



Society for Computer Technology and Research's
Pune Institute of Computer Technology
Department of Computer Engineering

COURSE OUTCOMES

Final Year (2019 Pattern) Semester I

410241: Design and Analysis of Algorithms	
Students will be able to	
410241.1	Illustrate and Solve different iterative and recursive algorithms for searching problems and Tower of Hanoi problem.
410241.2	To analyze and compare the performance of polynomial time algorithms in terms of their worst, best and average case behavior.
410241.3	To design & evaluate Job Scheduling problem and 0/1 Knapsack problem specific to greedy and dynamic programming approaches respectively
410241.4	To Apply the relevant algorithmic strategies to solve 8 queens problem / graph coloring problem / TSP
410241.5	Analyze and Apply Scheduling and Sorting Algorithms for embedded systems
410241.6	To solve problems for multicore or distributed environment.
410242: Machine Learning	
Students will be able to	
410242.1	Identify the needs and challenges of machine learning for real time applications.
410242.2	Apply various data pre-processing techniques to simplify and speed up machine learning algorithms.
410242.3	Apply appropriately supervised machine learning algorithms for real time applications
410242.4	Implement variants of multi-class classifier and measure its performance.
410242.5	Compare and contrast different clustering algorithms.
410242.6	Design a neural network for solving engineering problems.
410243: Blockchain Technology	
Students will be able to	
410243.1	Understand and compare the symmetric and asymmetric encryption algorithms
410243.2	Compare the working of Ethereum and Hyper-ledger
410243.3	Demonstrate the use of Crypto wallet for cryptocurrency-based transactions
410243.4	Understand the importance of blockchain in finding the solution to the real-world problems



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410243.5	Illustrate the Ethereum public blockchain platform
410243.6	Identify relative application where blockchain technology can be effectively used and implemented.
410244D: Object Oriented Modeling and Design	
Students will be able to	
410244D.1	Apply the object-oriented concepts and design basic class models.
410244D.2	Design class diagrams, state diagrams, sequence diagrams and interaction diagrams for ATM system.
410244D.3	Identify architecture style for ATM system and analyze the performance.
410244D.4	Apply suitable steps of implementation modeling for ATM System.
410244D.5	Apply Design Patterns for ATM system.
410244C: Cyber Security and Digital Forensics	
Students will be able to	
410244C.1	Analyze threats in order to protect or defend it in cyberspace from cyber-attacks
410244C.2	Build appropriate security solutions against cyber-attacks.
410244C.3	Analyze various computer forensic technology and tools
410244C.4	Apply the digital forensic techniques to gather and preserve digital evidences
410244C.5	Apply the current computer forensic tools to generate legal evidence and supporting investigation reports.
410245D: Software Testing and Quality Assurance	
Students will be able to	
410245D.1	Describe fundamental concepts in software testing viz manual testing, automation testing and software quality assurance.
410245D.2	Design and develop project test plan, design test cases, test data, and conduct test operations for www.pict.edu
410245D.3	Describe Selenium IDE for various software testing application
410245D.4	Explain different approaches of quality management, assurance, and quality standard for software product.
410245D.5	Compare effectiveness of Software Quality Tools
410245D.6	Demonstrate tools necessary for efficient testing framework.
410245A: Information Retrieval	
Students will be able to	



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410245A.1	Apply the basic document representation techniques and Information Retrieval Model
410245A.2	Demonstrate inverted index methods and the usage of different query processing techniques in building computational search engines.
410245A.3	Illustrate compression techniques of inverted index and dynamic inverted index method
410245A.4	Demonstrate ranking of documents using language modeling
410245A.5	Evaluate effectiveness and efficiency of retrieved information
410245A.6	Apply Parallel information retrieving and web structure using python scrapy
410246: Laboratory Practice III	
Students will be able to	
410246.1	Apply preprocessing techniques on datasets.
410246.2	Implement and evaluate linear regression and random forest regression models.
410246.3	Apply and evaluate classification and clustering techniques.
410246.4	Analyze performance of an algorithm.
410246.5	Implement an algorithm that follows one of the following algorithm design strategies: divide and conquer, greedy, dynamic programming, backtracking, branch and bound.
410246.6	Interpret the basic concepts in Blockchain technology and its applications
410247: Laboratory Practice IV	
Students will be able to	
410247.1	Learn android application development related to pervasive computing
410247.2	Understand various multimedia file formats
410247.3	Understand various vulnerabilities and use of various tools for assessment of vulnerabilities
410247.4	Understand information retrieval process using standard tools available
410247.5	Learn GPU programming and implementation of same using open source libraries learn installation and use of open source software testing tools
410248: Project Stage I	
Students will be able to	
410248.1	Select real life problems to be solved by using computer engineering fundamentals.
410248.2	Review recent research articles related to the problem selected and analyze the gap.



