JNTUH UNIVERSITY COLLEGE OF ENGINEERING JAGTIAL

Nachupally, Kondagattu, Jagtial-505501

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

LIST OF COURSE OUTCOMES

2022-23 (I Sem)

B.Tech - II-Year I Sem

CO#	Subject Name -CO Statemetns
C103	**C103- Programming for Problem Solving**
C103.1	Write algorithms, flowcharts and C programs for a given problem. Analyze day to day problems and able to represent them using algorithms, flow charts and C programs.
C103.2	Decompose a problem into functions and to develop modular reusable code using arrays, storage classes and recursion etc.,
C103.3	Understand programming skills using the fundamentals and basics of C Language.
C103.4	Improve problem solving skills using arrays, strings, and functions.
C103.5	Understand the dynamics of memory by pointers.
C103.6	Study files creation process with access permissions
C106	**C106- Elements of Computer Science and Engineering**
C106.1	Know the working principles of functional units of a basic Computer
C106.2	Understand program development, the use of data structures and algorithms in problem solving.
C106.3	Know the need and types of operating system, database systems.
C106.4	Understand the significance of networks, internet, WWW and cyber security
C106.5	Understand Autonomous systems, the application of artificial intelligence.
C106.6	Apply the concepts of computer basics, software development, operating systems, database management, computer networks, web technologies, security, autonomous systems, and cloud computing. in real-world scenarios and pursue further studies or careers in related fields.
C108	**C116 - Programming for Problem Solving Laboratory**
C108.1	Translate given algorithms into C programs without syntax and logical errors.
C108.2	Write C programs with indenting.
C108.3	Design and test programs to solve mathematical and scientific problems.
C108.4	Write structured programs using control structures and functions.
C108.5	Create, read and write from and to simple text and binary files.
C108.6	Modularize the code for a given logic with functions so that they can be reused.
C201	**C201- Analog and Digital Electronics**
C201.1	Discuss and Compare the various diode application circuits such as rectifiers, filters, clippers, clampers, switch and amplifiers.
C201.2	Discuss and Compare the various transistor application circuits the Low Frequency Transistor (BJT) Amplifier circuits.
C201.3	Discuss and Compare the various FET transistor applications
C201.4	Discuss and Compare the different basic logic gates and logic families
C201.5	Analyze Learn Postulates of Boolean algebra and to minimize combinational functions. and Design the combinational circuits
C201.6	Analyze and Design the Sequential circuits and basic memories
C202	**C202-Data Structures**

C202.1	Gain the knowledge of basic concepts such as abstract data types, linear and non linear data structures.
C202.2	Understand the importance of hashing and different hashing techniques.
C202.3	Gains the knowledge on Non linear data structures like trees and graphs.
C202.4	Implements and know the application of algorithms for sorting.
C202.5	Gain the knowledge on pattern matching techniques.
C202.6	Design programs using a variety of data structures including hash tables, binary and general tree structures, search trees, tries, heaps, graphs and AVL trees.
C203	**C203-Computer Oriented Statistical Methods**
C203.1	Students will be able to learn theory of probability and probability distribution of random variable
C203.2	Students will be able to learn mean and variance of random variables and discrete probability distributions
C203.3	Students will be able to learn mean and variance of continuous random variables, continuous probability distributions and sampling distribution
C203.4	Students will be able to learn estimation and test of hypothesis
C203.5	Students will be able to understand about the random process, Markov process and Markov chains
C203.6	Student will be able to apply concepts of probability and distributions to some case studies.
C204	**C204-Computer Organization and Architecture**
C204.1	Gain the basic components and the design of CPU, ALU and Control Unit and Executing Complex Engineering Problems.
C204.2	Understand memory hierarchy and its impact on computer cost/performance.
C204.3	Understand the advantage of instruction level parallelism and pipelining for high performance Processor design.
C204.4	Learns and analyze the instruction set, instruction formats and addressing modes of 8086.
C204.5	Analyze to write assembly language programs to solve problems.
C204.6	Understand the overall functioning of computer through microprocessors.
C205	**C205-Object Oriented Programming using C++**
C205.1	Differentiate object oriented programming and procedure oriented programming.
C205.2	Learn the basics of C++, Classes in C++ and data abstraction.
C205.3	Develop programs with reusability.
C205.4	Develop programs for file handling.
C205.5	Handle exception in programming using C++.
C205.6	Develop applications for a range of problems using object oriented programming techniques.
C206	**C206-Analog and Digital Electronics Lab**

