.5	Develop network based applications
ECL604.6	Apply the Linux commands using programming skill to deploy different servers like FTP, TELNET etc.
Course Name: ECC701 Microwave Engineering Year of Study: 2021-22	
ECC701.1	Analyze the microwave passive circuit components using S parameters
ECC701.2	Design of Impedance Matching Network using distributed and lumped elements
ECC701.3	Identify the state of art in microwave tubes and their application
ECC701.4	Identify the state of art in microwave semiconductor devices and their application
ECC701.5	Understand various Microwave Measurement Techniques
ECC701.6	Understand microwave integrated circuits
Course Name:ECC702 Mobile Communication System Year of Study: 2021-22	
ECC702.1	Understand the cellular fundamentals and estimate the coverage and capacity of cellular systems.
ECC702.2	Classify different types of propagation models and analyze the link budget.
ECC702.3	Illustrate the fundamentals and system architecture of GSM, 2.5G and IS-95.
ECC702.4	Apply the concepts of 3G technologies of UMTS and CDMA 2000.
ECC702.5	Elaborate the principles of 3GPP LTE.
ECC702.6	Identify the emerging technologies for upcoming mobile communication systems.
Course Name: ECC703 Optical Communication Year of Study: 2021-22	
ECC703.1	Understand basic principles of optical fiber communication to find Critical Angle, Numerical Aperature, Acceptance Angle, Normalize Frequency as V number & Guided Modes.
ECC703.2	Apply transmission characteristics of optical fiber to find different types of losses
ECC703.3	Analyze optical sources to find best sources for an optical fiber communication.
ECC703.4	Analyze optical detectors to find best detectors for an optical fiber communication.
ECC703.5	Understand fiber fabrication process & fiber components.
ECC703.6	Evaluate parameters for optical link power budgeting and rise time budget to analyze the link.
Course Name:ECCDLO7032 Big Data analytics Year of Study: 2021-22	

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ECCDLO7032.1	Explain fundamentals of Big data analytics.
ECCDLO7032.2	Explain how Hadoop framework can be used solve big data analytics problems.
ECCDLO7032.3	Explain use of No SQL to handle big data analytics problems.
ECCDLO7032.4	Apply Map reduce techniques to handle big data analytics problems.
ECCDLO7032.5	Explain use of big data analytics techniques in finding similar items, mining data streams, link analysis and frequent itemset mining.
ECCDLO7032.6	Explain applications of big data analytics in recommendation systems and mining social network graphs.
Course Name: ECCDLO7033 Internet Communication Engineering Year of Study: 2021-22	
ECCDLO 7033.1	Analyze the application layer protocols including DHCP, DNS, TELNET, SMTP and root server
ECCDLO 7033.2	Analyze Transport layer protocol for process-to-process communication
ECCDLO 7033.3	Implement local area networks using static and dynamic addressing techniques including sub netting
ECCDLO 7033.4	Apply voice over internet protocol & real time interactive audio & Video services in real life application
ECCDLO 7033.5	Understand the system design principles of multimedia communications systems.
ECCDLO 7033.6	Understand the quality of services for Multimedia Communication
Course Name: ECCDLO7035 Embedded System Year of Study: 2021-22	
ECCDLO7035.1	Understand the Architecture and Components of an Embedded System
ECCDLO7035.2	Understand the detailed processor design concept
ECCDLO7035.3	Understand the various methods of Communication
ECCDLO7035.4	Understand the concepts of RTOS and write programs
ECCDLO7035.5	Understand interprocess and task communication
ECCDLO7035.6	Design an embedded system for various applications
Course Name: ILO7017 Disaster Management and Mitigation Measures Year of Study: 2021-22	
ECCILO7017.1	Get to know natural as well as manmade disaster and their extent and possible effects on economy.
ECCILO7017.2	Plan of national importance structures based upon the previous history.
ECCILO7017.3	Get acquainted with Government policies, acts and various organizational structure associated with an emergency.
ECCILO7017.4	Get to know the simple Do's nd Don't's in such extreme events and act accordingly.
Course Name: ILO701 Cyber Security & Low Year of Study: 2021-22	
ECCILO7016.1	Understand the concept of Cybercrime and its effect on the outside world.
ECCILO7016.2	Understand various cyber offenses and attacks on mobile and wireless devices.
ECCILO7016.3	Understand the various tools and methods used in cybercrime.
ECCILO7016.4	Interpret and apply IT law in various legal issues.

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ECCILO7016.5	Distinguish different aspects of cyber law.
Course Name: ECL701 Microwave Engineering Lab Year of Study: 2021-22	
ECL701.1	Analyze the microwave passive circuit components using S parameters
ECL701.2	Design of Impedance Matching Network using distributed and lumped elements
ECL701.3	Identify the state of art in microwave tubes and their application
ECL701.4	Identify the state of art in microwave semiconductor devices and their application
ECL701.5	Understand various Microwave Measurement Techniques
ECL701.6	Understand microwave integrated circuits
Course Name: ECL702 Mobile Communication Lab Year of Study: 2021-22	
ECL702.1	Apply the fundamentals of Mobile communication to design the wireless Network
ECL702.2	Demonstrate the GSM and CDMA architecture
ECL702.3	Interpret the evolving wireless communication technologies
ECL702.4	Describe the emerging technologies required for fourth generation mobile system
Course Name: ECL703 Optical Communication Lab Year of Study: 2021-22	
ECL703.1	Apply Single Mode Operation, Optical fiber waveguide to find fiber parameters and Numerical Aperture (NA) in optical fiber.
ECL703.2	Apply material dispersion at various wavelength & transmission characteristics to fine losses in optical link
ECL703.3	Analyze optical source & detector with optical link to find input verses output characteristic of LED and the responsivity curve for the given photo detector material, received optical power, the number of photons received by a PN photodiode.
ECL703.4	Evaluate the link power & rise time budget for the optical link with given parameters.
Course Name: ECLDLO7033 Internet Communication Engineering Lab Year of Study: 2021-22	
ECLDLO 7033.1	Analyze the application layer protocols including DHCP, DNS, TELNET, SMTP and root server.
ECLDLO 7033.2	Analyze Transport layer protocol for process-to-process communication.
ECLDLO 7033.3	Implement local area networks using static and dynamic addressing techniques including sub netting.
ECLDLO 7033.4	Apply voice over internet protocol & real time interactive audio & Video services in real life application
Course Name: ECLDLO7032 Big Data Analytics Lab Year of Study: 2021-22	
ECLDLO7032.1	Implement big data processing using Hadoop components on virtual platform..
ECLDLO7032.2	Implement big data processing using NoSQL components on virtual platform..
ECLDLO7032.3	Implement big data analytics on virtual platform..
ECLDLO7032.4	Implement big data analytics for weather prediction on virtual platform..
ECLDLO7032.5	Implement twitter data analytics using twitter development platform and tweepy.
Course Name: ECLDLO7035 Embedded System Lab Year of Study: 2021-22	

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ECCDLO7035.1	Write basic programs for Embedded systems
ECCDLO7035.2	Understand the SPI, I2C communication in Embedded Systems
ECCDLO7035.3	Write programs for ARM microcontroller
ECCDLO7035.4	Write programs related to RTOS
ECCDLO7035.5	Simulate multitasking using RTOS
ECCDLO7035.6	Simulate multitasking using RTOS
ECL704.1	Apply Engineering Knowledge and concepts to arrive at design solutions for a given problem.
ECL704.2	Analyze engineering problem using research literature to find gaps in existing knowledge.
ECL704.3	Apply research-based knowledge and design experiments to solve an engineering problem.
ECL704.4	Identify the end user that shall benefit through the proposed solution of system and also demonstrate concern for environment and abide by professional ethics.
ECL704.5	Demonstrate teamwork and communication principles while planning projects, writing reports and giving presentations
ECL704.6	Apply project life cycle principles by project scheduling and managing finances.
Course Name: ECC801 RF Design Year of Study: 2021-22	
ECC801.1	Design Passive RF filters using Image parameter method and Insertion Loss Method
ECC801.2	Design Microwave Amplifiers using Analytical Method and Smith chart
ECC801.3	Design Microwave Oscillators using Analytical Method and Smith chart
ECC801.4	Understand the basic principle and operation and Frequency Synthesizers
ECC801.5	Understand Electromagnetic Interference in RF circuit
ECC801.6	Understand Electromagnetic Compatibility in RF circuit
Course Name:ECC802 Wireless Networks Year of Study: 2021-22	
ECC802.1	Understand the fundamentals, architecture, design issues of Wireless Networks and Body Area Networks
ECC802.2	Apply various Wireless Personal Area Networks such as Bluetooth, Zigbee, RFID, NFC and UWB.
ECC802.3	Analyze various types of Local Area Network topologies and technologies to find LAN topologies.
ECC802.4	Evaluate parameters for Wireless Wide Area Network for Radio Link and Coverage planning and also link budgets for GSM,CDMA,CDMA2000,HSPD And analyze link.
ECC802.5	Understand various Wireless adhoc Networks architecture, traffic related protocols and transmission technology.
ECC802.6	Apply various Wireless Sensors Networks, Wireless Mesh Network and Internet of Things
Course Name:ECCDLO8043 Satellite Communication Year of Study: 2021-22	

