

Department of Information Technology

Course Outcomes

SE – 2012 Course			
Semester – I			
Course Code	Course Name	Course Outcomes	
214441	Discrete Structures	CO1	Formulate problems precisely and solve the problems
		CO2	Apply formal proof techniques, and explain their reasoning clearly
		CO3	Use set, relation & function to formulate a problem & solve it
		CO4	Use graph theory and trees to formulate the problems and solve them
		CO5	Use mathematical propositions and proof techniques to check the truthfulness of a real life situation.
		CO6	Use of algebraic structures in real life applications
214442	Computer Organization	CO1	Solve problems based on Computer Arithmetic.
		CO2	Ability to understand the organization of Computer and machine instructions and programs.
		CO3	Obtain Knowledge about micro –programming of a Processor.
		CO4	Understand concepts related to memory and IO organization.
		CO5	Acquire knowledge about Instruction Level Parallelism
		CO6	Acquire knowledge about Parallel Organization of multi-processors & multi core systems
214443	Digital Electronics and Logic Design	CO1	Spectacle an awareness and apply knowledge of number systems, codes, Boolean algebra and use necessary A.C, D.C Loading characteristics as well as functioning while designing with logic gates.
		CO2	Use logic function representation for simplification with K-Maps and analyze as well as design Combinational

			logic circuits using SSI & MSI chips.
		CO3	Analyze Sequential circuits like Flip-Flops (Truth Table, Excitation table), their conversion & design the applications.
		CO4	Identify the Digital Circuits, Input/Outputs to replace by FPGA
		CO5	Use VHDL programming technique with different modeling styles for any digital circuits.
214444	Fundamentals of Data Structures	CO1	Student will be able to apply appropriate constructs of C language, coding standards for application development
		CO2	Students will be able to selection and use appropriate data structures for problem solving and programming
		CO3	Students will be able to use algorithmic foundations for solving problems and programming
		CO4	Students will be able to select appropriate searching and/or sorting techniques for application development
214445	Problem Solving and Object Oriented programming	CO1	Model a real life problem into computer programming.
		CO2	Break the problem, solve it and reassemble it to get solution of original problem.
		CO3	Able to perform Array and Text processing
		CO4	Apply the all fundamentals of Object Oriented approach to solve a given problem.
		CO5	Understand different concepts of OOP like inheritance ,Overloading
		CO6	Understand concept of Generic programming using Template programming
214446	Digital Electronics Laboratory	CO1	Spectacle an awareness and apply knowledge and concepts and methods of digital system design techniques as hands-on experiments with the use of necessary A.C, D.C Loading characteristics.
		CO2	Use logic function representation for simplification with

			K-Maps and analyze as well as design Combinational logic circuits using SSI & MSI chips.
		CO3	Analyze Sequential circuits like Flip-Flops (Truth Table, Excitation table) & design the applications like Asynchronous and Synchronous Counters.
		CO4	Design Sequential Logic circuits: Sequence generators, MOD counters with registers/Counters using synchronous /asynchronous counters.
		CO5	Understand the need of skills, techniques and learn state-of-the-art engineering tools through hands-on experimentation on the Xilinx tools for design as well as the basics of VHDL.
		CO6	Understand and implement the design Steps, main programming technique with different modeling styles for any digital circuits with VHDL Programming.
214447	Programming Laboratory	CO1	Apply appropriate constructs of C language, coding standards for application development.
		CO2	Use dynamic memory allocation concepts and file handling in various application developments.
		CO3	Perform basic analysis of algorithms with respect to time and space complexity
		CO4	Select appropriate searching and/or sorting techniques in the application development
		CO5	Select and use appropriate data structures for problem solving and programming
		CO6	Use algorithmic foundations for solving problems and programming
214448	Communication & Language Laboratory	CO1	Provides an ability to understand, analyze and interpret the essentiality of grammar and its proper usage.
		CO2	Build the students' vocabulary by means of communication via web, direct Communication and indirect communication.
		CO3	Improves Students' Pronunciation skills and understanding between various phonetic sounds during communication.

