

ARUNAI ENGINEERING COLLEGE
Velu Nagar, Thenmathur, Tiruvannamalai - 606603.
(Approved by AICTE, Affiliated by Anna University
Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
REGULATION-2017
Course Outcomes

Semester - I	
Course code and Name	Course Outcomes(CO) After completion of the course, the students will be able to
C101-HS8151 Communicative English	C101.1: Communicate clearly both in the written form and orally using appropriate vocabulary and comprehend written texts to make inferences. C101.2: Speak persuasively in different social contexts and write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words. C101.3: Speak, read and write effectively for a variety of professional and social settings. C101.4: Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods. C101.5: Listen, comprehend and respond to different spoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.
C102-MA8151 Engineering Mathematics - I	C102.1: Use both the limit definition and rules of differentiation to differentiate functions. C102.2: Apply differentiation to solve maxima and minima problems. C102.3: Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus, also evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts, in addition to determine convergence/divergence of improper integrals and evaluate convergent improper integrals. C102.4: Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables. C102.5: Apply various techniques in solving differential equations.

C103-PH8151 EngineeringPhysics	C103.1: Students interpret the fundamental knowledge about the elastic nature of materials and be able to choose the materials depending upon the modulus of elasticity for different applications. C103.2: Identify and appreciate the advantages of optical communication using LASER C103.3: Students understand thermal conducting properties of solids and liquids and differentiate a good thermal conductor from the bad thermal conductor. C103.4: Apply the knowledge of quantum mechanics and classical mechanics in addressing the problems related to science and technology. C103.5: Students extend the knowledge about the crystal structures, crystal defects and crystal growth.
C104-CY8151 Engineering Chemistry	C104.1: Comprehend the importance of water technology in the purification of water and its domestic and industrial applications. C104.2: Understand the concept of absorption in surface chemistry and catalysis and its applications. C104.3: Make use of the phase rule in identifying its application in metallurgy and manufacture of alloys. C104.4: Learn the different types of industrial techniques of petroleum processing and the determination of caloric values and combustion parameters. C104.5:Empathize the fundamentals of different alternative source of energy, the generation process and batteries.
C105-GE8151 Problem Solving and Python Programming	C105.1: Develop algorithmic solutions to simple computational problems. C105.2: Read, write and execute simple python programs. C105.3: Apply control, looping structures and functions to solve problems. C105.4: Represent compound data using python lists, tuples, and dictionaries. C105.5: Read and Write data from/to files in python programs.
C106-GE8152 EngineeringGraphics	C106.1: Familiarize with the fundamentals and standards of Engineeringgraphics C106.2: Perform freehand sketching of basic geometrical constructions and multiple views of objects. C106.3: Project orthographic projections of lines and plane surfaces. C106.4: Draw projections and section of solids and development Of surfaces.

	C106.5: Visualize and to project isometric and perspective sections of simple solids.
C107-GE8161 Problem Solving and Python Programming Laboratory	C107.1: Write, test, and debug simple Python programs. C107.2: Implement Python programs with conditionals and loops. C107.3: Develop Python programs step-wise by defining functions and calling them. C107.4: Demonstrate the use Python lists, tuples, and dictionaries for representing compound data. C107.5: Illustrate the concepts of read and write data from/to files in Python.
C108-BS8161 Physics and Chemistry Laboratory	C108.1: The students will have the ability to test materials by using their knowledge of applied physics principles in optics and properties of matter. C108.2: Gain hands-on knowledge in the quantitative chemical analysis of chloride, dissolved oxygen, hardness, and alkalinity and copper ions by titration methods. C108.3: Understand basic concept in the determination of acids, sodium, potassium and iron by the instrumental methods of analysis.
Semester – II	
C111-HS8251 Technical English	C111.1: Read technical texts and write area specific texts effortlessly. C111.2: Listen and comprehend lectures and talks in their areas of specialization and write effectively for a variety of professional and social settings. C111.3: Speak and write appropriately and effectively in varied formal and informal contexts. C111.4: Write effectively and persuasively and produce different types of writing such as letters, minutes, reports and winning job applications. C111.5: Communicate clearly using technical vocabulary in their professional correspondences.
C112-MA8251 Engineering Mathematics - II	C112.1: Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices. C112.2: Gradient, divergence and curl of a vector point function and related identities, Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification. C112.3: Analytic functions and conformal mapping Complex integration.