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ECCDLO8043.1	Interpret key geometric parameters for satellite orbits in order to predict satellites location and correctly orient earth station antenna.
ECCDLO8043.2	Provide in depth understanding of satellite communication system operation, launching techniques.
ECCDLO8043.3	Explain Earth station technology.
ECCDLO8043.4	Evaluate link feasible for a given set of constraints.
ECCDLO8043.5	Design satellite communication network to support multiple users.
ECCDLO8043.6	Use applications of satellite communication for benefit of society.
Course Name: ECCDLO8044 Network management in Telecommunication Year of Study: 2021-22	
ECCDLO 8044.1	Explain the need for interoperable network management & analyze the trends and development of the telecommunications Network Management
ECCDLO 8044.2	Demonstrate broad knowledge of fundamental principles and technical standards underlying
ECCDLO 8044.3	Describe the concepts and architecture behind standards-based network management associated with SNMP and CMIP
ECCDLO 8044.4	Apply basic of telecommunication, networking and information technologies and architect and implement networked informative systems
ECCDLO 8044.5	Continuously improve communication skills
ECCDLO 8044.6	Analyze packet or traffic in the network.
Course Name:ILO8029 Environmental Management Year of Study: 2021-22	
ILO8029.1	Understand the concept of Environmental Management
ILO8029.2	Understands the Global Environmental concerns
ILO8029.3	Understand Ecosystem ,Interdependence and Food chain
ILO8029.4	Understand and interpret environment related legislation
Course Name: ECL801 RF Design Lab Year of Study: 2021-22	
ECL801.1	Design Passive RF filters using Image parameter method and Insertion Loss Method
ECL801.2	Design Microwave Amplifiers using Analytical Method and Smith chart
ECL801.3	Design Microwave Oscillators using Analytical Method and Smith chart
ECL801.4	Understand the basic principle and operation and Frequency Synthesizers
ECL801.5	Understand Electromagnetic Interference and Electromagnetic Compatibility in RF circuit
Course Name: ECL802 Wireless Networks Lab Year of Study: 2021-22	
ECL802.1	Understand Various Hardware , Software aspects of Wireless Networks, NS2 and Wireless Software
ECL802.2	Analyze to get distance Measurement using Ultrasonic sensors and send it on Android device using Bluetooth
ECL802.3	Evaluate Implementation of Frequency Hopping
ECL802.4	Analyze yje capacity of GSM system and Uplink and downlink budget fo GSM 1800
ECL802.5	Analyze to estimate a mean signal required at Base station, mobile station and determine the cell

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	radius and also two nodes wireless networks
ECL802.6	Create the wireless network based mini project for various application
Course Name: ECLDLO8043 Satellite Communication Lab Year of Study: 2021-22	
ECLDLO8043.1	Decide height of a satellite to trade off between coverage area, slant range and propagation delay.
ECLDLO8043.2	Set limit of visibility by choosing proper value of longitude & latitude.
ECLDLO8043.3	Design gain of antenna to deliver output power if input power of antenna is given.
ECLDLO8043.4	Design a gain of antenna for a given EIRP.
ECLDLO8043.5	Calculate C/N,CNT for given up link, down link of satellite communication link.
Course Name: ECLDLO8044 Network management in Telecommunication Lab Year of Study: 2021-22	
ECLDLO 8044.1	Analyze the need for interoperable network management , the trends and development of the telecommunications Network Management
ECLDLO 8044.2	Demonstrate broad knowledge of fundamental principles and technical standards underlying
ECLDLO 8044.3	Describe the concepts and architecture behind standards-based network management associated with SNMP and CMIP
ECLDLO 8044.4	Apply basic of telecommunication, networking and information technologies and architect and implement networked informative systems
ECLDLO 8044.5	Continuously improve communication skills
ECLDLO 8044.6	Analyze packet or traffic in the network.
Course Name: ECL803 Project-II Year of Study: 2021-22	
ECL803.1	Implement project using modern tools and techniques with latest hardware and software.
ECL803.2	Design project which solves research problem identifies by reviewing literature.
ECL803.3	Demonstrate teamwork and communication principles while planning projects, writing reports and giving presentations.
ECL803.4	Apply project life cycle principles by project scheduling and managing finances.
ECL803.5	Understand project as an experience for lifelong learning in the field of technology by being able to engage in independent study of design solutions and implementation.
ECL803.6	Design a project/product which will be useful to the society addressing environment concerns and abiding by ethical principles

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2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Department of Information Technology

Subject Name :Engineering Mathematics III	
Subject Code : ITC301	
Course Code :ITC301	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
ITC301.1	Understand the concept of Laplace transform and its application to solve the real integrals in engineering problems.
ITC301.2	Understand the concept of inverse Laplace transform of various functions and its applications in engineering problems.
ITC301.3	Expand the periodic function by using Fourier series for real life problems and complex engineering problems.
ITC301.4	Understand complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic function.
ITC301.5	Apply the concept of Correlation and Regression to the engineering problems in data science, machine learning and AI.
ITC301.6	Understand the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.
Subject Name : Data Structure and Analysis	
Subject Code : ITC302	
Course Code :ITC302	
Course Code	**Course Outcomes**
ITC302.1	Classify and Apply the concepts of stacks, queues and linked list in real life problem solving.
ITC302.2	Classify, apply and analyze the concepts trees in real life problem solving.
ITC302.3	Illustrate and justify the concepts of graphs in real life problem solving.
ITC302.4	List and examine the concepts of sorting, searching techniques in real life problem solving.
ITC302.5	Use and identify the concepts of recursion, hashing in real life problem solving.
ITC302.6	Examine and justify different methods of stacks, queues, linked list, trees and graphs to various applications.

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2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Department Name : Information Technology	
Subject Name : Data Structure lab	
Subject Code : ITL301	
Course Code :ITL301	
Course Code	**Course Outcomes**
ITL301.1	Understand and use the basic concepts and principles of various linked lists, stacks and queues.
ITL301.2	Understand the concepts and apply the methods in basic trees.
ITL301.3	Use and identify the methods in advanced trees.
ITL301.4	Understand the concepts and apply the methods in graphs
ITL301.5	Understand the concepts and apply the techniques of searching, hashing and sorting
ITL301.6	Illustrate and examine the methods of linked lists, stacks, queues, trees and graphs to various real time problems
Subject Name : Database Management System	
Subject Code : ITC303	
Course Code :ITC303	
Course Code	**Course Outcomes**
ITC303.1	Identify the need of Database Management System.
ITC303.2	Design conceptual model for real life applications
ITC303.3	Create Relational Model for real life applications
ITC303.4	Formulate query using SQL commands.
ITC303.5	Apply the concept of normalization to relational database design.
ITC303.6	Demonstrate the concept of transaction, concurrency and recovery.
Subject Name : Paradigms and Computer Programming Fundamentals	
Subject Code : ITC303	
Course Code :ITC303	
Course Code	**Course Outcomes**
ITC305.1	Understand and Compare different programming paradigms
ITC305.2	Understand the Object Oriented Constructs and use them in program design.
ITC305.3	Understand the concepts of declarative programming paradigms through functional and logic programming.
ITC305.4	Design and Develop programs based on declarative programming paradigm using functional and/or logic programming.
ITC305.5	Understand the role of concurrency in parallel and distributed programming
ITC305.6	Understand different application domains for use of scripting languages

2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Subject Name : SQL LAB	
Subject Code : ITL305	
Course Code :ITL305	
Course Code	**Course Outcomes**
ITL305.1	Define problem statement and Construct the conceptual model for real life application.
ITL305.2	Create and populate a RDBMS using SQL.
ITL305.3	Formulate and write SQL queries for efficient information retrieval
ITL305.4	Apply view, triggers and procedures to demonstrate specific event handling
ITL305.5	Demonstrate database connectivity using JDBC.
ITL305.6	Demonstrate the concept of concurrent transactions.

Subject Name : Computer programming Paradigms Lab	
Subject Code : ITL303	
Course Code :ITL303	
Course Code	**Course Outcomes**
ITL303.1	Implement Object Oriented concepts in C++.
ITL303.2	Design and Develop solution based on declarative programming paradigm using functional and logic programming
ITL303.3	Understand the multi threaded programs in Java and C++
ITL303.4	Understand the need and use of exception handling and garbage collection in C++ and JAVA
ITL303.5	Implement a solution to the same problem using multiple paradigms.
ITL303.6	Compare the implementations in multiple paradigms at coding and execution level.
Subject Name : Computer Network and Network Design	
Subject Code : ITC402	
Course Code :ITC402	
Course Code	**Course Outcomes**
ITC402.1	Describe the functionalities of each layer of the models and compare the models
ITC402.2	Categorize the types of transmission media and explain data link layer concepts, design issues and protocols
ITC402.3	Analyze the routing protocols and assign IP address to networks.
ITC402.4	Explain the data transportation and session management issues and related protocols used for end to end delivery of data.
ITC402.5	List the data presentation techniques and illustrate the client/server model in application layer protocols.
ITC402.6	Use of networking concepts of IP address, Routing, and application services to design a network for an organization

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Subject Name : NETWORK LAB	
Course Code	**Course Outcomes**
ITL401.1	Execute and evaluate network administration commands and demonstrate their use in different network scenarios
ITL401.2	Demonstrate the installation and configuration of network simulator.
ITL401.3	Demonstrate and measure different network scenarios and their performance behavior.
ITL401.4	Implement the socket programming for client server architecture.
ITL401.5	Analyze the traffic flow of different protocols
ITL401.6	Design a network for an organization using a network design tool

Subject Name : Engineering Mathematics -IV	
Subject Code : ITC401	
Course Code :ITC401	
Course Code	**Course Outcomes**
After the completion of the course the student should be able to	
ITC401.1	Apply the concepts of eigen values and eigen vectors to solve engineering problems.
ITC401.2	Illustrate the use of concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
ITC401.3	Apply the concept of Z- transformation and its inverse in engineering problems.
ITC401.4	Apply the concept of probability distribution to engineering problems & testing hypothesis of small samples using sampling theory.
ITC401.5	Apply the concept of Linear Programming to solve the optimization problems
ITC401.6	Use the Non-Linear Programming techniques to solve the optimization problems.