		CO4	Understanding the various rules and means of written communication.
		CO5	Effective communication with active listening, facing problems while communication and how to overcome it.
		CO6	Improve students overall linguistic & communicative competence in English
SE – 2012 Course			
Semester – II			
Course Code	Course Name	Course Outcomes	
207003	Engineering Mathematics -III	CO1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.
		CO2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.
		CO3	Apply statistical methods like correlation, regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.
		CO4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.
		CO5	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing,
214449	Computer Graphics	CO1	Understand the foundations of computer graphics: hardware systems, math basis, light and color.
		CO2	Understand the complexities of modeling realistic objects through modeling complex scenes using a high-level scene description language.
		CO3	Become acquainted with some advanced topics in computer graphics.
		CO4	The student should gain an expanded vocabulary for discussing issues relevant to computer graphics (including both the underlying mathematics and the actual

			programming).
		CO5	The student should gain an appreciation and understanding of the hardware and software utilized in constructing computer graphics applications.
		CO6	The student should gain a comprehension of windows, clipping & view-ports in relation to images displayed on screen.
		CO7	The student should gain an understanding of geometric, mathematical and Algorithmic concepts necessary for programming computer graphics.
214450	Processor Architecture and Interfacing	CO1	Learn architectural details of 80386 microprocessor
		CO2	Understand memory management and multitasking of 80386 microprocessor
		CO3	Understand architecture and memory organization of 8051 microcontroller
		CO4	Explain timers and interrupts of 8051 microcontroller and its interfacing with I/O devices
214451	Data Structures & Files	CO1	Perform basic analysis of algorithms with respect to time and space complexity.
		CO2	Analyze algorithms and to determine algorithm correctness and time efficiency class.
		CO3	Understand different advanced abstract data type (ADT) and data structures and their implementations.
		CO4	Understand different algorithm design techniques (brute - force, divide and conquer, greedy, etc.) and their implementation
		CO5	Apply and implement learned algorithm design techniques and data structures to solve problems.
		CO6	Design different hashing functions and use files organizations.
214452	Foundation of Computer Network	CO1	The student should gain an understanding of geometric, mathematical and algorithmic concepts necessary for programming computer graphics.
		CO2	Describe emerging network technologies

		CO3	Understand the terminology and concepts of the OSI reference model and the TCP-IP reference model.
		CO4	Explain the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks
214453	Processor Interfacing Laboratory	CO1	Learn and apply concepts related to assembly language programming
		CO2	Write and execute assembly language program to perform array addition, code conversion, block transfer, sorting and string operations
		CO3	Learn and apply interfacing of real world input and output devices to 8051 microcontroller
214454	Data Structure and Files Laboratory	CO1	Apply and implement algorithm to illustrate use of linear data structures such as stack, queue
		CO2	Apply and implement algorithms to create/represent and traverse non-linear data structures such as trees, graphs etc
		CO3	Apply and implement algorithms to create and manipulate database using different file organizations
		CO4	Learn and apply the concept of hashing in database creation and manipulation
214455	Computer Graphics Laboratory	CO1	Apply and implement line drawing and circle drawing algorithms to draw specific shape given in the problem
		CO2	Apply and implement polygon filling algorithm for a given polygon
		CO3	Apply and implement 2-D and 3-D transformation algorithms for given input shape
		CO4	Apply and implement polygon clipping algorithm for given input polygon
		CO5	Apply and implement fractal generation algorithm for a given input
		CO6	Apply and implement animation concepts for generating simple animation without using any animation tool

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Course Outcomes

TE – 2012 Course			
Semester –I			
Course Code	Course Name	Course Outcomes	
314441	Computer Network Technology	CO1	Students will be able to understand the OSI model and its layer responsibilities in detail
		CO2	Students will be able to explain various routing protocols and techniques and its related management issues at large
		CO3	Students will be able to understand working principle of client/server application with respect to application layer protocols
		CO4	Students will obtain thorough knowledge of various Wireless technologies
314442	Theory of Computation	CO1	Students should be able to understand and design Regular Grammar, Finite Automata, Context Free Grammar, Pushdown Automata, Post Machines, and Turing Machines.
		CO2	Students should be able to Simplify Context Free Grammar and then convert to CNF and GNF.
		CO3	Students should be able to understand Pumping Lemma, Properties of Regular Languages and Context Free Languages.
		CO4	Students should be able to understand Decidable Languages and Turing Reducibility.
314443	Database Management Systems	CO1	Define basic functions of DBMS & RDBMS
		CO2	Analyze database models & entity relationship models.
		CO3	Design and implement a database schema for a given problem-domain
		CO4	Populate and query a database using SQL DML/DDDL commands.
		CO5	Programming PL/SQL including stored procedures, stored

			functions, cursors and packages
		CO6	Appreciate the impact of analytics and big data on the information industry and the external ecosystem for analytical and data services
314444	Software Engineering	CO1	Identify unique features of various software application domains and classify software applications and apply appropriate lifecycle model of software development.
		CO2	Describe principles of agile development, discuss the SCRUM process and distinguish agile process model from other process models.
		CO3	Identify user needs and formulate software specifications And Analyze software requirements by applying various modeling techniques.
		CO4	Translate the requirements model into the design model and understand user-interface design principles.
		CO5	Explain the cleanroom design method.
		CO6	List and classify CASE tools and discuss recent trends and research in software engineering.
314445	Web Engineering and Technology	CO1	apply the concepts, principles and methods of Web engineering
		CO2	have a sufficient theoretical knowledge and analytical skills to develop Web applications
		CO3	apply the described concepts, principles and methods to development of complex Web applications
		CO4	design and develop website using current Web technologies and
		CO5	model, visualize and document the analysis and design of Web applications
303146	Software Laboratory-I	CO1	Students will be implement small size network and its use of various networking commands
		CO2	Students will be able to understand and use various networking tools
		CO3	Students can configure various client/server environments to use application layer protocols