	C112.4: Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients
C113-PH8252 Physics for Information Science	C113.1: Extend the knowledge about the conducting materials and their properties. C113.2: Interpret the fundamental knowledge about the semiconductors and able to differentiate various types of semiconductors. C113.3: Apply the knowledge of magnetic materials and principles in data storage. C113.4: Identify and appreciate the functioning and applications of optical materials. C113.5: Utilize the knowledge about the quantum structures and nanomaterials in various applications.
C114-BE8255 Basic Electrical and Electronics and Measurement Engineering	C114.1: Apply the concept of electric circuit laws, network reduction theorems. C114.2: Explain the basic operation of electrical machines and transformers. C114.3: Illustrate the operation of renewable energy sources, lamps, batteries and protective devices. C114.4: Explain the operations and characteristics of various electronic devices. C114.5: Determine various types of errors present in measurements and explain the operating principles of different meters, transducers.
C115-GE8291 Environmental Science and Engineering	C115.1: Understand the importance of Environment, biodiversity, ecosystem and how to solve environmental related problems. C115.2: Identify and explain about the causes, effect and control measures of air pollution, water pollution, soil pollution, noise pollution, radioactive pollution and thermal pollution with its relevant case studies. C115.3: Discuss the various renewable and non-renewable resources and energy conservation processes. C115.4: Explain the social issues and solutions for sustainable environment with relevant Act and case studies. C115.5: Summarize the impact of human population in the environment and its remedial measures.
C116-CS8251 Programming in C	C116.1: Develop simple applications in C using basic constructs. C116.2: Design and implement applications in C using arrays and strings. C116.3: Develop and implement applications in C using functions and pointers.

	C116.4: Apply the concepts of structure and develop applications in C using structures. C116.5: Design applications using sequential and random access file processing
C117-GE8261 Engineering Practices Laboratory	C117.1: Construct Electrical and Electronic circuit. C117.2: Examine different types of electronic circuits and components. C117.3: Recognize electrical safety rules, grounding, general housing wiring. C117.4: Explore soldering practice.
C118-CS8261 C Programming Laboratory	C118.1: Develop C programs for simple applications making use of basic constructs. C118.2: Implement C programs for simple applications using arrays and strings. C118.3: Develop C programs involving functions, recursion and pointers. C118.4: Design and implement application in C using structures. C118.5: Design applications using sequential and random access file processing.
Semester – III	
C201-MA8351 Discrete Mathematics	C201.1: Have knowledge of the concepts needed to test the logic of a program. C201.2: Have an understanding in identifying structures on many levels. C201.3: Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science. C201.4: Be aware of the counting principles. C201.5: Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.
C202-CS8351 Digital Principles and System Design	C202.1: Analyze different methods used for simplification of Boolean expressions C202.2: Design and implement Combinational logic circuits and write simple HDL codes for combinational circuits C202.3: Design and implement the synchronous sequential logic circuits and write simple HDL codes for sequential circuits C202.4: Implement asynchronous sequential logic circuits C202.5: Apply the concepts of memory devices and programmable logic devices in Integrated Circuits.
C203-CS8391 Data Structures	C203. 1: Implement the operations of list ADT with examples.

