AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

Department Of Computer Engineering

Course Outcomes

Final Year – 2019 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester - I			
410241	Design & Analysis of Algorithms	CO1	Formulate the problem
		CO2	Analyze the asymptotic performance of algorithms
		CO3	Decide and apply algorithmic strategies to solve given problem
		CO4	Find optimal solution by applying various methods
		CO5	Analyze and Apply Scheduling and Sorting Algorithms.
		CO6	Solve problems for multi-core or distributed or concurrent environments
410242	Machine Learning	CO1	Identify the needs and challenges of machine learning for real time applications.
		CO2	Apply various data pre-processing techniques to simplify and speed up machine learning algorithms.
		CO3	Select and apply appropriately supervised machine learning algorithms for real time applications.
		CO4	Implement variants of multi-class classifier and measure its performance.
		CO5	Compare and contrast different clustering algorithms.
		CO6	Design a neural network for solving engineering problems.
410243	Blockchain Technology	CO1	Interpret the fundamentals and basic concepts in Blockchain
		CO2	Compare the working of different blockchain platforms
		CO3	Use Crypto wallet for cryptocurrency based transactions
		CO4	Analyze the importance of blockchain in finding the solution to the real-world problems.
		CO5	Illustrate the Ethereum public block chain platform
		CO6	Identify relative application where block chain technology can be effectively used and implemented.

410244C	Cyber Security and Digital Forensics	CO1	Analyze threats in order to protect or defend it in cyberspace from cyber-attacks.
		CO2	Build appropriate security solutions against cyber-attacks.
		CO3	Underline the need of digital forensic and role of digital evidences.
		CO4	Explain rules and types of evidence collection
		CO5	Analyze, validate and process crime scenes
		CO6	Identify the methods to generate legal evidence and supporting investigation reports.
410244D	Object oriented Modeling and Design	CO1	Describe the concepts of object-oriented and basic class modelling.
		CO2	Draw class diagrams, sequence diagrams and interaction diagrams to solve problems.
		CO3	Choose and apply a befitting design pattern for the given problem
		CO4	To Analyze applications, architectural Styles & software control strategies.
		CO5	To develop Class design Models & choose Legacy
		CO6	To Understand Design Patterns
410245D	Software Testing and Quality Assurance	CO1	Describe fundamental concepts in software testing such as manual testing, automation testing and software quality assurance.
		CO2	Design and Develop project test plan, design test cases, test data, and conduct test operations.
		CO3	Apply recent automation tool for various software testing for testing software.
		CO4	Apply different approaches of quality management, assurance, and quality standard to software system.
		CO5	Apply and analyze effectiveness Software Quality Tools.
		CO6	Apply tools necessary for efficient testing framework.
410246	Laboratory Practice III	CO1	Apply preprocessing techniques on datasets.
		CO2	Implement and evaluate linear regression and random forest regression models.
		CO3	Apply and evaluate classification and clustering techniques.
		CO4	Analyze performance of an algorithm.
		CO5	Implement an algorithm that follows one of the following algorithm design strategies: divide and conquer, greedy, dynamic programming, backtracking, branch and bound.
		CO6	Interpret the basic concepts in Blockchain technology and its applications

410247	Laboratory Practice IV	CO1	Apply android application development for solving real life problems
		CO2	Design and develop system using various multimedia components.
		CO3	Identify various vulnerabilities and demonstrate using various tools.
		CO4	Apply information retrieval tools for natural language processing
		CO5	Develop an application using open source GPU programming languages
		CO6	Apply software testing tools to perform automated testing
410248	Project Work Stage I	CO1	Solve real life problems by applying knowledge.
		CO2	Analyze alternative approaches, apply and use most appropriate one for feasible solution.
		CO3	Write precise reports and technical documents in a nutshell.
		CO4	Participate effectively in multi-disciplinary and heterogeneous teams exhibiting team work
		CO5	Inter-personal relationships, conflict management and leadership quality.
Semester – II			
410250	High Performance Computing	CO1	Understand various Parallel Paradigm
		CO2	Design and Develop an efficient parallel algorithm to solve given problem
		CO3	Illustrate data communication operations on various parallel architecture
		CO4	Analyze and measure performance of modern parallel computing systems
		CO5	Apply CUDA architecture for parallel programming
		CO6	Analyze the performance of HPC applications
410251	Deep Learning	CO1	Understand the basics of Deep Learning and apply the tools to implement deep learning applications
		CO2	Evaluate the performance of deep learning models
		CO3	To apply the technique of Convolution (CNN) and Recurrent Neural Network (RNN) for implementing Deep Learning models
		CO4	To implement and apply deep generative models.
		CO5	Construct and apply on-policy reinforcement learning algorithms
		CO6	To Understand Reinforcement Learning Process

