

# SRI VASAVI ENGINEERING COLLEGE (Autonomous)

(Permanent Affiliation to JNTUK, Kakinada), PEDATADEPALLI, TADEPALLIGUDEM-534 101



**Department of Computer Science and Engineering**

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**Department of Computer Science and Technology**

## Course Outcomes (V18 Regulation)

Year & Semester	Course Code & Name	Course Outcomes
I Semester	V18ENT01 <b>English –I</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"><li>1. Understand human resources and their contribution to the society, listen to and read a text to comprehend, interpret and answer questions, and use prepositions and tenses appropriately.</li><li>2. Appraise the problems of transport and the solutions, write the gist of a short-story, know the etymological roots of words, use prefixes and exhibit basic skills in writing.</li><li>3. View Solar Energy as a viable alternative source, and read for comprehension, analysis and interpretation and present narratives in writing.</li><li>4. Evaluate various alternative sources of energy, spell words appropriately, pronounce them with proper stress, punctuate sentences correctly and narrate instances and stories.</li><li>5. Realize the value of our living environment, describe animals, birds, objects, events, processes, etc., write paragraphs coherently and use connectors effectively.</li><li>6. Grasp the vital role of training in industrial organizations, use prepositions, take notes, follow the office etiquette and write impressive narrations.</li></ol>
I Semester	V18MAT01 <b>Mathematics-I</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"><li>1. Apply matrix technique to solve system of linear equation.</li><li>2. Find Eigen values and Eigen vectors</li><li>3. Solve the ordinary differential equations of first order &amp; first degree</li><li>4. Solve the linear differential equations of higher order</li><li>5. Calculate maxima and minima of functions of two variables</li><li>6. Solve first order partial differential equations.</li></ol>
I Semester	V18PHT02 <b>Physics: Opto-Electronics And Semi Condutores</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"><li>1. Expose the students to the basic concepts of Lasers, optical fibers and their properties.</li><li>2. Interpret wavelike behavior of matter and how this motivates the need to replace classical mechanics by a wave equation of motion for matter (the Schrödinger equations)</li><li>3. Distinguish fundamental physical laws for better understanding of materials and their properties for engineering applications.</li><li>4. Apply fundamental principles and processes to operational semiconductor devices and their uses.</li></ol>

I Semester	V18EET01 <b>Basic Electrical and Electronics Engineering</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Apply the fundamentals for solving electrical circuits.</li> <li>2. Calculate different parameters of R-L, R-C, R-L-C circuits.</li> <li>3. Understand the basic concepts of DC Machines &amp; Transformers.</li> <li>4. Describe the operational characteristics of AC Machines.</li> <li>5. Understand the operation and characteristics of PN junction diode.</li> <li>6. Explain the characteristics of Transistor configurations and feedback amplifiers.</li> </ol>
I Semester	V18CHT02 <b>Environmental Studies</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Identify the global environmental challenges and the possible means to combat them.</li> <li>2. Examine the natural resources, their availability for the sustenance of the life and conservation.</li> <li>3. Assess the concepts of the ecosystem and the need for protecting various ecosystems.</li> <li>4. Discuss the biodiversity, threats and conservation practices to protect the biodiversity</li> <li>5. Explain various attributes of the pollution and waste management practices.</li> <li>6. Outline the environmental management and environmental legislations in India.</li> </ol>
I Semester	V18ENL01 <b>ECS Lab –I</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Listen to and make inquiries on phone, thank and respond to thanks in appropriate spoken idiom.</li> <li>2. Make requests, give permissions and directions in fluent English.</li> <li>3. Articulate well in the contexts of clarifying, inviting, complaining, congratulating, apologizing, advising, agreeing and disagreeing in conversational mode.</li> <li>4. Distinguish and pronounce letters and sounds of English phonetically.</li> <li>5. Practice and pronounce consonants, vowels and diphthongs and consonant clusters.</li> <li>6. Listen to and understand different accents in English, and pronounce English words and Sspeak sentences with right stress and intonation.</li> </ol>
I Semester	V18MEL01 <b>Engineering Workshop &amp; IT Workshop Practice Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. prepare different models in the carpentry trade such as Cross lap joint, Dove tail joint.</li> <li>2. make various basic prototypes in the trade of Tin smithy such as rectangular tray, and open Cylinder</li> <li>3. model various basic prototypes in the trade of fitting such as Straight fit, V- fit.</li> <li>4. prepare different models in the Black smithy such as Round rod to Square, S-Hook..</li> <li>5. perform various basic House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring, Go down wiring.</li> <li>6. prepare various basic prototypes in the trade of Welding such as Lap joint, Butt joint.</li> </ol>
I Semester	<b>IT WORKSHOP Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Demonstrate Disassemble and Assemble a Personal Computer and its peripherals</li> <li>2. Practice installation of operating system.</li> <li>3. Connect peripherals and install required drivers</li> <li>4. Demonstrate internet connectivity and usage of internet as per his/her requirement.</li> </ol>