	C203.2: Apply the stack and queue ADTs to problem solutions. C203.3: Design non-linear data structure like tree for various applications. C203.4: Apply non-linear data structure – graph and its operation for solving various problems. C203.5: Analyze the different sorting, searching algorithms and hashing techniques.
C204-CS8392 Object Oriented Programming	C204.1: Develop Java programs using OOP principles. C204.2: Develop Java programs with the concepts inheritance and interfaces. C204.3: Build Java applications using exceptions and I/O streams C204.4: Develop Java applications with threads and generics classes C204.5: Develop interactive Java programs using swings.
C205-EC8395 Communication Engineering	C205.1: Comprehend and appreciate the significance and role of this course in the present contemporary world C205.2: Apply analog and digital communication techniques. C205.3: Use data and pulse communication techniques for various applications. C205.4: Analyze Source and Error control coding C205.5: Describe about various techniques in Multiple access schemes.
C206-CS8381 Data Structures Laboratory	C206.1: Write functions to implement linear data structure operations. C206.2: Suggest appropriate linear / non-linear data structure operations for solving a given problem. C206.3: Appropriately use the linear / non-linear data structure operations for a given problem. C206.4: Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval. C206.5: Choose appropriate searching and sorting algorithm for an application and implement it in a modularized way.
C207-CS8383 Object Oriented Programming Laboratory	C207.1: Develop and implement Java programs for simple applications that make use of classes, packages and interfaces. C207.2: Develop and implement Java programs with exception handling and multithreading. C207.3: Develop and implement Java programs using Stack ADT and Array List using Interfaces C207.4: Design applications using file processing, generic programming and event handling. C207.5: Develop and deploy mini-projects using Java concepts.
C208-CS8382 Digital Systems Laboratory	C208.1: Implement simplified combinational circuits using basic logic gates

	C208.2: Implement combinational circuits using MSI devices C208.3: Implement sequential circuits like registers and counters C208.4: Simulate combinational and sequential circuits using HDL
C209-HS8381 Interpersonal Skills/Listening & Speaking	C209.1: Listen and respond appropriately. C209.2: Participate in group discussions C209.3: Make effective presentations C209.4: Participate confidently and appropriately in conversations both formal and informal.
Semester IV	
C211-MA8402 Probability and Queuing Theory	C211.1: Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon. C211.2: Understand the basic concepts of one and two dimensional random variables and apply in engineering applications. C211.3: Apply the concept of random processes in engineering disciplines. C211.4: Acquire skills in analyzing queuing models. C211.5: Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner.
C212-CS8491 Computer Architecture	C212.1: Analyze the performance of the computer operations and understand the instructions in MIPS architecture. C212.2: Design arithmetic and logic unit for fixed-point and floating-point operation. C212.3: Design and describe the function of control unit, pipeline forexecution of instructions and types of hazards. C212.4: Classify and explain the different parallel processing techniques and parallel processor. C212.5: Explain the memory hierarchy, input/output mechanism and evaluate the performance of the memory system.
C213-CS8492 Database Management Systems	C213.1: Design relational databases for applications. C213.2: Map ER model to Relational model to perform database design effectively and write queries using normalization criteria. C213.3: Apply concurrency control and recovery mechanisms for practical problems. C213.4: Compare and contrast various indexing strategies in different database systems. C213.5: Appraise how advanced databases differ from traditional databases.

C214-CS8451 Design and Analysis of Algorithms	C214.1: Analyze the time and space complexity of algorithms. C214.2: Design algorithms for various computing problems using brute force and divide-and conquer technique. C214.3: Design various computing problems and algorithms using dynamic programming and greedy technique. C214.4: Apply the iterative improvement techniques for solving problems. C214.5: Critically analyze the different algorithm design techniques for a given problem and modify existing algorithms to improve efficiency.
C215-CS8493 Operating Systems	C215.1: Summarize the basic concepts System call, structure and functions of Operating Systems. C215.2: Explain the various scheduling algorithms, deadlock prevention, deadlock avoidance algorithms and principles of concurrency. C215.3: Compare and contrast the various memory management schemes. C215.4: Summarize the functionalities of File Systems and I/O Systems. C215.5: Perform administrative tasks on Linux servers and summarize the concepts of Mobile OS.
C216-CS8494 Software Engineering	C216.1: Describe the purpose and facts of different software development process models with an insight into generic process framework. C216.2: Identify the functional and non-functional requirements for software development by preparing IEEE Software Requirements Document. C216.3: Explain software design activities using data flow diagrams and architectural diagrams. C216.4: Develop a testing framework by understanding the purposes and stages of software testing and test-driven development. C216.5: Explain the project management activities involved in developing a framework including planning, scheduling, risk assessment/management.
C217-CS8481 Database Management Systems Laboratory	C217.1: Use typical data definitions and manipulation commands. C217.2: Design applications to test Nested and Join Queries. C217.3: Critically analyze the use of Tables, Views, Functions and Procedures. C217.4: Implement applications that require a Front-end Tool.
C218-CS8461 Operating Systems Laboratory	C218.1: Compare the performance of various CPU Scheduling Algorithms

