Program : Computer Engineering

Third Year : Semester - V

Course Code: CSC501	Course Name: Theoretical Computer Science
CSC501.1	Understand concepts of Theoretical Computer Science, difference and equivalence of DFA and NFA, languages described by finite automata and regular expressions.
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.

Course Code: CSC502	Course Name: Software Engineering
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.

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

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

Program : Computer Engineering	
Third Year : Semester - V	
Course Code: CSDLO5012	**Course Name: Internet Programming**
CSDLO5012.1	Implement interactive web page(s) using HTML and CSS.
CSDLO5012.2	Design a responsive web site using JavaScript.
CSDLO5012.3	Demonstrate database connectivity using JDBC.
CSDLO5012.4	Demonstrate Rich Internet Application using Ajax.
CSDLO5012.5	Demonstrate and differentiate various Web Extensions.
CSDLO5012.6	Demonstrate web application using Reactive Js.
Course Code: CSL501	**Course Name: Software Engineering Lab**
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.
Course Code: CSL502	**Course Name: Computer Network Lab**
CSL502.1	Design and setup networking environment in Linux.
CSL502.2	Use Network tools and simulators such as NS2, Wireshark etc. to explore networking algorithms and protocols.
CSL502.3	Implement programs using core programming APIs for understanding networking concepts.
Course Code: CSL503	**Course Name: Data Warehousing and Mining Lab**
CSL503.1	Design data warehouse and perform various OLAP operations.
CSL503.2	Implement data mining algorithms like classification.
CSL503.3	Implement clustering algorithms on a given set of data sample.
CSL503.4	Implement Association rule mining & web mining algorithm

Program : Computer Engineering	
Third Year : Semester - V	
Course Code: CSL504	**Course Name: Professional Communication & Ethics II**
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 organizational behavior.
Course Code: CSM501	**Course Name: Mini Project 2A**
CSM501.1	Identify societal/research/innovation/entrepreneurship problems through appropriate literature surveys.
CSM501.2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it.
CSM501.3	Validate, Verify the results using test cases/benchmark data/theoretical/inferences/experiments/ simulations.
CSM501.4	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 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.

Program : Computer Engineering	
Third Year : Semester - VI	

Course Code: CSC601	**Course Name: System Programming and Compiler Construction**
CSC601.1	Identify the relevance of different system programs.
CSC601.2	Explain various data structures used for assembler and microprocessor 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.

Course Code: CSC602	**Course Name: Cryptography & System Security**
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	Analyze and apply system security concept to recognize malicious code.

Course Code: CSC603	**Course Name: Mobile Computing**
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.
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.

Course Code: CSC604	**Course Name: Artificial Intelligence**
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.

Program : Computer Engineering	
Third Year : Semester - VI	
Course Code: CSDLO6011	**Course Name: Internet of Things**
CSDLO6011.1	Understand the concepts of IoT and the Things in IoT.
CSDLO6011.2	Emphasize core IoT functional Stack and understand application protocols for IoT.
CSDLO6011.3	Apply IoT knowledge to key industries that IoT is revolutionizing.
CSDLO6011.4	Examines various IoT hardware items and software platforms used in projects.
Course Code: CSL601	**Course Name: System Programming and Compiler Construction Lab**
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.
Course Code: CSL602	**Course Name: Cryptography & System Security Lab**
CSL602.1	Apply the knowledge of symmetric and asymmetric cryptography to implement simple ciphers.
CSL602.2	Explore the different network reconnaissance tools to gather information about networks.
CSL602.3	Explore and use tools like sniffers, port scanners and other related tools for analyzing packets in a Network.
CSL602.4	Set up firewalls and intrusion detection systems using open-source technologies and to explore email security.
CSL602.5	Explore various attacks like buffer-overflow and web application attack.
Course Code: CSL603	**Course Name: Mobile Computing Lab**
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	Students will able to carry out simulation of frequency reuse, hidden/exposed terminal problem.
CSL603.4	Implement security algorithms for mobile communication network.
CSL603.5	Demonstrate simulation and compare the performance of Wireless LAN.

Program : Computer Engineering		
Third Year : Semester - VI		
Course Code: CSL604		**Course Name: Artificial Intelligence Lab**
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.	
Course Code: CSL605		**Course Name: Cloud Computing**
CSC605.1	Implement different types of virtualization techniques.	
CSC605.2	Analyze various cloud computing service models and implement them to solve the given problems.	
CSC605.3	Design and develop real world web applications and deploy them on commercial cloud(s).	
CSC605.4	Explain major security issues in the cloud and mechanisms to address them.	
CSC605.5	Explore various commercially available cloud services and recommend the appropriate one for the given application.	
CSC605.6	Implement the concept of containerization.	
Course Code: CSM601		**Course Name: Mini Project 2B**
CSM601.1	Identify societal/research/innovation/entrepreneurship problems through appropriate literature surveys.	
CSM601.2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it.	
CSM601.3	Validate, Verify the results using test cases/benchmark data/theoretical/inferences/ experiments/simulations.	
CSM601.4	Analyze and evaluate the impact of solution/product/research/innovation /entrepreneurship towards societal/environmental/sustainable development.	
CSM601.5	Use standard norms of engineering practices and project management principles during project work.	
CSM601.6	Communicate through technical report writing and oral presentation. • The work may result in 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.	
CSM601.7	Gain technical competency towards participation in Competitions, Hackathons, etc.	
CSM601.8	Demonstrate capabilities of self-learning, leading to lifelong learning.	
CSM601.9	Develop interpersonal skills to work as a member of a group or as leader.	