

Institute of Engineering Department of Computer Engineering - UG

Course Outcomes

FE Semester – I		
FE Computer, Course-2015	COs	Course Outcome
110003 Fundamentals of Programming Language – I	110003.1	Ability to use modular programming approach in diversified problem domains.
	110003.2	Ability to apply programming logic to solve real world problems.
	110003.3	Ability to decide effectiveness of computer based solutions.
FE Semester – II		
FE Computer, Course-2015	COs	Course Outcome
110010 Fundamentals of Programming Language – II	110010.1	Ability to develop programs using object oriented concepts.
	110010.2	Ability to design and develop web pages using HTML.
	110010.3	Ability to design and develop mobile application using Android SDK.
	110010.4	Ability to design and develop simple application using Embedded Programming.
SE Semester – I		
SE Computer Course - 2015	COs	Course Outcome
210241 Discrete Mathematics	210241.1	Solve real world problems logically using appropriate set, function, and relation models and interpret the associated operations and terminologies in context.
	210241.2	Analyze and synthesize the real world problems using discrete mathematics.
210242 Digital Electronics & Logic Design	210242.1	Realize and simplify Boolean Algebraic assignments for designing digital circuits using K-Maps.
	210242.2	Design and implement Sequential and Combinational digital circuits as per the specifications.
	210242.3	Apply the knowledge to appropriate IC as per the design specifications.
	210242.4	Design simple digital systems using VHDL.
	210242.5	Develop simple embedded system for simple real world application

210243 Data Structures and Algorithms	210243.1	To discriminate the usage of various structures in approaching the problem solution.
	210243.2	To design the algorithms to solve the programming problems.
	210243.3	To use effective and efficient data structures in solving various Computer Engineering domain problems
	210243.4	To analyse the problems to apply suitable algorithm and data structure.
	210243.5	To use appropriate algorithmic strategy for better efficiency
210244 Computer Organization and Architecture	210244.1	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.
	210244.2	Analyze the principles of computer architecture using examples drawn from commercially available computers.
	210244.3	Evaluate various design alternatives in processor organization
210245 Object Oriented Programming	210245.1	Analyze the strengths of object oriented programming
	210245.2	Design and apply OOP principles for effective programming
	210245.3	Develop programming application using object oriented programming language C++
	210245.4	Percept the utility and applicability of OOP
210246 Digital Electronics Lab	210246.1	Realize and simplify Boolean Algebraic assignments for designing digital circuits using K-Maps.
	210246.2	Design and implement Sequential and Combinational digital circuits as per the specifications.
	210246.3	Apply the knowledge to appropriate IC as per the design specifications.
	210246.4	Design simple digital systems using VHDL.
	210246.5	Develop simple embedded system for simple real world application
210247 Data Structures Lab	210247.1	To discriminate the usage of various structures in approaching the problem solution.
	210247.2	To design the algorithms to solve the programming problems.
	210247.3	To use effective and efficient data structures in solving various Computer Engineering domain problems
	210247.4	To analyze the problems to apply suitable algorithm and data structure.
	210247.5	To use appropriate algorithmic strategy for better efficiency
210248 Object Oriented Programming Lab	210248.1	Analyze the strengths of object oriented programming
	210248.2	Design and apply OOP principles for effective programming
	210248.3	Develop programming application using object oriented programming language C++
	210248.4	Percept the utility and applicability of OOP
210249 Soft Skills	210249.1	Effectively communicate through verbal/oral communication and improve the listening skills
	210249.2	Write precise briefs or reports and technical documents.
	210249.3	Actively participate in group discussion / meetings / interviews and prepare & deliver presentations.