	C218.2: Implement Deadlock avoidance and Detection Algorithms C218.3: Create processes and implement IPC, Semaphores C218.4: Analyze the performance of the various Page Replacement Algorithms C218.5: Implement File Organization and File Allocation Strategies.
C219-HS8461 Advanced Reading and Writing	C219.1: Read and evaluate different types of texts critically and predict content. C219.2: Write different types of essays using appropriate discourse markers. C219.3: Display critical thinking in various professional contexts. C219.4: Write winning job applications. C219.5: Prepare technical documents like project proposals and statement of purpose.
Semester V	
C301-MA8551 Algebra and Number Theory	C301.1: Apply the basic notions of groups, rings, fields which will then be used to solve related problems.. C301.2: Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.. C301.3: Demonstrate accurate and efficient use of advanced algebraic techniques. C301.4: Demonstrate their mastery by solving non – trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text. C301.5: Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.
C302-CS8591 Computer Networks	C302.1: Identify the basic layers and its functions in computer networks. C302.2: Elucidate the data flows from one node to another and the media access control methods for transmission. C302.3: Analyze and design routing algorithms. C302.4: Apply the detailed inner workings of transport layer. C302.5: Analyze the features and operations of various application layer protocols such as HTTP, DNS, and SMTP.

C303-EC8691 Microprocessors and Microcontrollers	C303.1: Describe the architecture of microprocessor 8086 and execute programs based on 8086 microprocessor C303.2: Explain about 8086 system bus structure and design memory interfacing circuits. C303.3: Design and interface I/O circuits with 8086 microprocessor. C303.4: Describe the architecture of microcontroller 8051. C303.5: Implement 8051 microcontroller based systems.
C304-CS8501 Theory of Computation	C304.1: Construct and convert the Deterministic and Non deterministic finite automata for any given regular language. C304.2: Write regular expression for any regular language and find equivalence of regular expression and finite automata.. C304.3: Write the context free grammar and Construct the pushdown automata for the context free language C304.4: Explain the properties of the context free language and design Turing machine for any given language C304.5: Derive the given problem is decidable or un-decidable
C305-CS8592 Object Oriented Analysis and Design	C305.1: State the usage of different UML diagrams and Unified process. C305.2: Express software design with UML static diagrams. C305.3: Express software design with UML dynamic and implementation Diagrams. C305.4: Transform UML based software design into pattern based Design using design patterns. C305.5: Explain the various testing methodologies for OO software
C306-OTL553 – Telecommunication and Network Management	C306.1: Design and analyze of fault management C306.2: Analyze the common management information protocol specifications C306.3: Design and analyze of management information model C306.4: Design the simple network management protocol. C306.5: Design the various types of network management tools.
C307-EC8681 Microprocessors and Microcontrollers Laboratory	C307.1: Write ALP programmes for arithmetic operation, logical operations and data movement using 8086 microprocessor instructions. C307.2: Implement ALP programmes for code conversion, decimal arithmetic and matrix operations using 8086 instructions.. C307.3: Generate result for floating point operations, string manipulations, sorting and searching using 8086 microprocessor Instructions. C307.4: Design 8086/8051 based systems using peripherals and Interfaces. C307.5: Calculate outputs for arithmetic operation, logical operation, square of a number and cube of a number using 8051
C308-CS8582 Object Oriented Analysis and Design Laboratory	C308.1: Design and implement projects using Object Oriented concepts. C308.2: Use the UML analysis and design diagrams. C308.3: Apply appropriate design patterns.. C308.4: Create code from design. C308.5: Compare and contrast various testing techniques