Subject Name : Operating System	
Subject Code : ITC403	
Course Code :ITC403	
Course Code	**Course Outcomes**
ITC403.1	Understand the basic concepts related to Operating System.
ITC403.2	Describe the process management policies and illustrate scheduling of processes by CPU.
ITC403.3	Explain and apply synchronization primitives and evaluate deadlock conditions as handled by Operating System.
ITC403.4	Describe and analyze the memory allocation and management functions of Operating System.

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ITC403.5	Analyze and evaluate the services provided by Operating System for storage management.
ITC403.6	Compare the functions of various special-purpose Operating Systems.
Subject Name : Unix Lab	
Subject Code : ITL402	
Course Code :ITL402	
Course Code	**Course Outcomes**
ITL402.1	Understand the architecture and functioning of Unix
ITL402.2	Identify the Unix general purpose commands
ITL402.3	Apply Unix commands for system administrative tasks such as file system management and user management
ITL402.4	Execute Unix commands for system administrative tasks such as process management and memory management
ITL402.5	Implement basic shell scripts for different applications.
ITL402.6	Implement advanced scripts using awk & perl languages and grep, sed, etc. commands for performing various tasks.
Subject Name : Java Lab (SBL)	
Subject Code : ITL304	
Course Code :ITL304	
Course Code	**Course Outcomes**
ITL304.1	Explain the fundamental concepts of Java Programing.
ITL304.2	Use the concepts of classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
ITL304.3	Demonstrate how to extend java classes and achieve reusability using Inheritance, Interface and Packages.
ITL304.4	Construct robust and faster programmed solutions to problems using concept of Multithreading, exceptions and file handling
ITL304.5	Design and develop Graphical User Interface using Abstract Window Toolkit and Swings along with response to the events.
ITL304.6	Develop Graphical User Interface by exploring JavaFX framework based on MVC architecture.
Subject Name : Automata Theory	
Subject Code : ITC404	
Course Code :ITC404	
Course Code	**Course Outcomes**
ITC404.1	Explain, analyze and design Regular languages, Expression and Grammars.
ITC404.2	Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.
ITC404.3	Analyze and design Context Free languages and Grammars.
ITC404.4	Design different types of Push down Automata as Simple Parser.
ITC404.5	Design different types of Turing Machines as Acceptor, Verifier, Translator and Basic computing machine.

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ITC404.6	Develop understanding of applications of various Automata.
Subject Name : Computer Organization and Architecture

Subject Name : Computer Organization and Architecture	
Subject Code : ITC405	
Course Code :ITC405	
Course Code	**Course Outcomes**
ITC405.1	Demonstrate the fundamentals of Digital Logic Design
ITC405.2	Describe basic organization of computer, the architecture of 8086 microprocessor and implement assembly language programming for 8086 microprocessors
ITC405.3	Demonstrate control unit operations and conceptualize instruction level parallelism
ITC405.4	List and Identify integers and real numbers and perform computer arithmetic operations on integers
ITC405.5	Categorize memory organization and explain the function of each element of a memory hierarchy.
ITC405.6	Examine different methods for computer I/O mechanism

Subject Name : Microprocessor Lab	
Subject Code : ITL403	
Course Code :ITL403	
Course Code	**Course Outcomes**
ITL403.1	Demonstrate various components and peripheral of computer system
ITL403.2	Analyze and design combinational circuits
ITL403.3	Build a program on a microprocessor using arithmetic & logical instruction set of 8086.
ITL403.4	Develop the assembly level programming using 8086 loop instruction set
ITL403.5	Write programs based on string and procedure for 8086 microprocessor.
ITL403.6	Design interfacing of peripheral devices with 8086 microprocessor.

Subject Name : Internet Programming	
Subject Code : ITC501	
Course Code :ITC501	
Course Code	**Course Outcomes**
ITC501.1	Select protocols or technologies required for various web applications
ITC501.2	Apply JavaScript to add functionality to web pages
ITC501.3	Design front end application using basic React.
ITC501.4	Design front end applications using functional components of React.
ITC501.5	Design back-end applications using Node.js.
ITC501.6	Construct web based Node.js applications using Express

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Subject Name : Computer Network Security	
Subject Code : ITC502	
Course Code :ITC502	
Course Code	**Course Outcomes**
ITC502.1	Explain the fundamentals concepts of computer security and network security.
ITC502.2	Identify the basic cryptographic techniques using classical and block encryption methods.
ITC502.3	Study and describe the system security malicious software
ITC502.4	Describe the Network layer security, Transport layer security and application layer security.
ITC502.5	Explain the need of network management security and illustrate the need for NAC.
ITC502.6	Identify the function of an IDS and firewall for the system security.
Subject Name : Entrepreneurship and E-business	
Subject Code : ITC503	
Course Code : ITC503	
Course Code	**Course Outcomes**
ITC503.1	Understand the concept of entrepreneurship and its close relationship with enterprise and owner-management.
ITC503.2	Understand the nature of business development in the context of existing organizations and of new business start-ups.
ITC503.3	Comprehended important factors for starting a new venture and business development
ITC503.4	Know issues and decisions involved in financing and resourcing a business start-up
ITC503.5	Describe various E-business Models
ITC503.6	Discuss various E-business Strategies
Subject Name : Software Engineering	
Subject Code : ITC504	
Course Code : ITC 504	
Course Code	**Course Outcomes**
ITC 504.1	Understand and use basic knowledge in software engineering.
ITC 504.2	Identify requirements, analyze and prepare models.
ITC 504.3	Plan, schedule and track the progress of the projects.
ITC 504.4	Design & develop the software solutions for the growth of society
ITC 504.5	To demonstrate and evaluate real time projects with respect to software engineering principles
ITC 504.6	Apply testing and assure quality in software solution
Subject Name : Advanced Data Structure and Analysis	
Subject Code : ITDLO5011	
Course Code : ITDLO5011	
Course Code	**Course Outcomes**
ITDLO5011.1	Students will be able to choose appropriate advanced data structure for given problem.
ITDLO5011.2	Students will be able to calculate complexity.

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ITDLO5011.3	Students will be able to select appropriate design techniques to solve real world problems.
ITDLO5011.4	Students will able to apply the dynamic programming technique to solve the problems
ITDLO5011.5	Students will be able to apply the greedy programming technique to solve the problems.
ITDLO5011.6	Students will be able to select a proper pattern matching algorithm for given problem
Subject Name : IP LAB Lab	
Subject Code : ITL501	
Course Code :ITL501	
Course Code	**Course Outcomes**
ITL501.1	Identify and apply the appropriate HTML tags to develop a webpage.
ITL501.2	Identify and apply the appropriate CSS tags to format data on webpage
ITL501.3	Construct responsive websites using Bootstrap
ITL501.4	Use JavaScript to develop interactive web pages.
ITL501.5	Construct front end applications using React
ITL501.6	Construct back end applications using Node.js/Express
Subject Name : SECURITY LAB Lab	
Subject Code : ITL502	
Course Code :ITL502	
Course Code	**Course Outcomes**
ITL502.1	Illustrate symmetric cryptography by implementing classical ciphers.
ITL502.2	Demonstrate Key management, distribution and user authentication.
ITL502.3	Explore the different network reconnaissance tools to gather information about networks
ITL502.4	Use tools like sniffers, port scanners and other related tools for analyzing packets in a network.
ITL502.5	Use open-source tools to scan the network for vulnerabilities and simulate attacks.
ITL502.6	Demonstrate the network security system using open source tools.
Subject Name : DEVOPS LAB Lab	
Subject Code : ITL503	
Course Code :ITL503	
Course Code	**Course Outcomes**
ITL503.1	To understand the fundamentals of DevOps engineering and be fully proficient with DevOps terminologies, concepts, benefits, and deployment options to meet your business requirements
ITL503.2	To obtain complete knowledge of the "version control system" to effectively track changes augmented with Git and GitHub
ITL503.3	To understand the importance of Jenkins to Build and deploy Software Jenkins to Build and deploy Software