	210249.4	Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.
	210249.5	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.
210250 Audit Course 1 AC1-IV: Smart Cities	210246.1	Better understanding of the dynamic behaviour of the urban system by going beyond the physical appearance and by focusing on representations, properties and impact factors
	210246.2	Exploration of the city as the most complex human-made organism with a metabolism that can be modelled in terms of stocks and flows
	210246.3	Knowledge about data-informed approaches for the development of the future city, based on crowd sourcing and sensing
	210246.4	Knowledge about the latest research results in for the development and management of future cities
	210246.5	Understanding how citizens can benefit from data-informed design to develop smart and responsive cities
SE Semester – II		
SE Computer, Course-2015	COs	Course Outcome
207003 Engineering Mathematics III	207003.1	Solve higher order linear differential equation using appropriate techniques for modelling and analysing electrical circuits.
	207003.2	Solve problems related to Fourier transform, Z-Transform and applications to Signal and Image processing.
	207003.3	Apply statistical methods like correlation, regression analysis and probability theory for analysis and prediction of a given data as applied to machine intelligence.
	207003.4	Perform vector differentiation and integration to analyze the vector fields and apply to compute line, surface and volume integrals.
	207003.5	Analyze conformal mappings, transformations and perform contour integration of complex functions required in Image processing, Digital filters and Computer graphics.
210251 Computer Graphics	210251.1	Apply mathematics and logic to develop Computer programs for elementary graphic operations
	210251.2	Develop scientific and strategic approach to solve complex problems in the domain of Computer Graphics
	210251.3	Develop the competency to understand the concepts related to Computer Vision and Virtual reality
	210251.4	Apply the logic to develop animation and gaming programs
210252 Advanced Data Structures	210252.1	To apply appropriate advanced data structure and efficient algorithms to approach the problems of various domain.
	210252.2	To design the algorithms to solve the programming problems.
	210252.3	To use effective and efficient data structures in solving various Computer Engineering domain problems.
	210252.4	To analyze the algorithmic solutions for resource requirements and optimization
	210252.5	To use appropriate modern tools to understand and analyze the functionalities confined to the data structure usage.

210253 Microprocessor	210253.1	To apply the assembly language programming to develop small real life embedded application.
	210253.2	To understand the architecture of the advanced processor thoroughly to use the resources for programming
	210253.3	To understand the higher processor architectures descended from 80386 architecture
210254 Principles of Programming Languages	210254.1	To analyze the strengths and weaknesses of programming languages for effective and efficient program development.
	210254.2	To inculcate the principles underlying the programming languages enabling to learn new programming languages.
	210254.3	To grasp different programming paradigms
	210254.4	To use the programming paradigms effectively in application development.
210255 Computer Graphics Lab	210255.1	Apply mathematics and logic to develop Computer programs for elementary graphic operations
	210255.2	Develop scientific and strategic approach to solve complex problems in the domain of Computer Graphics
	210255.3	Develop the competency to understand the concepts related to Computer Vision and Virtual reality
	210255.4	Apply the logic to develop animation and gaming programs
210256 Advanced Data Structures Lab	210256.1	To apply appropriate advanced data structure and efficient algorithms to approach the problems of various domain.
	210256.1	To design the algorithms to solve the programming problems.
	210256.1	To use effective and efficient data structures in solving various Computer Engineering domain problems.
	210256.1	To analyze the algorithmic solutions for resource requirements and optimization
	210256.1	To use appropriate modern tools to understand and analyze the functionalities confined to the data structure usage.
210257 Microprocessor Lab	210257.1	To apply the assembly language programming to develop small real life embedded application.
	210257.2	To understand the architecture of the advanced processor thoroughly to use the resources for programming
	210257.3	To understand the higher processor architectures descended from 80386 architecture
	210257.4	

		TE Semester – I
TE Computer, Course-2015	Cos	Course Outcomes
310241 Theory of Computation	310241.1	Design Deterministic Turing Machine for all inputs and all outputs
	310241.2	Subdivide problem space based on input subdivision using constraints
	310241.3	Apply linguistic theory