C206.1	Design and compare various rectifier circuits with and without filter.
C206.2	Design the various transistor biasing circuits for building an amplifier.
C206.3	Examine the input and output characteristics of BJT and FET in various configurations and compute the various performance parameters.
C206.4	Design and compare basic logic gates functions
C206.5	Design and compare combinational and sequential logic circuits
C206.6	Design and compare basic logic gate families functions
C207	**C207-Data Structures Lab**
C207.1	Develop C programs for real time applications using base elements like control structures, arrays, functions, pointers and strings.
C207.2	Understand the importance of Linear data structures like stacks, queues, and linked lists.
C207.3	Gains the knowledge on non linear data structures like trees and graphs.
C207.4	Implement and know the applications of algorithms for sorting.
C207.5	Understand and analyze various searching techniques.
C207.6	Identify appropriate data structure for solving computing problems.
C208	**C208-IT Workshop Lab**
C208.1	Identify the various components of computer and its peripherals.
C208.2	Apply the tools for preparation of PPT, documentation and excel sheets.
C208.3	Apply the knowledge for internet and www
C208.4	Assemble computer and install various software's.
C208.5	Trouble shoot hardware and software problems.
C208.6	Understand and Trouble shoot different types of viruses and worms.
C209	**C209-C++ Programming Lab**
C209.1	Compose simple programs in C++ using the basic concepts like data types, exceptions, operators, pointers and arrays.
C209.2	Develop programs with class definition and data abstraction.
C209.3	Implement different forms of inheritance by defining the base and derived classes.
C209.4	Access the files using file operations.
C209.5	Debug the programs using exception handling mechanism.
C209.6	Develop applications for a range of problems using Object oriented programming techniques.
C210	**C210 - Gender Sensitization Lab**
C210.1	Students will have developed a better understanding of important issues related to gender in contemporary India.
C210.2	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
C210.3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
C210.4	Students will acquire insight into the gendered division of labour and its relation to politics and economics.
C210.5	Men and women students and professionals will be better equipped to work and live together as equals.
C210.6	Students will develop a sense of appreciation of women in all walks of life.
B.Tech - III-Year I Sem	

C301	C301- Formal Languages and Automata Theory
C301.1	Construct the finite state machines and their power to recognize the languages.
C301.2	Model and solve the computing problems of finite state machines.
C301.3	Classify machines by their power to recognize languages.
C301.4	Employ finite state machines to solve problems in computing.
C301.5	To understand deterministic and non-deterministic machines.
C301.6	To understand the differences between decidability and undecidability.
C302	**C302 - Software Engineering**
C302.1	Identify the requirements, analyze and document them for the development of application by effectively communicating with the customer.
C302.2	Design, model, develop and maintain efficient and cost effective software solution to various problems faced by the society.
C302.3	To understanding of software requirements and SRS document.
C302.4	To understanding of different software architectural styles.
C302.5	To understanding of software testing approaches such as unit testing and integration testing.
C302.6	To understanding on quality control and how to ensure good quality software
C303	**C303 - Computer Networks**
C302.1	Understand and explore the basics of computer networks and layered approach used for simulating the networking environment.
C302.2	To introduce the fundamental various types of networks.
C302.3	To demonstrate the TCP/IP and OSI models with merits and demerits.
C302.4	To Explore the various layers of OSI model.
C302.5	To introduce TCP and UDP models.
C302.6	To introduce the fundamental various types of networks.
C304	**C304 - Web Technologies**
C304.1	Gain knowledge of PHP languages for server side scripting.
C304.2	Understand the fundamental concepts of XML and learn the XML parsers to load the XML document in the user application.
C304.3	Understand server side programming using Java Servlets.
C304.4	Compose server side programming and able to create dynamic web applications using JSP.
C304.5	Develop the dynamic web applications(pages) using JavaScript client side programming.
C304.6	Establish the database connections using PHP, Servlets and JSP.
C305	**C305 PE-I: Principles of Programming Languages**
C305.1	Review the concepts of programming languages.