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Course Code	Course Outcomes
ITL503.4	Understand the importance of Selenium and Jenkins to test Software Applications
ITL503.5	To understand concept of containerization and Analyze the Containerization of OS images and deployment of applications over Docker
ITL503.6	To Synthesize software configuration and provisioning using Ansible.
Subject Name : ADV.DEVOPS LAB	
Subject Code : ITL504	
Course Code :ITL504	
Course Code	**Course Outcomes**
ITL504.1	To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements
ITL504.2	To deploy single and multiple container applications and manage application deployments with rollouts in Kubernetes
ITL504.3	To apply best practices for managing infrastructure as code environments and use terraform to define and deploy cloud infrastructure.
ITL504.4	To identify and remediate application vulnerabilities earlier and help integrate security in the development process using SAST Techniques.
ITL504.5	To use Continuous Monitoring Tools to resolve any system errors (low memory, unreachable server etc.) before they have any negative impact on the business productivity
ITL504.6	To engineer a composition of nano services using AWS Lambda and Step Functions with the Serverless Framework
Subject Name : MAD & PWA Lab	
Subject Code : ITL604	
Course Code :ITL604	
Course Code	**Course Outcomes**
ITL604.1	Understand cross platform mobile application development using Flutter framework
ITL604.2	Design and Develop interactive Flutter App by using widgets, layouts, gestures and animation
ITL604.3	Analyze and Build production ready Flutter App by incorporating backend services and deploying on Android / iOS
ITL604.4	Understand various PWA frameworks and their requirements
ITL604.5	Design and Develop a responsive User Interface by applying PWA Design techniques
ITL604.6	Develop and Analyse PWA Features and deploy it over app hosting solutions
Subject Name : WEB X.O	
Subject Code : ITC602	
Course Code :ITC602	
Course Code	**Course Outcomes**
ITC602.1	Understand the basic concepts related to web analytics and semantic web.
ITC602.2	Understand how Type Script can help you eliminate bugs in your code and enable you to scale

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	your code.
ITC602.3	Understand AngularJS framework and build dynamic, responsive single-page web applications
ITC602.4	Apply MongoDB for frontend and backend connectivity using REST API.
ITC602.5	Apply Flask web development framework to build web applications with less code.
ITC602.6	Develop Rich Internet Application using proper choice of Framework.
Subject Name : WEB LAB

Subject Name : WEB LAB
Subject Code : ITC602
Course Code :ITC602
Course Code	**Course Outcomes**
ITL602.1	Understand open source tools for web analytics and semantic web apps development and deployment
ITL602.2	Understand the basic concepts of TypeScript for designing web applications.
ITL602.3	Implement Single Page Applications using AngularJS Framework.
ITL602.4	Develop Rich Internet Applications using AJAX
ITL602.5	Create REST Web services using MongoDB.
ITL602.6	Design web applications using Flask.
Subject Name : Wireless Technology
Subject Code : ITC603
Course Code :ITC603
Course Code	**Course Outcomes**
ITC603.1	Describe the basic concepts of Wireless Network and Wireless Generations.
ITC603.2	Demonstrate and Evaluate the various Wide Area Wireless Technologies
ITC603.3	Analyze the prevalent IEEE standards used for implementation of WLAN
ITC603.4	Appraise the importance of WPAN, WSN and Ad-hoc Networks.
ITC603.5	Analyze various Wireless Network Security Standards
ITC603.6	Review the design considerations for deploying the Wireless Network Infrastructure.
Subject Name : AI & DS-I
Subject Code : ITC604
Course Code :ITC604
Course Code	**Course Outcomes**
ITC604.1	Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents.
ITC604.2	Apply an appropriate problem-solving method and knowledge-representation scheme.
ITC604.3	Develop an ability to analyze and formalize the problem (as a state space, graph, etc.). They will be able to evaluate and select the appropriate search method.
ITC604.4	Apply problem solving concepts with data science and will be able to tackle them from a statistical perspective

2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Subject Name : Data Mining and Business Intellegience	
Subject Code : ITC602	
Course Code :ITC602	
Course Code	**Course Outcomes**
ITC602.1	Demonstrate an understanding of the importance of data mining and the principles of business intelligence
ITC602.2	Organize and Prepare the data needed for data mining using pre preprocessing techniques
ITC602.3	Perform exploratory analysis of the data to be used for mining.
ITC602.4	Implement the appropriate data mining methods like classification, clustering or Frequent Pattern mining on large data sets.
ITC602.5	Define and apply metrics to measure the performance of various data mining algorithms.
ITC602.6	Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.
Subject Name : Business Intelligence Lab	
Subject Code : ITL602	
Course Code :ITL602	
Course Code	**Course Outcomes**
ITL602.1	Identify sources of Data for mining and perform data exploration
ITL602.2	Organize and prepare the data needed for data mining algorithms in terms of attributes and class inputs, training, validating, and testing files.
ITL602.3	Implement the appropriate data mining methods like classification, clustering or association mining on large data sets using open source tools like WEKA
ITL602.4	Implement various data mining algorithms from scratch using languages like Python/ Java etc.
ITL602.5	Evaluate and compare performance of some available BI packages
ITL602.6	Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.
Subject Name : SENSOR LAB	
Subject Code : ITL603	
Course Code :ITL603	
Course Code	**Course Outcomes**
ITL603.1	Differentiate between various wireless communication technologies based on the range of communication, cost, propagation delay, power and throughput
ITL603.2	Conduct a literature survey of sensors used in real world wireless applications.
ITL603.3	Demonstrate the simulation of WSN using the Network Simulators (Contiki/ Tinker CAD/ Cup carbon etc).
ITL603.4	Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing

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ITL603.5	Report and present the findings of the study conducted in the preferred domain.
ITL603.6	Demonstrate the ability to work in teams and manage the conduct of the research study.

Subject Name : DS using Python Lab	
Subject Code : ITL605	
Course Code :ITL605	
Course Code	**Course Outcomes**
ITL605.1	Understand the concept of Data science process and associated terminologies to solve real-world problems
ITL605.2	Analyze the data using different statistical techniques and visualize the outcome using different types of plots.
ITL605.3	Analyze and apply the supervised machine learning techniques like Classification, Regression or Support Vector Machine on data for building the models of data and solve the problems
ITL605.4	Apply the different unsupervised machine learning algorithms like Clustering, Decision Trees, Random Forests or Association to solve the problems.
ITL605.5	Design and Build an application that performs exploratory data analysis using Apache Spark
ITL605.6	Design and develop a data science application that can have data acquisition processing, visualization and statistical analysis methods with supported machine learning technique to solve the real-world problem

Subject Name : Green IT	
Subject Code : ITDLO6025	
Course Code :ITDLO6025	
Course Code	**Course Outcomes**
ITDLO6025.1	Describe awareness among stakeholders and promote green agenda and green initiatives in their working environments leading to green movement
ITDLO6025.2	Identify IT Infrastructure Management and Green Data Centre Metrics for software development
ITDLO6025.3	Recognize Objectives of Green Network Protocols for Data communication.
ITDLO6025.4	Use Green IT Strategies and metrics for ICT development
ITDLO6025.5	Illustrate various green IT services and its roles.
ITDLO6025.6	Use new career opportunities available in IT profession, audits and others with special skills such as energy efficiency, ethical IT assets disposal, carbon footprint estimation, reporting and development of green products, applications and services.

Subject Name : Enterprise Network Design	
Subject Code : ITC701	
Course Code : ITC 701	
Course Code	**Course Outcomes**
ITC701.1	Understand the customer requirements and Apply a Methodology to Network Design

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Course Code	Course Outcomes
ITC701.2	Structure and Modularize the Network
ITC701.3	Design Basic Campus and Data Center Network.
ITC701.4	Design Remote Connectivity
ITC701.5	Design IP Addressing and Select suitable Routing Protocols for the Network
ITC701.6	Compare Openflow controllers and switches with other enterprise networks.
Subject Name : Infrastructure Security	
Subject Code : ITC702	
Course Code : ITC 702	
Course Code	**Course Outcomes**
ITC702.1	Understand the concept of vulnerabilities, attacks and protection mechanisms
ITC702.2	Analyze and evaluate software vulnerabilities and attacks on databases and operating systems
ITC702.3	Explain the need for security protocols in the context of wireless communication
ITC702.4	Understand and explain various security solutions for Web and Cloud infrastructure
ITC702.5	Understand, and evaluate different attacks on Open Web Applications and Web services
ITC702.6	Design appropriate security policies to protect infrastructure components
Subject Name : Artificial Intelligence	
Subject Code : ITC703	
Course Code : ITC 703	
Course Code	**Course Outcomes**
ITC 703.1	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.
ITC 703.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
ITC 703.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
ITC 703.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning. 5. Formulate and solve problems with uncertain information
ITC 703.5	Apply concept Natural Language processing to problems leading to understanding of cognitive computing. .
Subject Name : Network Design Lab	
Subject Code : ITL701	
Course Code : ITL 70	
Course Code	**Course Outcomes**
ITL701.1	Understand the requirements of an enterprise and outline its major design areas
ITL701.2	Identify functional areas to construct high level modules for enterprise architecture and analyze them

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Course Code	Course Outcomes
ITL701.3	Identify the networking devices, prepare a bill of materials and configure the devices as per the Core, Acess and Distribution layers
ITL701.4	Design the Server Farm for an enterprise network and discuss up gradations if needed.
ITL701.5	Identify and select the technology for Remote site Connectivity, suitable IP addressing plan and routing protocol for an enterprise network.
ITL701.6	Test and monitor the enterprise network using a tool
Subject Name : Advance Security Lab
Subject Code : ITL702
Course Code : ITL 702
Course Code	**Course Outcomes**
ITL702.1	Implement and analyze program and database vulnerabilities Buffer overflow and SQL Injection.
ITL702.2	Explore and analyze different security tools to secure mobile devices, web browser, wireless network and router
ITL702.3	Explore reconnaissance, attack and forensics tools in Kali Linux
ITL702.4	Learn security of system using personal firewall installation
ITL702.5	Understand AAA using RADUIS
ITL702.6	Understand AAA using TACACS
Subject Name : Intelligence System Lab
Subject Code : ITL703
Course Code : ITL 703
Course Code	**Course Outcomes**
ITL703.1	Design the building blocks of an Intelligent Agent using PEAS representation .
ITL703.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
ITL703.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
ITL703.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.
ITL703.5	Formulate and solve problems with uncertain information using Bayesian approaches.
ITL703.6	Apply concept Natural Language processing and cognitive computing for creation of domain specific ChatBots.
Subject Name : Android Apps Development Lab
Subject Code : ITL704
Course Code : ITL 704
Course Code	**Course Outcomes**
ITL704.1	Experiment on Integrated Development Environment for Android Application Development.
ITL704.2	Design and Implement User Interfaces and Layouts of Android App.