		<ol style="list-style-type: none"> <li>5. Prepare the Documents for their projects</li> <li>6. Prepare Slide shows for their presentations</li> </ol>
<b>I Semester</b>	V18EEL01  <b>Basic Electrical and Electronics Engineering Lab</b>	<ol style="list-style-type: none"> <li>1. Compute response of a Network using various Network theorems.</li> <li>2. Determine the critical field resistance and critical speed by conducting magnetization characteristics of D.C. Shunt generator.</li> <li>3. Change the speed of DC shunt motor by conducting Armature voltage &amp; field flux control methods</li> <li>4. Examine the performance of DC shunt motor and 3-phase induction motor.</li> <li>5. Determine the efficiency and regulation of single phase transformer by conducting OC &amp; SC test.</li> <li>6. Examine the performance characteristics of P-N junction diode, Half and full wave rectifiers.</li> </ol>
<b>I Semester</b>	V18PHL02	<b>Opto Electronics and Semiconductors Lab</b>
<b>II Semester</b>	V18ENT02  <b>English –II</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Understand the real import of education and work of noble men, use nouns, verbs and adjectives appropriately, identify and correct common errors in usage and write official letters.</li> <li>2. Derive inspiration from real life samples, interpret and speak on them, use synonyms and antonyms of words properly and do E-correspondence with required netiquette.</li> <li>3. Assimilate and adjust to new cultural environments, write on life-sketches, make the right use of tense and aspect and concord in sentences and plan and develop speech-writing.</li> <li>4. Imbibe ideas from the lives and works of successful men, use adverbs, develop view-points and topics and write different types of essays.</li> <li>5. Emulate personality-development inputs, elaborate on inspiring scientists use one-word substitutes, develop précis writing and write for the media.</li> <li>6. Learn from the paradigm of great contributors, use collocations and write professional and technical reports in standard formats.</li> </ol>
<b>II Semester</b>	V18MAT02  <b>Mathematics-II</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Estimate approximate root of algebraic and transcendental equations</li> <li>2. Compute interpolating polynomial for the given data</li> <li>3. Solve ordinary differential equations using numerical methods</li> <li>4. Evaluate multiple integrals and improper integrals</li> <li>5. Calculate gradient of a scalar function, divergence and curl of a vector function.</li> <li>6. Apply the knowledge of vector integral concepts to find characteristics of vector fields</li> </ol>
<b>II Semester</b>	V18CHT01  <b>Engineering Chemistry</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Apply different plastics and rubbers for various engineering applications.</li> <li>2. Assess the quality of fuels and apply the knowledge of fuels for the preservation of natural fuels.</li> <li>3. Understand relevant concepts of Electro Chemistry to apply them in designing electrochemical energy systems.</li> <li>4. Analyse boiler troubles arising due to poor water quality and suggest suitable water treatment methods for different industrial applications.</li> </ol>