C309-CS8581 Networks Laboratory	C309.1: Use various network commands. C309.2: Perform client-server communication between two desktop Computers using Socket Programming. C309.3: Implement the different network protocols. C309.4: Simulate the algorithms with the help of Network Simulator tool C309.5: Analyze the different routing algorithms.
Semester – VI	
C311-CS8651 Internet Programming	C311.1: Create website using HTML and Cascading Style Sheets. C311.2: Build web pages with Client side programming using Java Script C311.3: Develop server side programs using Servlets and JSP. C311.4: Construct simple web pages in PHP and to represent data in XML format. C311.5: Develop interactive web applications using AJAX and web services.
C312-CS8691 Artificial Intelligence	C312.1: Elucidate the characteristics of intelligent agents. C312.2: Use appropriate search algorithms for any AI problem. C312.3: Represent a problem using first order and predicate logic. C312.4: Design the apt software agents to solve a problem. C312.5: Design the applications for Artificial Intelligence
C313-CS8601 Mobile Computing	C313.1: Explain the basics of mobile computing and MAC protocols. C313.2: Illustrate the generations of mobile telecommunication systems in wireless networks. C313.3: Determine the functionality of MAC, network layer and identify a routing protocol for a given Ad hoc network. C313.4: Describe the functionality of mobile transport and application layers. C313.5: Develop a mobile application using android/iOS/Windows SDK.
C314-CS8602 Compiler Design	C314.1: Implement different phases of a compiler and design a lexical analyzer for a sample language. C314.2: Apply different parsing algorithms to develop the parsers for a given grammar. C314.3: Explain the Intermediate code generation and syntax-directed translation. C314.4: Describe the run-time environment and implement a simple code generator. C314.5: Implement code optimization techniques.
C315-CS8603 Distributed Systems	C315.1: Elucidate the foundations and issues of distributed systems C315.2: Explore the various synchronization issues and global state for distributed systems. C315.3: Comprehend the idea of the Mutual Exclusion and Deadlock detection algorithms in distributed systems C315.4: Describe the agreement protocols and fault tolerance mechanisms in distributed systems. C315.5: Describe the features of peer-to-peer and distributed shared memory systems

C316-IT8076 Software Testing	C316.1: Describe and interpret the basics of software testing and the generic testing process C316.2: Develop test cases suitable for various domains using multiple testcase design strategies C316.3: Interpret the various levels of testing and identify the suitable teststo be carried out C316.4: Prepare the test plan, develop the test plan and validate the testplan C316.5: Apply multiple automation tools for testing and assess the varioustesting metrics
C317-CS8661 Internet Programming Laboratory	C317.1: Design Web pages using HTML and style sheets. C317.2: Develop dynamic web pages using client and server side scripting. C317.3: Design web pages using PHP and Database. C317.4: Create web applications using XML and Web Services. C317.5: Create web applications using Web Services
C318-CS8662 Mobile Application Development Laboratory	C318.1: Develop mobile applications using GUI and Layouts C318.2: Develop mobile applications using Event Listener C318.3: Develop mobile applications using Database C318.4:Implement various mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS C318.5: Analyze and discover own mobile app for simple needs
C320-HS8581 Professional Communication	C320.1: Exhibit soft skills and awareness of different cultures in varied contexts. C320.2: Make effective presentations. C320.3: Participate confidently in Group Discussions. C320.4: Attend job interviews and be successful in them. C320.5: Set short-term and long-term career goals.
Semester - VII	
C401-MG8591 Principles of Management	C401.1: Discuss the evolution of management, functions and roles of managers. C401.2: Explain the different types of plans, Steps in planning process andtools used for planning. C401.3: Elaborate different organization structures and functions of humanresources manager. C401.4:Interpret the concepts in motivation techniques, leadershi pcommunication processes C401.5: Describe the control techniques and the role of technology inmanagement
C402-CS8792 Cryptographyand Network Security	C402.1: Interpret the basic concepts, OSI security architecture and classicalencryption. C402.2: Apply the various Symmetric Cryptographic techniques. C402.3: Apply the various public key Cryptographic techniques. C402.4: Determine the usage of hash functions and digital signature.C402.5: Interpret the various secure applications.