310242 Database Management Systems	310242.1	Design E-R Model for given requirements and convert the same into database tables
	310242.2	Use database techniques such as SQL & PL/SQL.
	310242.3	Use modern database techniques such as NOSQL.
	310242.4	Explain transaction Management in relational database System.
	310242.5	Describe different database architecture and analyses the use of appropriate architecture in real time environment.
	310242.6	Use advanced database Programming concepts
310243 Software Engineering and Project Management	310243.1	Decide on a process model for a developing a software project
	310243.2	Classify software applications and Identify unique features of various domains
	310243.3	Design test cases of a software system.
	310243.4	Understand basics of IT Project management.
	310243.5	Plan, schedule and execute a project considering the risk management.
	310243.6	Apply quality attributes in software development life cycle.
310244 Information Systems and Engineering Economics	310244.1	Understand the need, usage and importance of an Information System to an organization.
	310244.2	Understand the activities that are undertaken while managing, designing, planning, implementation, and deployment of computerized information system in an organization.
	310244.3	Further the student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of these technology solutions in any organizations
	310244.4	Outline the past history, present position and expected performance of a company engaged in engineering practice or in the computer industry.
	310244.5	Perform and evaluate present worth, future worth and annual worth analyses on one of more economic alternatives.
	310244.6	Be able to carry out and evaluate benefit/cost, life cycle and breakeven analyses on one or more economic alternatives.
310245 Computer Networks	310245.1	Analyze the requirements for a given organizational structure to select the most appropriate networking architecture
	310245.2	Demonstrate design issues, flow control and error control
	310245.3	Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.
	310245.4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community
	310245.5	Illustrate Client - Server architectures and prototypes by the means of correct standards and technology.
	310245.6	Demonstrate different routing and switching algorithms
310246 Skill Development Lab	310246.1	Evaluate problems and analyze data using current technologies in a wide variety of business and organizational contexts.
	310246.2	Create data - driven web applications
	310246.3	Incorporate best practices for building applications
	310246.4	Employ Integrated Development Environment(IDE) for implementing and

		testing of software solution
	310246.5	Construct software solutions by evaluating alternate architectural patterns.
310247: Database Management System Lab	310247.1	Develop the ability to handle databases of varying complexities
	310247.2	Use advanced database Programming concepts
310248 Computer Networks Lab	310248.1	Demonstrate LAN and WAN protocol behavior using Modern Tools.
	310248.2	Analyze data flow between peer to peer in an IP network using Application, Transport and Network Layer Protocols.
	310248.3	Demonstrate basic configuration of switches and routers.
	310248.4	Develop Client - Server architectures and prototypes by the means of correct standards and technology
310249 Audit Course 3 AC3 –I: Cyber Security	310249.1	Compare the interrelationships among security roles and responsibilities in a modern information - driven enterprise — to include interrelationships across security domains (IT, physical, classification, personnel, and so on)
	310249.2	Assess the role of strategy and policy in determining the success of information security;
	310249.3	Estimate the possible consequences of misaligning enterprise strategy, security policy, and security plans;
310249 Audit Course 3 AC3 – II: Professional Ethics and Etiquettes	310249.1	Understand the basic perception of profession, professional ethics, various moral issues & uses of ethical theories
	310249.2	Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field.
	310249.3	Follow Ethics as an engineering professional and adopt good standards & norms of engineering practice.
	310249.4	Apply ethical principles to resolve situations that arise in their professional lives
310249 Audit Course 3 AC3 – III: Emotional Intelligence	310249.1	Expand your knowledge of emotional patterns in yourself and others
	310249.2	Discover how you can manage your emotions, and positively influence yourself and others
	310249.3	Build more effective relationships with people at work and at home
	310249.4	Positively influence and motivate colleagues, team members, managers
	310249.5	Increase your leadership effectiveness by creating an atmosphere that engages others
	310249.6	Apply EI behaviors and supports high performance
310249 Audit Course 3 AC3 – IV: MOOC - learn New Skill	310249.1	On completion of the course, learner will acquire additional knowledge and skill.
310249 Audit Course 3 AC3 – V: Foreign Language(Japan ese Module 3)	310249.1	Have ability of basic communication.
	310249.2	Have the knowledge of Japanese script.
	310249.3	Get introduced to reading, writing and listening skills for language Japanese.
	310249.4	Develop interest to pursue professional Japanese Language course