C305.2	Compare and analyze different data types and statements in different languages such as C, PASCAL, JAVA, C#.
C305.3	Differentiate between functions and procedures and design issues of sub programs in various programming environments.
C305.4	Understand the concepts of synchronization and exceptional handling in OOP.
C305.5	Learn the concepts of logical programming and functional programming.
C305.6	Apply scripting languages in web design and real-time applications.
C306	**C306 PE-II: Information Retrieval System**
C306.1	Store and retrieve textual documents using appropriate models.
C306.2	Use the various retrieval utilities for improving textual document search.
C306.3	Understanding of indexing and compressing documents to improve space and time efficiency.
C306.4	Formulate SQL queries for unstructured data.
C306.5	Understand the issues in web search and able to choose appropriate technique for searching in web.
C306.6	Develop and design a specialized search engine (theoretically).
C307	**C307-Software Engineering Lab**
C307.1	Develop the software using software engineering methods.
C307.2	Do requirement analysis efficiently of any software.
C307.3	Become proficient in using various open source software engineering tools.
C307.4	Model the software to be developed.
C307.5	Become proficient in drawing use case diagrams, which explains the functionality of software.
C307.6	Build the prototype of any software to be developed.
C308	**C308 - Computer Networks & Web Technologies Lab**
C308.1	Implement data link layer framing methods
C308.2	Analyze error detection and correction codes
C308.3	Implement and analyze routing and congestion issues in network design.
C308.4	Gain knowledge of PHP programs for server side scripting.
C308.5	Understand the fundamental concepts of HTML and XML programs and learn the XML parsers to load the XML document in the user application.
C308.6	Develop the dynamic web applications (pages) using JavaScript for client side programming and Servlets, JSP for server side programming.
C309	**C309- Advanced Communication Skills Lab**
C309.1	Write forms of Letters, Reports, Resumes and Portfolios.
C309.2	Develop proficiency in oral and written communication.

C309.3	Understand different kinds of verbal and non-verbal texts
C309.4	Improve listening skills and reading comprehension.
C309.5	Acquire the knowledge of presenting PPTs.
C309.6	Participate effectively in Group Discussions and face Interviews.
C310	**C310- Intellectual Property Rights**
C310.1	Students will be able to understand the concept, basics and organizations of Intellectual Property Rights(IPR)
C310.2	Students will be able to learn about acquisition, utility and infringement of Trade mark
C310.3	Students will be able to learn national and international rights, registration process issues of the copyright law.
C310.4	Students will be able to learn the concept of Patent, Patent law, searching process and the owner ship rights.
C310.5	Students will be able to learn about importance of trade secrets and its protection.
C310.6	Students will be able to understand new developments in trademarks, copyright, patent and IPR audit.
C311	**C311- Fundamentals of Artificial Intelligence**
C311.1	Process the ability to select a search algorithm for a problem and characterize its time and space complexities.
C311.2	Process the skill for representing knowledge using the appropriate technique.
C311.3	Process the ability to apply AI techniques to solve problems of expert systems and uncertainty measure.
C311.4	Ability to appreciate and apply machine learning algorithms and artificial neural networks.
C311.5	Ability to apply advanced knowledge representation techniques and natural language processing for Artificial Intelligence problems.
C311.6	Process the ability to select a search algorithm for a problem and characterize its time and space complexities.