C403-CS8791 Cloud Computing	C403.1: Articulate the main concepts, key technologies, strengths and limitation of cloud computing. C403.2: Identify the key enabling technologies that help in the development of cloud. C403.3: Develop the ability to identify and use the architecture of compute and storage cloud, service and delivery model. C403.4: Elucidate the core issues of cloud computing such as resource management and security. C403.5: Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.
OME752-Supply Chain Management(Open Elective)	CO1: provide an insight on the fundamentals of supply chain networks, tools and techniques. CO2: Discuss about the supply chain network design CO3: Elaborate about the various logistics in supply Chain. CO4: Discuss about sourcing and coordination in supply Chain. CO5: Describe how the supply chain measures in Information industries
C406-CS8079 Human Computer Interaction	C406.1: Explain the basic foundations of Human Computer Interaction. C406.2: Design the effective HCI for individuals and persons with disabilities C406.3: Simplify the issues in the HCI Models and assess the importance of user feedback. C406.4: State the mobile HCI implications for designing multimedia/e-commerce/ e-learning web sites. C406.5: Develop the meaningful user interface.
C405-IT6801 Service Oriented Architecture (E-I)	C405.1 Develop a simple XML document coding and XML Schema. C405.2 Create an application based on XML and database. C405.3 Compare the characteristics and principles of Service oriented architecture with client server and distributed architecture. C405.4 Describe the web services using WSDL, SOAP and UDDI. C405.5 Build a Service oriented architecture based applications For Intra-enterprise and inter- enterprise applications using J2EE.
CS8711 Cloud Computing Laboratory	CO1: Configure various virtualization tools such as Virtual Box, VMware workstation. CO2: Design and deploy a web application in a PaaS environment. CO3: Learn how to simulate a cloud environment to implement new schedulers. CO4: Install and use a generic cloud environment that can be used as a private cloud. CO5: Manipulate large data sets in a parallel environment

IT8761 Security Laboratory	CO1: Implement classical Encryption Techniques CO2: Build cryptosystems by applying symmetric and public key encryption algorithms CO3: Implement authentication algorithms CO4: Develop a signature scheme using Digital signature standard CO5: Demonstrate the network security system using open source tools
Semester VIII	
C411-GE6075-Professional Ethics in Engineering	C411.1 Apply ethics, morals and human values in society. C411.2 Explain about engineering ethics. C411.3 Describe the responsibilities of engineers as experimenters. C411.4 Recognize the safety, risks, risk benefit analysis and rights of an engineer. C411.5 Discuss the importance of the global issues, moral leadership and code of conduct.
C412-CS8080 Information Retrieval Techniques(Elective)	C412.1 Use an open source search engine framework and explore its capabilities C412.2 Modeling And Retrieval Evaluation C412.3 Apply appropriate method of classification or clustering. C412.4 Design and implement innovative features in a search engine C412.5 Design and implement a recommender system.

CS413-CS6811 PROJECT WORK	C413.1 Apply the fundamental knowledge and skills, Which areacquired within the technical area, to a given problem C413.2 Identify and summarize an appropriate list of literature review, analyze previous researchers' Work and relate them to the project. Within given constraints, even with limited information, the students will be able to independently analyze and discuss complex inquiries/problems and handle larger problems on the advanced level within the technical area. C413.3 Design engineering solutions to complex problems in asystematic approach. Identify and apply appropriate parameters, assumptions and design criteria in consideration of health and safety (example: theuse of codes of practice), ethics, economics, environment, sustainability. C413.4 Apply research and conduct experiments, as well as to analyzeand interpret data that yield the results and answer importantapplicable research questions. C413.5 Utilize technology tools for communication, collaboration, information management, and decision support. C413.6 Demonstrate the knowledge, skills and attitudes of aprofessional engineer. C413.7 Interact with team members in a professional manner, respecting differences, to ensure a collaborative projectenvironment. CO413.8 Demonstrate a strong working knowledge of ethics and professional responsibility. C413.9 Document and present one's own work, for a given targetgroup, with strict requirements on structure, format, andlanguage usage. C413.10 Present the project outlining the approach and expected resultsusing good oral and written presentation skills. C413.11 Demonstrate effective organizational leadership and changeskills for managing projects and project teams. C413.12 Recognize the need for life-long learning by undergoing theproject work.
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