		TE Semester – II
310250 Design and Analysis of Algorithms	310250.1	Formulate the problem
	310250.2	Analyze the asymptotic performance of algorithms
	310250.3	Decide and apply algorithmic strategies to solve given problem
	310250.4	Find optimal solution by applying various methods
310251 Systems Programming and Operating System	310251.1	Analyze and synthesize system software
	310251.2	Use tools like LEX & YACC.
	310251.3	Implement operating system functions.
310252 Embedded Systems and Internet of Things	310252.1	Implement an architectural design for IoT for specified requirement
	310252.2	Solve the given societal challenge using IoT
	310252.3	Choose between available technologies and devices for stated IoT challenge
310253 Software Modeling and Design	310253.1	Analyze the problem statement (SRS) and choose proper design technique for designing web - based/ desktop application
	310253.2	Design and analyze an application using UML modeling as fundamental tool
	310253.3	Apply design patterns to understand reusability in OO design
	310253.4	Decide and apply appropriate modern tool for designing and modeling
	310253.5	Decide and apply appropriate modern testing tool for testing web - based/desktop application
310254 Web Technology	310254.1	Analyze given assignment to select sustainable web development and design methodology
	310254.2	develop web based application using suitable client side and server side web technologies
	310254.3	develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management
310255 Seminar and Technical Communication	310255.1	Be able to be familiar with basic technical writing concepts and terms, such as audience analysis, jargon, format, visuals, and presentation.
	310255.2	Be able to improve skills to read, understand, and interpret material on technology.
	310255.3	improve communication and writing skills
310256 Web Technology Lab	310256.1	Develop web based application using suitable client side and server side web technologies
	310256.2	Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management
310257 System Programming & Operating System Lab	310257.1	Understand the internals of language translators
	310257.2	Handle tools like LEX & YACC.
	310257.3	Understand the Operating System internals and functionalities with implementation point of view
310258 Embedded Systems &	310258.1	Design the minimum system for sensor based application
	310258.2	Solve the problems related to the primitive needs using IoT

Internet of Things Lab	310258.3	Develop full fledged IoT application for distributed environment
310259 Audit Course 4 AC4 – I: Digital & Social Media Marketing	310259.1	Create editorial calendars to manage content distribution.
	310259.2	Use Social Listening tools to create timely, relevant content.
	310259.3	Create Social Media policies that combine business objectives with appropriate use of social media channels and content.
310259 Audit Course 4 AC4 – II: Green Computing	310259.1	Understand the concept of green IT and relate it to sustainable development.
	310259.2	Apply the green computing practices to save energy.
	310259.3	Discuss how the choice of hardware and software can facilitate a more sustainable operation,
	310259.4	Use methods and tools to measure energy consumption
310259 Audit Course 4 AC4 – III: Sustainable Energy Systems	310259.1	Demonstrate an overview of the main sources of renewable energy.
	310259.2	Understand benefits of renewable and sustainable energy systems.
310259 Audit Course 4 AC4 – IV: Leadership and Personality Development	310259.1	Enhance holistic development of students and improve employability skills
310259 Audit Course 4 AC4 –V: Foreign Language(Japanese Module 4)	310259.1	Possess ability of basic communication.
	310259.2	Possess the knowledge of Japanese script.
	310259.3	Get introduced to reading, writing and listening skills for language Japanese.
	310259.4	Develop interest to pursue professional Japanese Language course
BE Semester – I		
BE Computer, Course-2012	COs	Course Outcome
410441 Design & Analysis of Algorithms.	410441.1	To survey algorithmic strategies give presentations using open source documentation tools like Latex and soft skill methodologies.
	410441.2	To write mathematical modeling of algorithms for problem solving.
	410441.3	To develop SRS in the UG projects;
	410441.4	To solve problems for multi-core or distributed or concurrent/Parallel/Embedded environments;