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Course Code	Course Outcomes
ITL704.3	Use Intents for activity and broadcasting data in Android App.
ITL704.4	Design and Implement Database Application and Content Providers.
ITL704.5	Experiment with Camera and Location Based service.
ITL704.6	Develop Android App with Security features.
Subject Name : Project -I	
Subject Code : ITM705	
Course Code : ITM705	
Course Code	**Course Outcomes**
ITM705.1	Discover potential research areas in the field of IT
ITM705.2	Conduct a survey of several available literature in the preferred field of study
ITM705.3	Compare and contrast the several existing solutions for research challenge
ITM705.4	Demonstrate an ability to work in teams and manage the conduct of the research study.
ITM705.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM705.6	To report and present the findings of the study conducted in the preferred domain
Subject Name : Big Data Analytics	
Subject Code : ITC801	
Course Code :ITC801	
Course Code	**Course Outcomes**
ITC801.1	Explain the motivation for big data systems and identify the main sources of Big Data in the real world.
ITC801.2	Demonstrate an ability to use frameworks like Hadoop, NOSQL to efficiently store retrieve and process Big Data for Analytics.
ITC801.3	Implement several Data Intensive tasks using the Map Reduce Paradigm
ITC801.4	Apply several newer algorithms for Clustering Classifying and finding associations in Big Data
ITC801.5	Design algorithms to analyze Big data like streams, Web Graphs and Social Media data.
ITC801.6	Design and implement successful Recommendation engines for enterprises.
Subject Name : BIG DATA LAB	
ITL801.1	Demonstrate capability to use Big Data Frameworks like Hadoop
ITL801.2	Program applications using tools like Hive, pig, , NO SQL and MongoDB for Big data Applications
ITL801.3	Construct scalable algorithms for large Datasets using Map Reduce techniques
ITL801.4	Implement algorithms for Clustering, Classifying and finding associations in Big Data
ITL801.5	Design and implement algorithms to analyze Big data like streams, Web Graphs and Social Media data and construct recommendation systems
ITL801.6	Apply the knowledge of Big Data gained to fully develop a BDA applications for real life applications.
Subject Name : Internet of Everything	
Subject Code : ITC802	
Course Code :ITC802	

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Course Code	Course Outcomes
ITC802 .1	Apply the concepts of IOT.
ITC802 .2	Identify the different technology.
ITC802 .3	Apply IOT to different applications.
ITC802 .4	Analysis and evaluate protocols used in IOT.
ITC802 .5	Design and develop smart city in IOT.
ITC802 .6	Analysis and evaluate the data received through sensors in IOT.
Subject Name : Internet of Everything Lab	
Subject Code : ITL802	
Course Code :ITL802	

Course Code	Course Outcomes
ITL802.1	Identify the requirements for the real world problems.
ITL802.2	Conduct a survey of several available literatures in the preferred field of study.
ITL802.3	Study and enhance software/ hardware skills.
ITL802.4	Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing.
ITL802.5	To report and present the findings of the study conducted in the preferred domain
ITL802.6	Demonstrate an ability to work in teams and manage the conduct of the research study.
Subject Name : DEVOPS LAB	
Subject Code : ITL803	
Course Code :ITL803	

Course Code	Course Outcomes
ITL803.1	Remember the importance of DevOps tools used in software development life cycle
ITL803.2	Understand the importance of Jenkins to Build, Deploy and Test Software Applications
ITL803.3	Examine the different Version Control strategies
ITL803.4	Analyze & Illustrate the Containerization of OS images and deployment of applications over Docker
ITL803.5	Summarize the importance of Software Configuration Management in DevOps
ITL803.6	Synthesize the provisioning using Chef/Puppet/Ansible or Saltstack.
Subject Name : R-Programming Lab	
Subject Code : ITL804	
Course Code :ITL804	

Course Code	Course Outcomes
ITL804.1	Install and use R for simple programming tasks.
ITL804.2	Extend the functionality of R by using add-on packages
ITL804.3	Extract data from files and other sources and perform various data manipulation tasks on them.

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ITL804.4	Code statistical functions in R.
ITL804.5	Use R Graphics and Tables to visualize results of various statistical operations on data .
ITL804.6	Apply the knowledge of R gained to data Analytics for real life applications.
Subject Name : USER INTERACTION DESIGN	
Subject Code : ITDLO8041	
Course Code :ITDLO8041	
Course Code	**Course Outcomes**
ITDLO8041.1	Students will be able to identify and criticize bad features of interface designs.
ITDLO8041.2	Students will be able to predict good features of interface designs.
ITDLO8041.3	Students will be able to illustrate and analyze user needs and formulate user design
ITDLO8041.4	Students will be able to interpret and evaluate the data collected during the process.
ITDLO8041.5	Students will be able to evaluate designs based on theoretical frameworks and methodological
ITDLO8041.6	Students will be able to produce/show better techniques to improve the user interaction design
	interfaces.
Subject Name : PROJECT -II	
Subject Code : ITM805	
Course Code :ITM805	
Course Code	**Course Outcomes**
ITM805.1	Discover potential research areas in the field of IT
ITM805.2	Conduct a survey of several available literature in the preferred field of study
ITM805.3	Compare and contrast the several existing solutions for research challenge
ITM805.4	Demonstrate an ability to work in teams and manage the conduct of the research study.
ITM805.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM805.6	To report and present the findings of the study conducted in the preferred domain

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Department of Humanities & Applied Science

Subject Name :Engineering Mathematics I	
Subject Code : FEC101	
Course Code : FEC101	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC101.1	Illustrate the basic concepts of complex numbers.
FEC101.2	Apply the knowledge of complex numbers to solve problems in hyperbolic functions and logarithmic function.
FEC101.3	Illustrate the basic principles of partial differentiation.
FEC101.4	Illustrate the knowledge of maxima, minima and successive differentiation.
FEC101.5	Apply principles of basic operations of matrices, rank and echelon form of matrices to solve simultaneous equations.
FEC101.6	Illustrate SCILAB programming techniques to the solution of linear and simultaneous algebraic equations.
Subject Name : Engineering Physics-I	
Subject Code : FEC102	
Course Code : FEC102	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC102.1	Illustrate the fundamentals of quantum mechanics and its application.
FEC102.2	Apply the X-ray diffraction techniques for explaining peculiar properties of crystal.
FEC102.3	Illustrate the working of semiconductor for electronic devices.
FEC102.4	Employ the concepts of interference in thin films for instruments.
FEC102.5	Discuss the properties of superconductors and super capacitors.

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FEC102.6	Discuss the properties of engineering materials for their current and futuristic use.

Subject Name : Engineering Chemistry-I	
Subject Code : FEC103	
Course Code : FEC103	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC103.1	Explain the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to diatomic molecules.
FEC103.2	Describe the concept of aromaticity and interpret it with relation to specific aromatic systems.
FEC103.3	Illustrate the knowledge of various types of intermolecular forces and relate it to real gases.
FEC103.4	Interpret various phase transformations using thermodynamics.
FEC103.5	Illustrate the knowledge of polymers, fabrication methods, conducting polymers in various industrial fields.
FEC103.6	Analyze the quality of water and suggest suitable methods of treatment.
Subject Name : Engineering Mechanics	
Subject Code : FEC104	
Course Code : FEC104	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC104.1	Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two and three dimensional systems with the help of FBD.
FEC104.2	Locate the centroid and understand its significance.
FEC104.3	Estimate friction force and required force to overcome friction.
FEC104.4	Analyze motion by graphical and algebraic methods and establish relation between velocity and acceleration of a particle.

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FEC104.5	Analyze types of motions and kinematic relations for a rigid body.
FEC104.6	Analyze the body in motion using force and acceleration, work-energy, impulse momentum principles.

Subject Name : Basic Electrical Engineering	
Subject Code : FEC105	
Course Code : FEC105	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC105.1	Evaluate network theorems to determine the circuit response and behavior.
FEC105.2	Evaluate single-phase alternating current circuits.
FEC105.3	Evaluate three-phase alternating current circuits.
FEC105.4	Analyze the performance of single-phase transformer theoretically and graphically.
FEC105.5	Illustrate the working principle of three-phase machines.
FEC105.6	Illustrate the working principle of single-phase machines.
Subject Name : Engineering Physics-I	
Subject Code : FEL101	
Course Code : FEL101	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL101.1	Analyze the results based on performance of experiments on interference in thin films.
FEL101.2	Analyze the characteristics of semiconductor devices based on their experimental performance.
FEL101.3	Verify the theory learned in crystallography.
FEL101.4	Create and design models to address the technical problems and learning life skills.