303147	Database Management Systems Laboratory	CO1	Understanding of Database Programming Languages
		CO2	Master the basics of database languages and construct queries using SQL, PLSQL, NoSQL
		CO3	Master the basic concepts of Database Project Life Cycle and appreciate the applications of database systems
		CO4	Understand how analytics and big data affect various functions now and in the future
		CO5	Appreciate the impact of analytics and big data on the information industry and the external ecosystem for analytical and data services
303148	Employability Skill Development Laboratory	CO1	Learn and practice the technologies expected by the employers.
		CO2	Have awareness about recent professional trends and practices followed by the employment market
		CO3	Have an exposure to entrepreneurship traits.
		CO4	Apply their skills for personal and professional growth.
		CO5	Self-study
Semester – II			
Course Code	Course Name	Course Outcomes	
314449	Design and Analysis of Algorithms	CO1	Apply Knowledge of Mathematics to perform asymptotic analysis of algorithms.
		CO2	Demonstrate a familiarity with major algorithms and data structures.
		CO3	Apply important algorithmic design paradigms and methods of analysis.
		CO4	Synthesize efficient algorithms in common engineering design situations.
314450	Systems Programming	CO1	Design & implement System Programs as Assembler, Macro-processor.
		CO2	Use tool Lex for generation of Lexical Analyzer.
		CO3	Use tool YACC for generation of Syntax Analyzer.
314451	Operating System	CO1	Possess knowledge of the role of Operating Systems and

			their types.
		CO2	Apply the concept of a process, thread and scheduling algorithms.
		CO3	Apply the concepts of process synchronization and how it is achieved.
		CO4	Realize the concept of deadlock and different ways to handle it.
		CO5	Realize various memory management techniques.
		CO6	Realize the concept of I/O management and File system
314452	Multimedia Technologies	CO1	To create their own file formats for specific application
		CO2	To do some projects based on current trends in multimedia
		CO3	To use of open sources for authoring tool for animation and presentations
		CO4	To develop simple games and animation
314453	Information Tech Project Management	CO1	Students will learn and understand basic essential managerial qualities.
		CO2	They can understand importance of engineer's role in management.
		CO3	They will understand IT project management through life cycle of the project.
		CO4	They will learn about project planning, execution, tracking, audit and closure of project.
		CO5	They can understand processes in different departments of IT and non-IT industries
		CO6	They can understand current technologies and future trends in IT Project Management.
314454	Operating System Laboratory	CO1	Describe OS support for processes and threads
		CO2	Recognize CPU Scheduling, synchronization, and deadlock.
		CO3	Use C / C++ and Unix commands, and develop various system programs under Linux to make use of OS concepts

			related to process synchronization, shared memory, file systems, etc.
314455	Software Laboratory II	CO1	Be able to design and implement two pass assembler for hypothetical machine instructions.
		CO2	Be able to design and implement the microprocessor.
		CO3	Be able to use the tools "Lex" and "YACC" for implementation of simple Calculator.
		CO4	Will be able to apply algorithmic strategies for solving various problems such as travelling salesman problem, Hamiltonian circuit etc.
314456	Seminar & Technical Communication Lab.	CO1	Gather, organize, summarize and interpret technical literature with the purpose of formulating a project proposal.
		CO2	Write a technical report summarizing state-of-the-art on an identified topic.
		CO3	Present the study using graphics and multimedia techniques.
		CO4	Define intended future work based on the technical review.

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Course Outcomes

BE – 2012 Course			
Semester –I			
Course Code	Course Name	Course Outcomes	
414453	Information and Cyber Security	CO1	Students shall be able to understand what are the common threats faced today
		CO2	What is the foundational theory behind information security
		CO3	What are the basic principles and techniques when designing a secure system
		CO4	How today's attacks and defenses work in practice
		CO5	How to assess threats for their significance and
		CO6	How to gauge the protections and limitations provided by today's technology
414454	Software Modeling and Design	CO1	understand the usage of various UML diagrams to build a model
		CO2	Prepare an object oriented model in business domain of an application.
		CO3	Prepare an object oriented model in solution domain.
		CO4	Apply object oriented principles in the design of software system.
		CO5	Get started on study of GOF design patterns.
		CO6	Understand different types of software testing.
414455	Machine Learning	CO1	Students will be able to model the learning primitives.
		CO2	Students will be able to build the learning model.
		CO3	Student will be able to tackle real world problems in the domain of Data Mining, Information Retrieval, Computer vision, Linguistics and Bioinformatics.
414456E	Elective-I- Cloud Computing	CO1	Understand and Familiar with the basic concepts of cloud computing.