410252A	Natural Language Processing	CO1	Describe the fundamental concepts of NLP, challenges and issues in NLP.
		CO2	Analyze Natural languages morphologically, syntactical and semantically OR Describe the concepts of morphology, syntax, semantics of natural language
		CO3	Illustrate various language modelling techniques
		CO4	Integrate the NLP techniques for the information retrieval task
		CO5	Demonstrate the use of NLP tools and techniques for text-based processing of natural languages
		CO6	Develop real world NLP applications
410252B	Image Processing	CO1	Apply Relevant Mathematics Required for Digital Image Processing.
		CO2	Apply Special and Frequency Domain Method for Image Enhancement.
		CO3	Apply algorithmic approaches for Image segmentation.
		CO4	Summarize the Concept of Image Compression and Object Recognition.
		CO5	Explore the Image Restoration Techniques.
		CO6	Explore the Medical and Satellite Image Processing Applications.
410252C	Software Defined Network	CO1	Interpret the need of Software Defined networking solutions.
		CO2	Analyze different methodologies for sustainable Software Defined Networking solutions.
		CO3	Select best practices for design, deploy and troubleshoot of next generation networks.
		CO4	Develop programmability of network elements.
		CO5	Demonstrate virtualization and SDN Controllers using Open Flow protocol
		CO6	Design and develop various applications of SDN
410252D	Advanced Digital Signal Processing	CO1	Understand and apply different transforms for the design of DT/Digital systems
		CO2	Explore the knowledge of adaptive filtering and Multi-rate DSP
		CO3	Design DT systems in the field/area of adaptive filtering, spectral estimation and multi-rate DSP
		CO4	Explore use of DCT and WT in speech and image processing

		CO5	Develop algorithms in the field of speech , image processing and other DSP applications
		CO6	Identify Image Processing Techniques
410253A	Pattern Recognition	CO1	Analyze various type of pattern recognition techniques
		CO2	Identify and apply various pattern recognition and classification approaches to solve the problems
		CO3	Evaluate statistical and structural pattern recognition
		CO4	Percept recent advances in pattern recognition confined to various applications
		CO5	Implement Bellman‘s optimality principle and dynamic programming
		CO6	Analyze Patterns using Genetic Algorithms & Pattern recognition applications.
410253B	Soft Computing	CO1	Understand requirement of soft computing and be aware of various soft computing techniques.
		CO2	Understand Artificial Neural Network and its characteristics and implement ANN algorithms.
		CO3	Understand and Implement Evolutionary Computing Techniques.
		CO4	Understand the Fuzzy logic and Implement fuzzy algorithms for solving real life problems.
		CO5	Apply knowledge of Genetic algorithms for problem solving.
		CO6	Develop hybrid systems for problem solving.
410253C	Business Intelligence	CO1	Differentiate the concepts of Decision Support System & Business Intelligence.
		CO2	Use Data Warehouse & Business Architecture to design a BI system.
		CO3	Build graphical reports
		CO4	Apply different data preprocessing techniques on dataset
		CO5	Implement machine learning algorithms as per business needs
		CO6	Identify role of BI in marketing, logistics, and finance and telecommunication sector
410253D	Quantum Computing	CO1	To understand the concepts of Quantum Computing
		CO2	To understand and get exposure to mathematical foundation and quantum mechanics
		CO3	To understand and implement building blocks of Quantum circuits
		CO4	To understand quantum information, its

			processing and Simulation tools
		CO5	To understand basic signal processing algorithms FT, DFT and FFT
		CO6	To study and solve examples of Quantum Fourier Transforms and their applications
410254	Laboratory Practice V	CO1	Analyze and measure performance of sequential and parallel algorithms.
		CO2	Design and Implement solutions for multicore/Distributed/parallel environment.
		CO3	Identify and apply the suitable algorithms to solve AI/ML problems. CO4:
		CO4	Apply the technique of Deep Neural network for implementing Linear regression and classification.
		CO5	Apply the technique of Convolution (CNN) for implementing Deep Learning models.
		CO6	Design and develop Recurrent Neural Network (RNN) for prediction.
410255	Laboratory Practice VI	CO1	Apply basic principles of elective subjects to problem solving and modeling.
		CO2	Use tools and techniques in the area of software development to build mini projects
		CO3	Design and develop applications on subjects of their choice.
		CO4	Generate and manage deployment, administration & security.
410256	Project Work Stage II	CO1	Show evidence of independent investigation
		CO2	Critically analyze the results and their interpretation.
		CO3	Report and present the original results in an orderly way and placing the open questions in the right perspective.
		CO4	Link techniques and results from literature as well as actual research and future research lines with the research.
		CO5	Appreciate practical implications and constraints of the specialist subject