		<ol style="list-style-type: none"> <li>5. Analyse the causes for practical corrosion problems and apply corrosion principles for protection of metallic structures from corrosion.</li> <li>6. Identify the important applications of advanced engineering materials.</li> </ol>
II Semester	V18CST01  <b>Programming in 'C' for problem Solvin</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Describe various problem solving strategies such as algorithms and Flowcharts</li> <li>2. Develop various programming constructs using Control Structures.</li> <li>3. Summarize the process of modular programming approach</li> <li>4. Illustrate the usage of String handling functions and pointers</li> <li>5. Construct Programs using Structures and Unions.</li> <li>6. Distinguish between Sequential files and Random access files.</li> </ol>
II Semester	V18MET01  <b>Engineering Graphics</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Demonstrate the usage of drawing instruments and sketch conic sections</li> <li>2. Construct different types of scales and special curves</li> <li>3. Draw the projections of the points, lines and planes with reference to the principal planes.</li> <li>4. Develop the projections of solids and its surfaces.</li> <li>5. Draw the Isometric projections of solids.</li> <li>6. Convert the isometric view to orthographic view and vice versa.</li> </ol>
II Semester	V18ENL02  <b>English Communication Skills Lab –II</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Listen to people critically and argue rationally to present a view-point confidently in formal debates.</li> <li>2. Exhibit team spirit and communicative skill and participate effectively in group discussions.</li> <li>3. Plan, structure and give presentations in professional manner.</li> <li>4. Face and perform well in interviews with required etiquette.</li> <li>5. Compose E-mails in standard formats to communicate clearly and write different types of CV in vogue that befit today's career needs.</li> <li>6. Make apt use of idiomatic expressions and recognize and correct typical errors that Indian speakers of English make in pronunciation, spelling, vocabulary and grammar.</li> </ol>
II Semester	V18CSL01  <b>Programming Lab in 'C' for problem Solving Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Demonstrate problem solving techniques using Control Structures.</li> <li>2. Construct Programmes using the concepts of Arrays, Strings and Pointers.</li> <li>3. Apply the concepts of Functions, Structures and Unions.</li> <li>4. Use various file processing operations to develop realtime applications.</li> </ol>
II Semester	V18CHL01  <b>Engineering</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Analyse quantitatively a variety of samples using volumetric methods and instrumental methods.</li> </ol>

	<b>Chemistry Laboratory</b>	<ol style="list-style-type: none"> <li>Applying volumetric and instrumental methods for the determination of water quality parameters namely Alkalinity, Hardness and pH.</li> <li>Prepare polymeric materials and analyse the given coal samples.</li> </ol>
<b>III Semester</b>	VI8MAT04  <b>Probability and Statistics</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Find measures of central tendency and dispersion for real datasets.</li> <li>Find parameters of given function</li> <li>Apply probability distribution to real time problems</li> <li>Plot a best fit curve to an experimental data and find the correlation and regression</li> <li>Create good estimators to various parameters</li> <li>Apply the principles of Statistical Inference to practical problems</li> </ol>
<b>III Semester</b>	VI8ECT06  <b>DIGITAL ELECTRONICS</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Illustrate the conversion of a number from one number system to another .</li> <li>Classify Boolean theorems &amp; simplify the Boolean functions using the Boolean properties.</li> <li>Use K-map as a tool to simplify and design logic circuits</li> <li>Construct different combinational Logic circuits like MUX, Decoders, Encoders etc.</li> <li>Demonstrate the basic flip-flops in terms of truth table &amp; excitation table</li> <li>Apply the concepts of flip-flops in the designing of different sequential circuits like registers, counters, etc.</li> </ol>
<b>III Semester</b>	V18CST02  <b>Data Structures And Algorithms</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Explain Sorting and searching techniques.</li> <li>Demonstrate Singly Linked Lists, Double Linked List.</li> <li>Interpret the Basic Concepts in Data Structures, Stacks, Queues</li> <li>Demonstrate Binary Trees and BST</li> <li>Compare Binary trees with self-balanced tree with appropriate examples</li> <li>Develop various graph algorithms.</li> </ol>
<b>III Semester</b>	V18CST03  <b>Discrete Mathematics</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Demonstrate the concepts associated with propositions and mathematical logic.</li> <li>Demonstrate the basic concepts associated with relations, functions and their applications.</li> <li>Illustrate algebraic structures and their applications in computer science.</li> <li>Apply techniques of graphs for real-time problems</li> <li>Employ the concepts of trees in various real time problems.</li> <li>Solve recurrence relations using various methods and problems based on combinatorics</li> </ol>
<b>III Semester</b>	V18CST04  <b>Object Oriented Programming for Problem Solving</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Differentiate Procedural Oriented Programming and Object Oriented Programming.</li> <li>Develop object oriented programs on classes and objects.</li> <li>Demonstrate various object-oriented concepts like Constructors, Destructors and Operator- Overloading.</li> <li>Apply various Object Oriented features like Inheritance and Polymorphism to solve various computing problems.</li> <li>Develop programs to handle Exceptions &amp; Files.</li> <li>Describe Generic Programming.</li> </ol>
<b>III Semester</b>	V18ECL04  <b>Digital Electronics Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Apply the Boolean algebra to design digital logic circuits.</li> <li>Analyse the behaviour of different combinational logic circuits.</li> <li>Analyse the behaviour of different sequential logic circuits</li> </ol>