410442 Principles of Modern Compiler Design.	410442.1	To write symbol tables, different types of grammars to solve problem of parsing.
	410442.2	To design and write simple compiler using FOSS tools.
	410442.3	To practice compiler tools in basic, concurrent, distributed and embedded environments.
	410442.4	To survey and use latest trends and advances in compilers
410443 Smart System Design & Applications.	410443.1	To write and survey solution for multidisciplinary case-study using mathematical modeling give presentations using soft skills methodologies;
	410443.2	To write and survey embedded systems applications using machine learning;
	410443.3	To solve problems for multi-core or distributed, concurrent and embedded environments;
410444D (Elective - I) Data Mining Techniques and Applications.	410444D.1	To present survey on different learning, classification and data mining foundations.
	410444D.2	To write programs and methods for data Mining applications.
	410444D.3	To solve problems for multi-core or distributed, concurrent/Parallel environments.
410445B (Elective - II) Pervasive Computing	410445B.1	To present a survey on pervasive computing building blocks.
	410445B.2	To create presentations using pervasive computing techniques and devices.
	410445B.3	To solve problems for multi-core or distributed, concurrent/Parallel environments.
410446 Computer Laboratory-I	410446.1	To write efficient mathematical design, analysis and testing of algorithmic assignments.
	410446.2	To debug and demonstrate the Testing of functioning using Software Engineering for OO-programming.
	410446.3	To write programs using advanced FOSS tools and technologies
	410446.4	To write test case using multi-core or distributed, concurrent/Parallel environments.

410447 Computer Laboratory - II	410447.1	To write mathematical modelling for problem solving.
	410447.2	To write programs for smart devices using FOSS Tools.
	410447.3	To write Programs for gamifications.
	410447.4	To write test cases to solve problems for pervasiveness embedded security and NLP applications.
	410447.5	To write test cases for multi-core or distributed, concurrent/Parallel environments.
410448 Project	410448.1	To write problem solutions in projects using mathematical modelling, using FOSS programming tools and devices or commercial tools;
	410448.2	To write SRS and other software engineering documents in the project report using mathematical models developed and NP-Hard analysis;
	410448.3	To write test cases using multi-core, distributed, embedded, concurrent/Parallel environments;
	410448.4	To write conference paper;
	410448.5	To demonstrate presentation, communication and team-work skills.
BE Semester – II		
BE Computer, Course-2012	COs	Course Outcome
410449 Software Design Methodologies and Testing.	410449.1	To present a survey on design techniques for software system.
	410449.2	To present a design and model using UML for a given software system.
	410449.3	To present a design of test cases and implement automated testing for client server, Distributed, mobile applications.
410450 High Performance Computing.	410450.1	To transform algorithms in the computational area to efficient programming code for modern computer architectures.
	410450.2	To write, organize and handle programs for scientific computations.
	410450.3	To create presentation of using tools for performance optimization and debugging
	410450.4	To present analysis code with respect to performance and suggest and implement performance improvements.
	410450.5	To present test cases to solve problems for multi-core or distributed, concurrent/Parallel environments.
Elective - III 410451D Cyber Security	410451D.1	To write a survey on cyber security concepts.
	410451D.2	To create a case study report on practice administrating using Cyber Security open source tools.
	410451D.3	To write problem solutions for multi-core or distributed, concurrent/Parallel environments.

Elective - IV 410452C Mobile Applications	410452C.1	To write a survey on tools and architectures for Mobile Applications.
	410452C.2	To write using mathematical models the problem solutions using Mobile Applications.
	410452C.3	To write develop mobile applications using open source tools.
410453 Computer Laboratory - III	410453.1	To write problem solutions using mathematical modelling.
	410453.2	To write reports of application of software design methods and testing.
	410453.3	To write programs using FOSS tools.
	410453.4	To write problem solutions using multi-core or distributed, concurrent/Parallel environments.
410454 Computer Laboratory - IV	410454.1	To write programs to develop applications using BIA Technologies using mathematical modelling.
	410454.2	To write programs using OR and Mobile Programming Technologies using mathematical modelling.
	410454.3	To write programs using FOSS tools and devices.
	410454.4	To write problem solutions using multi-core or distributed, concurrent/Parallel environments
410455 Project	410455.1	To write review SRS, reliability testing reports, and other software engineering documents in the project report;
	410455.2	To write problem solution using multi-core, distributed, embedded, concurrent/Parallel environments;
	410455.3	To write the test cases to demonstrate the results of the project;
	410455.4	To write conference paper;
	410455.5	To write code using FOSS tools and technologies or proprietary Tools as per requirements;
	410455.6	To practice presentation, communication and team-work skills