		CO2	Understand how to build large scale distributed systems and cloud applications.
		CO3	Comprehend the importance of cloud security.
		CO4	Understand Ubiquitous Computing and applications.
414457C	Elective-II- Business Intelligence	CO1	Design and implement OLTP, OLAP and Warehouse concepts.
		CO2	Design and develop Data Warehouse using Various Schemas & Dimensional modeling
		CO3	Use the ETL concepts, tools and techniques to perform Extraction, Transformation, and Loading of data.
		CO4	Report the usable data by using various reporting concepts, techniques/tools, and use charts, tables for reporting in BI.
		CO5	Use Analytics concepts like data mining, Exploratory and statistical techniques for predictive analysis in Business Intelligence
		CO6	Demonstrate application of concepts in BI.
414458	Software Laboratory - III	CO1	The students will be able to implement and port controlled and secured access to software systems and networks.
		CO2	The students will be able to build learning software in various domains.
414459	Software Laboratory - IV	CO1	Students will be able to identify classes and collaboration from requirements.
		CO2	Students will be able to prepare analysis and design model and implement
		CO3	Students will be able to use the test driven development approach in implementation.
		CO4	Students will be able to experience Object Oriented Software Development life cycle activities.
414460	Project Phase-I	CO1	Students will be able to implement theoretical knowledge gained during the study from FE to TE.
		CO2	Students will be able to implement their ideas/real time industrial problem/ current application of their

			engineering branch which they have studied in curriculum.
		CO3	Students will be able to build confidence in the student what he has learnt theoretically.
		CO4	Students will be able to perform dependent study of the state of the art topics in a broad area of his/her specialization.
		CO5	At the end of this course the student should be able to show preparedness to study independently in chosen domain of Information Technology and programming languages and apply to variety of real time problem scenarios
BE – 2012 Course			
Semester – II			
Course Code	Course Name	Course Outcomes	
414461	Distributed System	CO1	Understand the principles and desired properties of distributed systems based on different application areas.
		CO2	Understand and apply the basic theoretical concepts and algorithms of distributed systems in problem solving.
		CO3	Recognize the inherent difficulties that arise due to distributed-ness of computing resources.
		CO4	Identify the challenges in developing distributed applications
414462	Advanced Databases	CO1	Understanding of Advances in Database Architectures for Big data.
		CO2	Master the basics of web and object oriented database using XML and JDOQL.
		CO3	Master the basic concepts of NoSQL Databases.
		CO4	Understand how analytics and big data affect various functions now and in the future.
		CO5	Appreciate the impact of analytics and big data on the information industry and the external ecosystem for analytical and data services.

		CO6	Understanding of current trends in databases.
414463A	Elective III-Mobile Computing	CO1	Students will gain knowledge of GSM architecture.
		CO2	Students will be able to understand mobility management.
		CO3	Students will be able to understand working of wireless architectures and their applications.
		CO4	Students will be able to understand recent trends and emerging technologies.
		CO6	To implement the web interface for IoT
414464C	Elective IV- Green IT - Principles and Practices	CO1	Students will be able to create awareness among stakeholders and promote green agenda and green initiatives in their working environments leading to green movement.
		CO2	This green movement will create new career opportunities for IT professionals, auditors 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.
414465	Software Laboratory - V	CO1	Understand the principles on which the internet and other distributed systems are based.
		CO2	Understand and apply the basic theoretical concepts and algorithms of distributed systems in problem solving.
414466	Software Laboratory - VI	CO1	Understanding of Advanced Database Programming Languages.
		CO2	Master the basics of web and object oriented database languages and construct queries using XML and JDOQL
		CO3	Master the basic concepts of NoSQL Databases
		CO4	Understand how analytics and big data affect various functions now and in the future.
		CO5	Appreciate the impact of analytics and big data on the information industry and the external ecosystem for analytical and data services.



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Dr. Vithalrao Vikhe Patil College of Engineering Ahmednagar



414467	Project Work	CO1	Students will be able to Learn teamwork
		CO2	Students will be able to Be well aware about Implementation phase
		CO3	Students will be able to Get exposure of various types of testing methods and tools
		CO4	Students will be able to Understand the importance of documentation