B.Tech - IV-Year I Sem	
C401	**C401- Cryptography and Network Security**
C401.1	Understand the significance of security along with security services, mechanisms. And able to understand various conventional cryptography algorithms.
C401.2	Analyze different symmetric and asymmetric encryption algorithms.
C401.3	Understand the importance of hash functions and digital signatures.
C401.4	Understand the techniques for email security using PGP, S/MIME.
C401.5	Remembering requirements for web security and implementing security through SSL/TLS.
C401.6	Understand the measures for data protection from intruders, virus.
C402	**C401-Data Mining**
C402.1	Understand the need of the Data Mining in addition to database management systems.
C402.2	Convert raw data to standard format using pre-processing techniques.
C402.3	Study and identify the association rules by mining frequent patterns from large data sets.
C402.4	Compare and contrast different classification algorithms for mining the data.
C402.5	Make a group of abstract objects into classes of similar objects using clustering algorithms.
C402.6	Ability to classify web pages, extracting knowledge from the web.
C403	**PE-IV: C403- Cloud Computing**
C403.1	Understand the various high performance computing techniques available to perform highly complex tasks.
C403.2	Learn the concept of characteristics, deployment models and service models available with cloud computing to service the clients.
C403.3	Demonstrate an architecture, autonomy and different ways managing cloud.
C403.4	Exploring the pros and corns of laaS, PaaS ans SaaS and other service models in depth.
C403.5	Understand the various cloud service providers available in the market such as Google cloud, Amazon Cloud, Microsoft Cloud, Salesforce , etc.,
C403.6	Acquire the knowledge on cloud, its functioning and maintenance which is helpful to work on cloud platform.
C404	**PE-V: C404- Software Process and Project Management**
C404.1	Understand the Software Process Maturity Framework, Software Process Assessment and the process reference models.
C404.2	Gain knowledge of software economics, phases in the life cycle of software development, project organization, project control and process instrumentation
C404.3	Analyze the major and minor milestones, artifacts and metrics from management and technical perspective
C404.4	Understand project organizations, project control and process instrumentation
C404.5	Implement a case study on CCPDS-R and future software management practices.

C404.6	Design and develop software product using conventional and modern principles of software project management
C405	**OE-II : C405- Principles of Entrepreneurship**
C405.1	Students will be able to acquire general knowledge in the fields of entrepreneurship and provide students with necessary skills and characteristics
C405.2	Students will be able to identify strategies and issues in expansion of business
C405.3	students will be able to analyse the objectives and functions of all small scale industries
C405.4	students will be able to identify the marketing strategies and production strategies
C405.5	Students will be able to observe entrepreneurship environments and role models work and real business environments and experience
C405.6	Students will be able to acquire knowledge on Labor welfare schemes and which helps an entrepreneur to run a business.
C406	**C406- Cryptography and Network Security Lab**
C406.1	Implement cryptographic algorithms.
C406.2	Implement the Diffie-Hellman Key Exchange mechanism using HTML and JavaScript
C406.3	Perform encryption and decryption using Ceaser cipher, Substitution cipher, Hill Cipher algorithms
C406.4	Analyze and implement RSA algorithm
C406.5	Generate and distribute a PGP key pair and use the PGP package to send an encrypted e-mail message.
C406.6	Understand and solve the current legal issues towards information security.
C407	**C407 - Industry Oriented Mini Project**
C407.1	Demonstrate a through and systematic understanding of project contents.
C407.2	Ability to provide solutions to complex problems
C407.3	Understand methodologies and professional way of documentation and communication.
C407.4	Know the key stages in development of the project.
C407.5	Extend or use the idea in mini project for major project.
C407.6	Demonstrate the strong working knowledge of ethics and professional responsibility.
C408	**C408- Seminar**
C408.1	Demonstrate the presentation skills of a student.
C408.2	Demonstrate the discussion skills of a student
C408.3	Demonstrate the listening skills of a student
C408.4	Demonstrate the augmentation and critical thinking skill of a student.
C408.5	Communicate with engineers and the community at large in written and oral forms
C408.6	Demonstrate the strength of questioning and answering big questions

C409	**C409 - Project Stage-I**
C409.1	Understand the basic concepts & broad principles of projects
C409.2	Understand concepts of Project, its stages and Project Management
C409.3	Get capable of self education and clearly understand the value of achieving perfection in project implementation & completion.
C409.4	Know the key stages in development of the project.
C409.5	Enable the students to implement project planning as per the project requirements.
C409.6	Demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context