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2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Subject Name : Engineering Chemistry-I	
Subject Code : FEL102	
Course Code : FEL102	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL102.1	Determine chloride content.

FEL102.2	Determine free acid ph of different solutions.
FEL102.3	Determine hardness of water sample.
FEL102.4	Synthesize polymers, biodegradable plastics.
FEL102.5	Determine viscosity of oil.
Subject Name : Engineering Mechanics	
Subject Code : FEL103	
Course Code : FEL103	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL103.1	Verify equations of equilibrium of coplanar force system
FEL103.2	Verify law of moments.
FEL103.3	Determine the centroid of plane lamina.
FEL103.4	Evaluate co-efficient of friction between the different surfaces in contact.
FEL103.5	Demonstrate the types of collision/impact and determine corresponding coefficient of restitution.
FEL103.6	Differentiate the kinematics and kinetics of a particle.

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Subject Name : Basic Electrical Engineering	
Subject Code : FEL104	
Course Code : FEL104	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL104.1	Analyze the behavior of direct current circuits using network theorems.
FEL104.2	Perform experiment on single-phase alternating current circuits.
FEL104.3	Demonstrate experiment on three-phase alternating current circuits.
FEL104.4	Illustrate the performance of single-phase transformer and machines.
Subject Name : Basic Workshop Practice I	
Subject Code : FEL105	

Course Code : FEL105	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL105.1	Develop the necessary skills required to produce fitting jobs as per specified dimensions.
FEL105.2	Understand hardware maintenance and installation of an operating system.
FEL105.3	Understand installation of an operating system and system drives.
FEL105.4	Understand the network components and perform basic networking.
FEL105.5	Demonstrate the turning operation with the help of a simple job.
Subject Name : Engineering Mathematics-II	
Subject Code : FEC201	
Course Code : FEC201	
Course	**Course Outcomes**

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Code	
	After the completion of the course the student should be able to
FEC201.1	Solve various types of first order differential equation.
FEC201.2	Solve various types of higher order differential equation.
FEC201.3	Illustrate the concepts of beta and gamma function, DUIS and rectification.
FEC201.4	Apply the concepts of double integral.
FEC201.5	Apply the concept of triple integral.
FEC201.6	Apply the principles of numerical method for solving differential equation and numerical integration analytically and using Scilab also.
Subject Name : Engineering Physics-II	
Subject Code : FEC202	
Course Code : FEC202	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC202.1	Describe the phenomenon of diffractions through slits.
FEC202.2	Apply the foundation of laser and fiber optics in the development of modern communication technology.

FEC202.3	Relate the basics of electrodynamics which is prerequisite for satellite communications, antenna theory etc.
FEC202.4	Explain the fundamentals of special theory of relativity in inertial frame of references.
FEC202.5	Paraphrase the wide scope of nanotechnology in modern developments and its role in emerging innovating applications.
FEC202.6	Interpret basic sensing techniques for physical measurements in modern instrumentations.

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Subject Name : Engineering Chemistry-II	
Subject Code : FEC203	
Course Code : FEC203	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC203.1	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
FEC203.2	Illustrate the concept of emission spectroscopy and describe the phenomena of fluorescence and phosphorescence in relation to it.
FEC203.3	Explain the concept of electrode potential and nernst theory and relate it to electrochemical cells.
FEC203.4	Identify different types of corrosion and suggest control measures in industries.
FEC203.5	Illustrate the principles of green chemistry and study environmental impact.
FEC203.6	Explain the knowledge of determining the quality of fuel and quantify the oxygen required for combustion of fuel.
Subject Name : Engineering Graphics	
Subject Code : FEC204	
Course Code : FEC204	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC204.1	Apply the basic principles of projections in projection of lines and planes.
FEC204.2	Apply the basic principles of projections in projection of solids.
FEC204.3	Apply the basic principles of sectional views in section of solids.
FEC204.4	Apply the basic principles of projections in converting 3D view to 2D drawing.
FEC204.5	Read a given drawing.

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FEC204.6	Visualize an object from the given two views.

Subject Name : C Programming	
Subject Code : FEC205	
Course Code : FEC205	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC205.1	Formulate simple algorithms for arithmetic, logical problems and translate them to programs in C language.
FEC205.2	Implement, test and execute programs comprising of control structures.
FEC205.3	Decompose a problem into functions and synthesize a complete program.
FEC205.4	Demonstrate the use of arrays, strings and structures in C language.
FEC205.5	Understand the concept of pointers.
Subject Name : Professional Communication and Ethics- I	
Subject Code : FEC206	
Course Code : FEC206	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEC206.1	Eliminate barriers and use verbal/non-verbal cues at social and workplace situations.
FEC206.2	Employ listening strategies to comprehend wide-ranging vocabulary. grammatical structures, tone and pronunciation.
FEC206.3	Prepare effectively for speaking at social, academic and business situations.
FEC206.4	Use reading strategies for faster comprehension, summarization and evaluation of text.

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FEC206.5	Acquire effective writing skills for drafting academic. business and technical document.
FEC206.6	Successfully interact in all kinds of settings, displaying refined grooming and social skills.

Subject Name : Engineering Physics-II	
Subject Code : FEL201	
Course Code : FEL201	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL201.1	Infer the output of the experiments based on diffraction through slit.
FEL201.2	Analyze the result of the experiments using laser and optical fibre.
FEL201.3	Analyze the result by performing the measurements using sensor.
FEL201.4	Create and design models to address the technical problems and learning life skills.
Subject Name : Engineering Chemistry-II	
Subject Code : FEL202	
Course Code : FEL202	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL202.1	Determine moisture content.
FEL202.2	Determine saponification.
FEL202.3	Determine acid value of oil.

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FEL202.4	Determine flash point of a lubricating oil.
FEL202.5	Synthesize a biofuel.
Subject Name : Engineering Graphics	
Subject Code : FEL203	
Course Code : FEL203	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL203.1	Apply the basic principles of projections in 2D drawings using a CAD software.
FEL203.2	Create, annotate, edit and plot drawings using basic AutoCAD commands and features.

FEL203.3	Apply the concepts of layers to create drawing.
FEL203.4	Apply basic AutoCAD skills to draw different views of a 3D object.
FEL203.5	Apply basic AutoCAD skills to draw the isometric view from the given two views.
Subject Name : C Programming	
Subject Code : FEL204	
Course Code : FEL204	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL204.1	Translate given algorithms to a program.
FEL204.2	Correct syntax and logical errors.

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FEL204.3	Decompose a given problem into subproblems by writing functions.
FEL204.4	Write iterative as well as recursive programs.
FEL204.5	Represent data in arrays, strings and structures and manipulate them through a program.
FEL204.6	Declare pointers and demonstrate call by reference concept.
Subject Name : Professional Communication and Ethics- I
Subject Code : FEL205
Course Code : FEL205
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL205.1	Listen and comprehend all types of spoken discourse successfully.
FEL205.2	Speak fluently and make effective professional presentations.
FEL205.3	Read large quantities of text in a short time to comprehend, summaries and evaluate content.
FEL205.4	Draft precise business letters, academic essays and technical guidelines.
FEL205.5	Dress finely and conduct themselves with panache in social, academic and professional situations.

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Subject Name : Basic Workshop practice-II	
Subject Code : FEL206	
Course Code : FEL206	
Course Code	**Course Outcomes**
	After the completion of the course the student should be able to
FEL206.1	Develop necessary skill required to produce carpentry jobs as per specified dimensions.
FEL206.2	Understand the safe practices to adopt in electrical environment.
FEL206.3	Understand the wiring practices for the connection of simple electrical load/ equipment.
FEL206.4	Design printed circuit board.
FEL206.5	Develop the necessary skill required to use different sheet metal and brazing tools.

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Department of Master of Management

SEMESTER 1 ALL SUBJECTS
Course Code :NA
Organizational Behaviour
CO 1: Apply concepts of Organizational Behaviour in organizations
CO 2: Apply motivational theories according to personality types and group dynamics to influence perception
CO 3: Demonstrate leadership styles according to employee personality, group dynamics and organizational structure
CO 4: Analyze role of perception in group behaviour during the process of organizational development
CO 5: Distinguish between employees' personalities and defense mechanisms
Effective Team and Management Communication
CO1: Evaluate components and models of communication associated with development of business communication.
CO2: Compare Formal and Informal communication and its extraneous factors.
CO3: Evaluate approaches and consequences of grapevine in behavioural management.
CO4: Analyse the concepts and examples related to meetings and report writing.
CO5: Illustrate the role of managers when dealing with people from nationalities.
Perspective Management
CO 1: Evaluate organizational theories and behaviours associated with decision making.
CO 2: Compare Leadership Functions and Leadership Behaviour pattern.
CO 3: Evaluate approaches and consequences of crisis management.
CO 4: Analyze the concepts and examples related to strategic management.
CO 5: Illustrate the role of managers in building a network of relationships.
Business Statistics
CO 1: Apply the concept of Business Statistics in solving business problems
CO 2: Apply Probability Theorem for decision making and distribution
CO 3: Illustrate the knowledge of Classical Newspaper boys' problem for comparison of conditional expectations.
CO 4: Analyse hypothesis testing results by using T-Test, Chi square test and Z test
CO 5: Compare the methods of correlation and regression analysis for model building
Operation Management
CO 1: Apply the basic principles of operations management for applications in product and service industry.
CO 2: Compare the Methods of EOQ, ABC and discount policy for stock and cost implications
CO 3: Select QC and SQC technique to identify process improvement due to sources of variation
CO 4: Describe the facility layout for equipment, machines and workflow placements.
CO 5: Illustrate the knowledge of sequencing techniques in studying optimal ordering of jobs.
Financial Accounting
CO1: Apply the concepts of income statements to prepare balance sheet.