		4. Construct and troubleshoot simple combinational and sequential circuits
<b>III Semester</b>	V18CSL02 <b>Data Structures and Algorithms Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Construct Sorting and searching methods. 2. Implement programs using Singly Linked Lists, Double Linked List. 3. Construct Basic Data Structures, Stacks, Queues and Applications. 4. Implement various graph operations and shortest path algorithm.
<b>III Semester</b>	V18CSL03 <b>Object Oriented Programming for Problem Solving Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Develop Programs on <b>Classes and Objects</b> . 2. Demonstrate Constructors, Destructors and Operator-Overloading, Inheritance and Polymorphism. 3. Develop programs to handle Exceptions & Files. 4. Demonstrate Generic Programming.
<b>III Semester</b>	V18ENT03 <b>Professional Communication Skills - I</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Summarize one's introduction in an appropriate manner, exhibit grammatical competence through correction of sentences, analyze noun and pronoun dispositions and develop pre-reading strategies to improve comprehension skills. 2. Distinguish singular and plural in different contexts and display knowledge through accurate usage of sentences, build conversations which befit the situations, comprehend the passages well and, use different kinds of idioms. 3. Classify various kinds of adjectives and adverbs, learn natural occurrence of paired words of native speakers, infer the referential and inferential aspects of the passages and make use of idioms while narrating personal experiences. 4. Judge and assess the behaviour of people in day to day life using kinesics and proxemics that disclose their disposition and be aware of their personal traits that promote good relations. 5. Articulate their goals and have a constructive plan of executing them properly and become adept in oral presentations as well as poster presentations that enhance their professional skills. 6. Evaluate various happenings by thinking out of the box and display their latent talent. They can also reduce the stress levels by applying various stress management techniques.
<b>III Semester</b>	V18CST60 <b>Technical Skills -I</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. interpret the problem and find the logic to produce solution 2. Develop programs to solve Real world problems 3. Apply debugging techniques to find defects and errors in problem solution
<b>IV Semester</b>	V18CST05 <b>Computer Organization</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Illustrate Basic structure of Computers, Instruction types and their addressing modes. 2. Describe the different modes of Input / Output transfer. 3. Illustrate different types of Memory. 4. Describe the different types of Control Unit techniques. 5. Illustrate the Fixed point and Floating point arithmetic operations of ALU. 6. Explain the concept of Pipelining.
<b>IV Semester</b>	V18CST06	<b>After Successful completion of the Course, the student will be able to:</b> 1. Demonstrate Software Process Models