2022-23 (II Sem)	
B.Tech - I-Year II Sem	
CO#	**Subject Name -CO Statemetns**
C117	**C117- Python Programming Laboratory**
C117.1	Develop the application specific codes using python
C117.2	Understand Strings, Lists, Tuples and Dictionaries in Python
C117.3	Verify programs using modular approach, file I/O, Python standard library
C117.4	Implement Digital Systems using Python
C117.5	Demonstrate proficiency in importing NumPy, Plotly, and SciPy libraries in Python.
C117.6	Apply the knowledge acquired during the lab to solve real-world problems using Python.
C119	**C119 - IT Workshop**
C119.1	Identify the various components of computer and its peripherals.
C119.2	Apply the tools for preparation of PPT, documentation and excel sheets.
C119.3	Apply the knowledge for internet and www
C119.4	Assemble computer and install various software's.
C119.5	Trouble shoot hardware and software problems.
C119.6	Understand and Trouble shoot different types of viruses and worms.
B.Tech - II-Year II Sem	
C211	**C211-Discrete Mathematics**
C211.1	Apply mathematical logic to solve given problems.
C211.2	Understand sets, relations, functions and Algebraic structures.
C211.3	Use logical notation to outline about fundamental mathematical concepts.
C211.4	Demonstrate in practical applications the use of basic counting principles of permutations, combinations, inclusion/exclusion principle and the pigeonhole methodology.
C211.5	Analyze and solve the recurrence relations.
C211.6	Model and solve the real-world problems using graphs and trees.
C212	**C212-Business Economics & Financial Analysis**
C212.1	Student will be able to understand various forms of business, sources of capital for a company and GDP of economy and phases of business cycle
C212.2	Student will be able to analyze demand and supply concepts and different types, and measurement of elasticity of demand and factors influencing on elasticity of demand.

C212.3	Student will be able to identify production techniques, and different types of internal economies, external economies and law of returns with appropriate examples.
C212.4	Student will be able to evaluate various kinds of market structures, pricing strategies and BEA analysis concepts.
C212.5	Student will be to apply the concepts of accounts and preparation of financial statements.
C212.6	Student will be to create cash and fund flow statements for business organization
C213	**C213- Operating Systems**
C213.1	Understand objectives, functions and evolutions of operating systems.
C213.2	To study the operations performed by OS as a resource manager
C213.3	To understand the scheduling policies of OS
C213.4	To understand the different memory management techniques
C213.5	To understand process concurrency and synchronization
C213.6	To understand the concepts of input/output, storage and file management
C214	**C214 - Data Base Management Systems**
C214.1	Understand the basic concepts and appreciate DBMS, Data Model, Design of ER diagrams and build relational data base schema.
C214.2	Write queries using Relational Algebra and Relational Calculus.
C214.3	To master the basics of sql and construct queries using sql.
C214.4	To understand the relational database design principles.
C214.5	To become familiar with the basic issues of transaction processing and concurrency control.
C214.6	To become familiar with database storage structures and access techniques.
C215	**C215 - Java Programming**
C215.1	List and use object oriented programming concepts for problem solving in Java.
C215.2	Develop programs for various applications using OOPs concepts and exceptional handling in Java.
C215.3	Learn how to reduce the wastage of CPU time with multithreading concepts in Java.
C215.4	Construct JDBC to provide a program level interface for communicating with database using Java Programming.
C215.5	Create GUI based application using Java Programming.
C215.6	Demonstrate the event handling programs and identify the differences between applets and applications with examples.
C216	**C216 - Operating Systems Lab**
C216.1	Implement the CPU Scheduling Algorithms.

C216.2	Implement the File management and Directory Management Techniques
C216.3	Develop application programs using system calls in UNIX..
C216.4	Implement the Deadlock handling methods.
C216.5	Implement the Memory Management Techniques.
C216.6	Implement the interprocess communication between two processes.
C217	**C217- Database Management Systems Lab**
C217.1	Identify the entities, attributes, relationships, keys for given database.
C217.2	Formulate and implement queries using SQL DML, DDL commands.
C217.3	Formulate and implement SQL queries using constraints and comparison operators.
C217.4	Apply the normalization techniques for development of application software
C217.5	Learn security issues and develop security mechanisms for application software.
C217.6	Develop and implement PL/SQL programs using triggers, procedures and cursors.
C218	**C218 - Java Programming Lab**
C218.1	Develop application programs using constructors, Overloading and Overriding methods.
C218.2	Write programs for solving real world problems using java collection frame work.
C218.3	Understand the use of different exception handling mechanisms, packages, interfaces and concept of multithreading for robust and efficient application development.
C218.4	Understand and implement concepts on file streams, Applets, AWT, Swing controls.
C218.5	Develop java application to interact with database by using JDBC.
C218.6	Develop a project integrating the concepts learned.
C219	**C219 - Constitution of India**
C219.1	Students will be able to understand the metamorphosis of the constitution worth fitting with changing time
C219.2	Students will be able to understand individual role and ethical responsibility towards citizens of India by learning the concepts of Human Rights, Duties and Directive Principles.
C219.3	Building overall consciousness regarding the structures of government at the National level and State level.
C219.4	Students will be able to understand the gradual decentralization of Government institutions and their functions and also come to know constitutional powers of the President of India and their applications.
C219.5	Students will be able to ascertain the different types of emergencies being imposed on, and can abide by the rules during its continuity also understand the concept of right to life and Personal liberty.