2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

CO2: Understand the concepts of inventory valuation and their effect on profit and cost of goods.
CO3: Apply the concept of accounting mechanics Process leading to preparation of Trial Balance & Financial System.
CO4: Understand the concept of Cost Accounting
Managerial Economics
CO1: Illustrate the knowledge of types of demand and its factor affecting linear demand curve.
CO2: Compare the pricing practices affecting pricing decisions.
CO3: Describe the concept of supply, factors affecting supply and the law of supply for supply demand analysis.
CO4: Illustrate the production function through isoquant and iso cost analysis to get a holistic production economy.
Department Name : MMS
SEMESTER 2 ALL SUBJECTS
Course Code :NA
HRM
CO 1: Apply Human Resource Concepts in an organization with respect to organizing personnel functions and manpower
CO 2: Implement training modules on the basis of performance appraisal and organization development strategies
CO 3: Apply concepts of change management to aid in organization development and human resource development strategies
CO 4: Analyze motivation theories to improve employee performance and retention
CO 5: Analyze Training Need during organization development
Effective Leadership & Team Development
CO 1: Select the right type of team and leadership style appropriate for the situation
CO 2: Organize teams and colleagues more effectively
CO 3: Use influencing and negotiating tactics as a leader in a Team
CO 4: Apply stress and time management techniques in developing teams as a Leader
CO 5: Apply Team building and Leadership concepts in Team Management
Indian Ethos
CO 1: Apply the concepts of Indian Ethos in business
CO 2: Implement human and professional values in business decisions and everyday life
CO 3: Apply spiritual wisdom and religious commonalities in management of self and organization
CO 4: Apply relevant concepts of Leadership obtained from Historic Literature
CO 5: Implement modern day practices and Constitutional Duties in an organization
BUSINESS Research METHODS
CO 1: Select Research types and designs on the basis of the research problem
CO 2: Formulate a research hypothesis for a research problem and research proposal
CO 3: Select the right questionnaire design to collect relevant data with the help of appropriate measurement and scaling
CO 4: Apply data sampling and processing on the collected primary and secondary data

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CO 5: Test hypothesis with appropriate analysis techniques
CO 6: Apply appropriate structure and ethics in Research report writing
Marketing Management
CO 1: Apply Marketing Management concepts for organizational Development
CO 2: Analyse Market Environment for market research and consumer buying process
CO 3: Evaluate pillars of marketing for marketing mix and new product development process
CO 4: Apply pricing decision strategies for distribution promotion and personal selling
CO 5: Implement marketing models for effective planning strategies
Financial Management
CO1: Apply the concepts of corporate finance and Indian financial system.
CO2: Describe dividend policy and its impact on dividend payout ratio and retention ratio.
CO3: Apply the concept of Financial Planning & Forecasting
CO4: Apply the concept of Capital Structure Planning & Leverage Analysis
Operation Research
CO1: Illustrate the knowledge of game theory and its usage in competitive business environment.
CO2: Compare the linear programming formulation affecting data envelopment analysis.
CO3: Describe the concept of transportation problems affecting project management.
CO4: Evaluate effects of project management techniques under risk and uncertainty.
Entrepreneurship Management
CO1: Evaluate Legal framework for starting a business in India
CO2: Compare Indian family business with international entrepreneurship
CO3: Analyze the concepts and examples related to entrepreneur and entrepreneurship.
CO4: Illustrate the role of managers in building new ventures and start ups.
CO5: Describe PEST factors and its application in the start up business model.
Department Name : MMS
SEMESTER 3
Course Code :NA
SPECIALIZATION: HR
Compensation & Benefits
CO 1: Apply concepts of reward strategies in an organization
CO 2: Analyze components of a compensation of an employee in an organization
CO 3: Design an effective compensation structure of an employee based on reward strategies and inflation
CO 4: Analyze data collected from market research and remuneration survey for a salary proposal
CO 5: Identify intrinsic and extrinsic benefits to be given to employees as part of compensation
CO 6: Apply tax laws in the compensation structures of employees in an organization

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Competency Based HRM and Performance Management
CO 2: Compare the application of performance appraisal systems in terms of employee development
CO 3: Evaluate the role of appraiser in conducting staff appraisal
CO 4: Analyze the concepts of validating competency models
CO 5: Analyze the role of Human Resource Management in building ethical performance management practices
CO 6: Analyze cases of multinational corporations' pitfalls and limitation
Global HRM
CO 1: Apply concepts of Human Resource Management in Domestic and International Workforce
CO 2: Analyze International Human Resource Practices for Effective International Workforce Management
CO 3: Implement emerging employee relation trends in the organization
CO 4: Analyze the legal framework involved in International Human Resource Management
CO 5: Apply International Recruiting and Training methods while managing International Workforce Management
Human Resource Planning and Application of Technology in HR
CO 2: Compare the concepts of Selection and job analysis for a profile for the recruitment process
CO 3: Identify appropriate methods for job analysis for effective hiring
CO 4: Organize diversity in a work force for effective implementation of strategies
CO 5: Illustrate the knowledge of technology in human resource management, in relation to recruitment, payroll and forecasting
Training & Development
CO 1: Evaluate the concepts of training, structure, need assessment and training evaluation.
CO 2: Compare major learning methodologies and principles of Adult Learning.
CO 3: Evaluate training budget, calendar and training modules.
CO 4: Analyze the concepts and examples related to satellite Based Training, Outbound Training and fusion methodology.
CO 5: Illustrate the role of managers in methods of planning, organizing conferences and training audit.
CO 6: Analyze the Case Studies related to competency modeling and mapping.
Labour Law
CO 1: Apply system approach to IR and IR Model relating to labour laws for industrial purpose
CO 2 :Apply Industrial Dispute Act and Trade Union Act for amendments and provisions for industrial functioning
CO 3: Apply Social Security Legislations and Wage Legislations for fair wage practices
CO 4: Evaluate theory of Maternity Benefit Act and Apprentice Act for employee benefit
CO 5: Apply Factories Act and Bombay Shop and Establishment Act for welfare of workers and shop owners..

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Department Name : MMS
SEMESTER 3
Course Code :NA
SPECIALIZATION: FINANCE
Financial Markets and Institutions
Apply the concepts of spot rates and forward rates to measure risk of fixed income securities.
Critically evaluate the historical development of regulations and supervision of financial markets for both bank based and market based systems
To understand different components of the Indian Financial system and their functions.
Apply different company valuation techniques to determine share prices
Students will have critical thinking and problem solving skills applicable to business and management practice or issues
Corporate Valuation and Mergers & Acquisitions
Illustrate the process of valuation for judicial & Regulatory people
Compare financial statement from valuation perspective
Examine discounted approach to valuation & Evaluate noc DCF valuation model for business restructuring strartegies in a company
Applying pricing application in valuation
Security Analysis and Portfolio Management
Analyze types of securities for risk calculation
Apply efficiency market hypothesis for price calculation & Equity research
Apply indexing & Benchmarking for tracking in index
Analyzing capital asset pricing model & Portfolio risk management
Apply Factor model & Arbitrage pricing theory for valuation
Financial Regulations
Analyzing Need & Significance Of Indian financial system & Regulation
Analyzing the framework of various financial regulatory & Statutory bodies like Sebi &RBI
Applying IRDA &CCI Regulatory framework in Financial System
Evaluate FEMA For account Transaction & Evaluate money laundering concept
Analyze Regulatory framework in Commodity market
Derivatives and Risk Management
Evaluate components of Bull call spread, Bear put spread, Ladder and Ladder ratio spreads.
Compare trading option for trading risk free arbitrage
Analyze the concepts and examples related to Risk Management using Greeks Delta, Theta, Vega and Gamma risks of options.
Illustrate risk management strategies for option volatity
Apply the concept of derevative market for financial risk management

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Banking and Financial Services Institutions
Evaluate the concepts of Fund based and Fee based services.
Compare major banking products and services available for retail and corporate banks in India.
Evaluate Mutual Funds Products, schemes and investment plans.
Analyze the concepts and examples related to leasing, leasing procedure followed by Indian Financial Institutions
Illustrate the role of managers in building direct marketing communication tools.

Department Name : MMS
SEMESTER 3
Course Code :NA
SPECIALIZATION: SYSTEMS

Database Management System & Data Warehousing
Evaluate components and models of entity relationship and entity sets.
Compare Database Management System at Logical, Conceptual and physical system environment.
Evaluate Data warehousing, Multidimensional Data models and data warehousing architecture.
Analyze the concepts of Data Fragmentation, Replication and Allocation Techniques for distributed data base design
Illustrate Simple Centralized Database System and its advantages to users.
Analyze the Cases related to Traditional file System and Modern Data base management system.

Enterprise Management Systems
Evaluate Merits and Demerits Enterprise Resource Planning.
Compare application Areas of ERP in SCM and CRM.
Evaluate industry verticals and impact of ERP on the verticals.
Analyze the concepts and examples related to enterprise content management.
Illustrate the role of IT and Systems building cashless and process oriented organizations.