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410248.3	Design alternative approaches to solve the chosen problem and select the appropriate one based on feasibility study.
410248.4	Create the technical document to present the design for the selected problem.
410249: Audit Course7 MOOC- Learn New Skills	
Students will be able to	
410249.1	To acquire additional knowledge and skill.
410249: Audit Course7 Entrepreneurship Development	
Students will be able to	
410249.1	Understand the legalities in product development
410249.2	Undertake the process of IPR, Trademarks, Copyright and patenting
410249.3	Understand and apply functional plans
410249.4	Manage Entrepreneurial Finance
410249.5	Inculcate managerial skill as an entrepreneur
410249: Audit Course7 Botnet of Things	
Students will be able to	
410249.1	Implement security as a culture and show mistakes that make applications vulnerable to attacks.
410249.2	Understand various attacks like DoS, buffer overflow, web specific, database specific, web -spoofing attacks.
410249.3	Demonstrate skills needed to deal with common programming errors that lead to most security problems and to learn how to develop secure applications
410249: Audit Course7 3D Printing	
Students will be able to	
410249.1	Understand the basic knowledge of Shop Floor Safety rules and regulations basics of Machine tools and 3D printing machines
410249.2	Understand the concept of concept of technical sketching, multi-view drawings, Lettering, tolerance, and metric construction
410249.3	Identify and Distinguish drafting terminologies and construction of geometrical figures using drawing instruments, procedure to prepare a drawing sheet as per SP-46:2003
410249.4	Describe and Explain practical aspects to generate detailed and assembly views with dimensions, annotations, in 3D Modeling software.
410249.5	Apply concepts and Fabricate the simple mechanical parts, prototype/ end use product for 3D Printing
410249: Audit Course7 Industrial Safety and Environment Consciousness	
Students will be able to	



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410249.1	Develop the plan for Safety performance
410249.2	Demonstrate the action plan for accidents and hazards
410249.3	Apply the safety and security norms in the industry
410249.4	Evaluate the environmental issues of Industrialization

Final Year (2015 Pattern) Semester II

410250: High Performance Computing	
Students will be able to	
410250.1	Understand various Parallel Paradigm
410250.2	Design and Develop an efficient parallel algorithm to solve given problem
410250.3	Illustrate data communication operations on various parallel architecture
410250.4	Analyse and measure performance of modern parallel computing systems
410250.5	Apply CUDA architecture for parallel programming
410250.6	Analyse the performance of HPC applications
410251: Deep Learning	
Students will be able to	
410251.1	To understand the basics of deep learning and study the essential tools.
410251.2	To understand & analyze the performance measures for deep learning models.
410251.3	To understand essential concepts of CNN and analyze the different techniques/methods required for implementing CNN and RNN models.
410251.4	To understand deep generative models.
410251.5	To understand the reinforcement learning process and analyze the reinforcement learning algorithms.
410252A: Natural Language Processing	
410252A.1	Describe the fundamental concepts, challenges and issues in NLP and apply it for the text processing such as Tokenization, Stemming and Lemmatization.
410252A.2	Describe & Analyze Natural Languages Morphologically, Syntactically and Semantically.
410252A.3	Illustrate various language modelling techniques such as Probabilistic, Topic, and N-gram.
410252A.4	Combine the NLP techniques for the Information Extraction and Retrieval task.