C219.6	Students, by going through the Constitution of India, will be able to adhere to all the schedules and articles and be obedient to it throughout their life.

B.Tech - III-Year II Sem	
C311	**C311- Machine Learning**
C311.1	Understand the concepts of computational intelligence like machine learning techniques.
C311.2	Apply machine learning techniques to address the real time problems in different areas.
C311.3	Understand the artificial Neural networks and its usage in machine learning application.
C311.4	Apply analytical learning techniques to address the real time problems in different domains.
C311.5	Generate learning set rules by considering sample data sets.
C311.6	Understand and compare different types of machine learning algorithms.
C312	**C312- Compiler Design**
C312.1	Understand the design of a compiler and the phases of program translation from source code to executable code.
C312.2	Analyze different parsing techniques such as recursive decent parser and LR parser used in parser generator.
C312.3	Apply the formal attributes grammars for specifying the syntax and semantics of programming languages.
C312.4	Understand the code optimization and data flow analysis.
C312.5	Apply and analyze code generation algorithms and generate object code.
C312.6	Design a compiler for an abstract language.
C313	**C313 - Design and Analysis of Algorithms**
C313.1	Analyze the asymptotic performance of algorithms.
C313.2	Apply divide and conquer to binary search, merge sort, stresses matrix multiplication and analyze their time complexities.
C313.3	Apply greedy method to knapsack problem, job sequencing with deadlines, prim's, kruskal's algorithms and analyze their time complexities.
C313.4	Apply dynamic programming to special binary search trees, 0/1 knapsack problems, all pairs shortest path problem etc., and analyze their time complexities.
C313.5	Demonstrate a familiarity with major algorithms and data structures.
C313.6	Synthesize efficient algorithms in common engineering design situations.
C314	**C314-PE-III : Software Testing Methodologies**
C314.1	Apply the process of testing and various methodologies in testing for developing software.
C314.2	Write possible test cases for a given software to test it before delivery to the customer.
C314.3	Analyze the program flow graph and design appropriate testing technique.
C314.4	Frame appropriate testing strategy and apply them in software solutions to various complex problems faced by the society.
C314.5	Assess the testability of various software domains and interfaces and also applying appropriate testing technique for testing various domains and interfaces.
C314.6	Select and use appropriate modern testing tools like Win-Runner, J Meter etc. for testing different types software's.
C315	**C315- OE-I : Fundamentals of Internet of Things**