Big Data and Business Analytics
Apply the concepts of ELT Data processing chain from business intelligence to business analytics.
Analyzing Data Mining and decision making predictive analysis forecasting.
Evaluate theory of NLP, Regression, Correlation and cluster analysis for data driven prediction.
Analyze informative Cognos and integration social analytics for business application.

Knowledge Management
Illustrate the knowledge and expertise meaning of epistemology.
Compare Procedural Vs Declarative, Tactic Vs Explicit generals.
Analyzing concept of environment forces driving KM organizational issues in KM Systems.
Illustrate factors influencing universalistic and contingency view leadership.
Classify Infrastructure, Mechanisms, technologies of KM Solutions and components.

Software Engineering
Compare the phases of software development life cycle model.

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Analyze use of structured methods for visualization of the IT based solution.
Analyze software estimation and methods of software estimation.
Illustrate the knowledge of documenting software development process for user requirement specifications.
Apply functional testing, automated methods for testing and stress test for quality assurance in each phase.
Data Mining and Business Intelligence
Evaluate Architecture of Data Mining and its functionalities.
Compare data mining techniques and its statistical perspective.
Evaluate role of business intelligence in modern business and its challenges.
Analyze the Enterprise Performance Life Cycle framework elements implemented in BI.
Analyze the Case Studies related to industry approaches and trends towards data mining.
Department Name : MMS
SEMESTER 3
Course Code :NA
SPECIALIZATION: OPERATIONS
Manufacturing Resource Planning and Control
CO1: Compare the MRP1 and MRPII benefits use in decision making
CO2: Analyze criteria for good capacity requirement planning and scheduling strategies
CO3: Apply MRPC models optimization for capacity planning models lay out
CO4:Illustrate the knowledge of broader heading ,safety and hedges on MPS module
CO5: Analyze independent and dependent demand for quantitative problems
Material Management
CO 1: Apply the material management concepts for material planning and purchase
CO 2: Analyze criteria for Supplier Quality Assurance programme for International procurement-Imports
CO 3: Identify Types of inventories of stores and benefits of scientific storekeeping models for capacity planning
CO 4: Illustrate the knowledge of codification for standardization
CO 5: Analyze Obsolete, Surplus and Scrap management for stock verification and material handling ethically"
Operation Analytics
CO1: Apply the concepts of MAD, MSE, MAPE & tracking signal.
CO2: Analyze risk and performance indices with respect to cost, capacity, quality logistics and distribution.
CO3: Apply supply chain analytics and its impact on Procurement, Manufacturing.
CO4: Evaluate reporting, drill down, utility view and process view.
CO5: Analyze performance metrics for inventory decision for dashboard design and scorecard design
Service Operation Management
CO 1: Compare the benefits of service operation management for service delivery and site selection
CO 2: Analyze demand sensitive services for Integer Programming and Location Selection
CO 3: Identify profitability in service industry through yield management technique
CO 4: Illustrate inventory management techniques for outsourcing and offshoring

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CO 5: Analyze Performance measurement of Service Operations for cost and productivity measures
Supply Chain Management
CO 1: Compare the benefits of resource planning procedures for decision making.
CO 2: Analyze criteria for capacity requirement planning and scheduling strategies.
CO 3: Identify models optimization for capacity planning models lay out.
CO 4: Illustrate the knowledge of Broader heading, safety and hedges on MPS module.
CO 5: Analyze independent & dependent demand for quantitative problems.
Industrial Engineering Applications & Management
CO1: Evaluate industrial engineering scope and productivity.
CO2: Compare ILO framework for industrial engineering standards
CO3: Evaluate different approaches and consequences of work study measurement.
CO4: Analyze the concepts and examples related to white collar productivity.
CO5: Illustrate the role of managers in building P,Q,R,S,T concepts.
Department Name : MMS
SEMESTER 3
Course Code :NA
SPECIALIZATION: MARKETING
Digital Marketing
CO 1: Apply concepts of marketing on a digital platform
CO 2: Analyze consumer behavior on the basis of analytical reports generated in Search Engine Optimization and AdWords Campaign
CO 3: Design Social Media and Search Engine Marketing campaign strategies to improve company digital visibility
CO 4: Apply relevant pricing models based on campaign analytics
CO 5: Apply knowledge of social media, email and mobile marketing in e-Commerce
Consumer Behaviour
CO1: Apply the concept and models of consumer behavior for marketing strategy
CO2: Evaluate motivational theories to encourage consumer decision making process
CO3: Analyze consumer psychology and attitude towards marketing strategies
CO4: Evaluate purchase and group behavior based on social class in current digital evolution
CO5: Analyze organizational buying process with respect to emerging cultural trends in Indian Market
Services Marketing
Apply the concepts of services marketing for customer satisfaction and retention
Compare the demand sensitive services for developing quantitative ability for decision making.
Apply the concept of Complaint handling, Service Failure & Service Recovery.
Illustrate SERVQUAL model in various business scenarios.

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Classify the types of Consumer Behavior in Services and the reciprocating strategies.

Sales Management
Apply Sales Management concept in any business organization
Apply selling skills; Negotiation skills for services sales against physical goods sales
Evaluate approaches and consequences of territory management and route planning.
Analyze the concepts and examples related to forecasting techniques and trend analysis.
Analyze the role of sales managers in field's sales control and sales management.

Marketing Strategy
Apply Marketing Strategy concept for new product development
Apply Market intelligence for market research and investment
Evaluate product and brand policy aligning with organization culture
Apply pricing strategies for product promotion
Evaluate Market Plan for channel selection strategy

Product and Brand Management
Evaluate Product Mix and Strategic Business Unit Strategies in multifactor mix
Evaluate Branded House Vs House of Brands and Corporate Brand
Evaluate approaches and consequences of Brand prism by Kapferer Model in Brand Anatomy
Analyse the concepts and examples of Brand Equity.
Illustrate the role of managers in building Product and brand concepts.

International Business(Common Subject For All Specialization)
CO 1: Evaluate cross cultural management and the cultural differences
CO 2: Compare EPRG Model and Country Analysis.
CO 3: Evaluate appropriate approaches and consequences of culture and leader effectiveness.
CO 4: Analyze the concepts and examples related to investment decisions.
CO 5: Illustrate the impact of I-R model on subsidiary management.

Strategic Management (Common Subject)
Illustrate the use of PESTEL and SWOT as tools for strategic formulation.
Compare the relationship between Ansoff matrix and grand strategy for strategic formulation.
Describe Porter's Generic strategies and Value chain
Illustrate SBU and McKinsey models for strategic coherence.
Demonstrate the Red-Blue-Purple Ocean strategy

Department Name : MMS
SEMESTER 4
Course Code :NA
SPECIALIZATION: ALL
HR

Excelssior Education Society's
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2.6.1 Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

OD and Change Management
CO 1: Apply the concepts of Creativity and Innovation in organizational change and development
CO 2: Analyze performance management and organizational culture during organizational diagnosis
CO 3: Apply theories and Techniques of intervention during organizational development
CO 4: Implement appropriate steps to monitor change and reduce resistance during change in organization
CO 5: Analyze Latest Trends of the market to incorporate in the organizational culture and its internal environment

Finance
Commercial Banking
CO 1: Applying the concept of commercial banking & dangers of money laundering
CO2 : Illustrate the knowledge of term loan and working capital , treasury operation and how to appraise a credit proposal.
CO3:Illustrate the knowledge of Legal Aspects of Banking, Negotiable Instrument Act, Retail banking and Banking Regulation Act.
CO4:Demonstrate the India's agrarian sector and regional rural banks priority sector .

Marketing
Trends in Marketing
CO 1: Analyze trends in marketing while keeping development goals in mind
CO 2: Apply appropriate strategies when marketing for targeted income level
CO 3: Use recent market trends in Pricing, Promotion, Positioning, Data Analysis and Communication
CO 4: Analyze global marketing trends in marketing of recent trending products
CO 5: Design marketing strategies using data of customer experience and expectation
CO 6: Develop strategies with Marketing 4.0 and appropriate intelligence and counter intelligence measures

IT/SYSTEMS
Strategic Information Technology Management
CO1: Apply the concepts related to value chain, five forces, Information asymmetry and Technology.
CO2: Apply Strategic Role of IT in gaining Competitive advantage.
CO3: Analyze different methods of Web related technologies, web media to use world wide web for business.
CO4: Illustrate the knowledge of Mobile technology and impact on business and mobile strategy
CO5: Apply the concepts of Writing own strategy- Develop.

Operations
Operations Outsourcing and Off shoring
CO1: Understand the basic principles of risks pertaining to Outsourcing & mitigation of risks .
CO2: Compare Offshoring Cost Issues and Offshoring Non Cost Issues .
CO3: Apply Factors driving Outsourcing and Scale of production or service.
CO4: Anallyze the Unethical and Ethical issues facing the Offshoring.
CO5: Illustrate the knowledge of trade dispute and international disputes in offshoring.

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Subject Name :Project Management (UA) (Common Subject)
Course Code : NA
CO1: Evaluate Project Management Concepts and attributes of Project lifecycle and stake holders
CO2: Compare Average and Exponential smoothing methods with Techno-economic feasibility
CO3: Evaluate Time and cost estimates with AON and AOA Conventions for Budget estimates .
CO4: Analyze the concepts and examples related to project management.
CO5: Illustrate the concept of Project scheduling and Risk Management techniques.