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410252A.5	Identify the use of NLP tools to demonstrate the NLP techniques for text-based processing of linguistic resources of natural languages.
410252A.6	Design and Develop real world NLP applications using NLP tools and techniques.
410252B: Image Processing	
Students will be able to	
410252B.1	Enlist and illustrate basic digital image processing steps
410252B.2	Understand and demonstrate Spatial and Frequency Domain Method for Image Enhancement.
410252B.3	Compare algorithmic approaches for Image segmentation
410252B.4	Compare and select the methods of Image Compression and Object Recognition.
410252B.5	Analyze the Image Restoration Techniques.
410252B.6	Analyze role of image processing in Medical and Satellite Image Processing Applications
410253C: Business Intelligence	
Students will be able to	
410253C.1	Differentiate the concepts of Decision Support System & Business Intelligence.
410253C.2	Design a BI system by using Data Warehouse & Business Architecture.
410253C.3	Build graphical reports viz. charts, graphs.
410253C.4	Apply different data preprocessing techniques on dataset viz. data cleaning, data reduction, data transformation etc.
410253C.5	Compare and select appropriate classification algorithm (Naive Bayes algorithm, Logistic Regression, KNN, SVM, Decision Tree) and clustering algorithm (Partition clustering, Density-based clustering, Distribution-based Clustering, Hierarchical Clustering) as per business needs.
410253C.6	Identify role of BI in marketing, logistics, finance, and telecommunication sector.
410254: Laboratory Practice V	
Students will be able to	
410254.1	Analyze and measure performance of sequential and parallel algorithms.



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410254.2	Design and Implement solutions for multicore/Distributed/parallel environment.
410254.3	Identify and apply the suitable algorithms to solve AI/ML problems.
410254.4	Apply the technique of Deep Neural network for implementing Linear regression and classification.
410254.5	Apply the technique of Convolution (CNN) for implementing Deep Learning models.
410254.6	Design and develop Recurrent Neural Network (RNN) for prediction.
410255: Laboratory Practice VI	
Students will be able to	
410255.1	Apply android application development for solving real life problems
410255.2	Design and develop system using various multimedia components.
410255.3	Identify various vulnerabilities and demonstrate using various tools.
410255.4	Apply information retrieval tools for natural language processing
410255.5	Develop an application using open-source GPU programming languages
410255.6	Apply software testing tools to perform automated testing
410256: Project Stage II	
Students will be able to	
410256.1	Identify test cases for the chosen problem
410256.2	Implement the proposed solution for the chosen problem
410256.3	Validate the implementation with designed test cases.
410256.4	Demonstrate and document the work done
410257: Audit Course8-I Usability Engineering	
Students will be able to	
410257.1	Describe the human centered design process and usability engineering process and their roles in system design and development.
410257.2	Discuss usability design guidelines, their foundations, assumptions, advantages, and weaknesses.



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410257.3	Design a user interface based on analysis of human needs and prepare a prototype system.
410257.4	Assess user interfaces using different usability engineering techniques.
410257.5	Present the design decisions
410257: Audit Course8-II Conversational Interface	
Students will be able to	
410257.1	Develop an effective interface for conversation
410257.2	Explore advanced concepts in user interface
410257: Audit Course8-III Social Media and Analytics	
Students will be able to	
410257.1	Develop a far deeper understanding of the changing digital land scape.
410257.2	Identify some of the latest digital marketing trends and skill sets needed for today's marketer.
410257.3	Successful planning, prediction, and management of digital marketing campaigns
410257.4	Implement smart management of different digital assets for marketing needs.
410257.5	Assess digital marketing as a long term career opportunity.
410257: Audit Course8-IV MOCC-Learn New Skills	
Students will be able to	
410257.1	To acquire additional knowledge and skill.
410257: Audit Course8-V Emotional Intelligence	
Students will be able to	
410257.1	Expand your knowledge of emotional patterns in yourself and others
410257.2	Discover how you can manage your emotions, and positively influence yourself and others
410257.3	Build more effective relationships with people at work and at home
410257.4	Positively influence and motivate colleagues, team members, managers
410257.5	Increase the leadership effectiveness by creating an atmosphere that engages others