C315.1	Learn the Characteristics and functional blocks of IoT and the basic protocols in Sensor Networks.
C315.2	Differentiate IoT and M2M and to Program and configure Arduino boards for various designs.
C315.3	Implement Python Programming and interfacing for Raspberry Pi.
C315.4	Understand the importance of Software Defined Networks for IoT and Data Handling and Analytics.
C315.5	Compare Cloud with Sensor Cloud and analyze the applications of IoT in Smart cities, homes, Grids, Connected Vehicles and Industrial IoT with case studies.
C315.6	Apply the knowledge of IoT to design IoT applications in different domains.
C316	**C316- Machine Learning Lab**
C316.1	Understand complexity of Machine Learning algorithms and their limitations
C316.2	Understand modern notions in data analysis-oriented computing
C316.3	Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
C316.4	Understand Text Analysis using Back-propagation algorithm
C316.5	Be capable of performing database related experiments in Machine Learning using Pyton
C316.6	Be capable of performing experiments in Machine Learning using real-world data
C317	**C317- Compiler Design Lab**
C317.1	Appreciate the concept of lexical analyzer and able to compose program for a given grammar.
C317.2	Incorporate Regular Expression to identify strings.
C317.3	Learn the fundamentals of parsers and able to implement various parsing techniques.
C317.4	Design and convert BNF rules into YACC form to generate various parsers.
C317.5	Generate machine code from the intermediate code forms
C317.6	Understand the practical approach of how a compiler works.
C318	**C318- PE-III Lab: Software Testing Methodologies Lab**
C315.1	Understand the WinRunner testing tool and Perform recording in Context sensitive and Analog modes
C315.2	Implement GUI Checkpoint for a single property, object/window and multiple objects
C315.3	Apply Bitmap checkpoint for object/window and screen area.
C315.4	Use Database checkpoint for default, custom and run-time record checks
C315.5	Perform Data driven testing through flat files, grids, excel and Batch testing with and without parameter passing.
C315.6	Design and develop the best test strategies in accordance to the development model
C319	**C319- Environmental Science**

C319.1	To develop technologies considering ecosystem values
C319.2	To recognize immense importance of natural resources, and explore future optional possibilities for development
C319.3	To acquaint the value and appreciation for biodiversity services we receive, in turn will mould development under the frame work of biodiversity management strategies
C319.4	To identify the causes of pollution, will realize global impacts of pollution and move path forward with green development
C319.5	To develop ethically, socially, legally towards sustainable development
C319.6	To understand the method to assess the environmental impact of developmental proposals prior to major decisions being taken and commitments made
C320	**C320- Cyber Security**
C315.1	Able to unederstand Basic Cyber Security Concepts, layers of security and Internet Governance
C315.2	Able to undersand types of attacks, Cyber Threats and Comprehensive Cyber Security Policy.
C315.3	Able to Undestand Cyber Security Regulations and Cyber forensics
C315.4	Able to Understand about Cybercrime , who are cybercriminals, Classifications of Cyber crimes.
C315.5	Able to understand Organizational Implications and Cyber terrorism
C315.6	Able to understand Basic Data Privacy Concepts

B.Tech - IV-Year II Sem	
C315	**C315- Organizational Behaviour**
C315.1	Students will be able to discuss development of the field of organizational behaviour and explain the micro and macro approaches
C315.2	To analyze and compare different models used to explain individual behaviour related to motivation and rewards
C315.3	To identify the processes used in developing commmunication and resolving conflicts
C315.4	To explain group dynamics and demonstrate skills required for working in group
C315.5	To identify various leadershipmstyles and role of leaders in decision making process
C315.6	To discuss the implementation of organizational change
C315	**Professional Elective-VI: Distributed Systems**
C315.1	To provide hardware and software issues in modern distributed systems.
C315.2	To get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance and distributed file systems.
C315.3	Ability to understand Security issues
C315.4	Ability to understand Transactions and Concurrency control
C315.5	Understanding Distributed shared memory
C315.6	Ability to design distributed systems for basic level applications.
C315	**Open Elective-III: Non-Conventional Sources of energy**
C315.1	Understand the role and potential of solar energy and its impact on environment.
C315.2	To able to understand the Wind energy and its sources and potential output during utilization.
C315.3	To able to understand the Wind energy and its sources and potential output during utilization.To able to gain knowledge on utilization of BIO mass and its conversion by anaerobic/ aerobic digestion methods.
C315.4	To how to utilize the of GEO thermal energy produced by different types of wells by the application of OTEC principles.
C315.5	To able to understand the Tidal and Wave energy and its sources and potential output during utilization and their economics.
C315.6	Able to comprehend the need and necessity of direct energy conversion and its principles, limitation with applications.
C410	**C410 - Project Stage-II**
C410.1	Apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of Project.
C410.2	Demonstrate skill and knowledge of current information and technological tools and techniques specific to the professional field of study.
C410.3	Use effectively oral, written and visual communication for project documentation.
C410.4	Identify, analyze, and solve problems creatively through sustained critical investigation.
C410.5	Integrate information from multiple sources.
C410.6	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach

HOD CSE