	<b>Software Engineering</b>	<ol style="list-style-type: none"> <li>2. Illustrate Requirement Engineering Process</li> <li>3. Discuss Software architecture and Design</li> <li>4. Apply Coding principles and Testing techniques</li> <li>5. Discuss Software Estimation and Maintenance</li> <li>6. Describe Quality Management and Metrics</li> </ol>
<b>IV Semester</b>	V18CST07 <b>Formal Languages and Automata Theory</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Construct DFA, NFA and <math>\epsilon</math>-NFA.</li> <li>2. Produce Regular expressions , Regular Grammars.</li> <li>3. Construct Context Free Grammars, Context Free Languages.</li> <li>4. Construct Pushdown Automata and its equivalence with CFG.</li> <li>5. Construct Turing machine.</li> <li>6. Discuss Decidability Theory.</li> </ol>
<b>IV Semester</b>	V18CST08 <b>Java Programming</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Java Virtual Machine and Type casting.</li> <li>2. Demonstrate Concepts like Constructors, Arrays, Nested Classes and Command Line Arguments.</li> <li>3. Implement Concepts of Inheritance and Exception Handling</li> <li>4. Develop programs on Multi-Threading and Files</li> <li>5. Demonstrate Applet Programming and AWT Components.</li> <li>6. Describe Event Handling and Swings.</li> </ol>
<b>IV Semester</b>	V18CST09 <b>Python Programming</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate basic concepts of Python Programming</li> <li>2. Describe control structures in python</li> <li>3. Demonstrate functions and packages.</li> <li>4. Construct python programs using structured data types.</li> <li>5. Compare TextFiles and Binary Files</li> <li>6. Apply OOPs concepts to Develop Test cases</li> </ol>
<b>IV Semester</b>	V18MBT51 <b>Managerial Economics and Financial Analysis</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understanding the basic concepts of managerial economics, demand, and elasticity of demand and methods of demand forecasting.</li> <li>2. Interpret the production function with one, two and infinite variables. Understanding various cost concepts and calculating breakeven point</li> <li>3. Understanding and showing a price output determination in different types of market structures and knowing various pricing methods</li> <li>4. Understanding various forms of business organizations</li> <li>5. Prepare the financial statements and its analysis</li> <li>6. Appraising the projects by using various capital budgeting methods</li> </ol>
<b>IV Semester</b>	V18CSL04 <b>Java Programming Lab</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Develop Programs on Classes and Objects , Constructors, Arrays.</li> <li>2. Demonstrate Inheritance and Exception Handling.</li> <li>3. Develop programs on Multi Threading and Files.</li> <li>4. Demonstrate GUI Programming using Applets and Swings.</li> </ol>
<b>IV Semester</b>	V18CSL05 <b>Python Programming Lab</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate Basic Python Programs</li> <li>2. Construct control structures in python</li> <li>3. Demonstrate functions and packages.</li> <li>4. Construct python programs using structured data types.</li> <li>5. Demonstrate TextFiles and exception handling</li> <li>6. Test Rock – paper – Scissors game</li> </ol>
<b>IV Semester</b>	V18ENT11 <b>Constitution of India</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Summarize the evolution and historical importance of the Indian Constitution from 1858 to 1947.</li> <li>2. Explain various stages in the composition of the Indian Constitution.</li> <li>3. Develop awareness about their primary rights and duties &amp; build up their civic sense.</li> </ol>

		<ol style="list-style-type: none"> <li>4. Explain the distribution of powers between the center and states.</li> <li>5. Summarize and sketch the specific roles of heads of Nation and the functioning of legislative bodies.</li> <li>6. Explain the role of local self-government in strengthening democracy.</li> </ol>
<b>IV Semester</b>	V18ENT04  <b>Professional Communication Skills - II</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Correlate individual words into one whole sentence using new vocabulary and focus on the error analysis of prepositions and conjunctions.</li> <li>2. Distinguish and acquire knowledge of using words of same category in a sentence and learn new words that promote communicative finesse.</li> <li>3. Find errors in sentences where the modifiers are misplaced and put them at the appropriate place, use hit pair words and send an email that is concise and lucid.</li> <li>4. Interpret the importance of Attire and Etiquette in societal context and manage their time.</li> <li>5. Discover the team working abilities among themselves and display their leadership qualities.</li> <li>6. Identify various elements of emotional balance that have positive impact on work-life-balance.</li> </ol>
<b>IV Semester</b>	V18CST61  <b>Technical Skills-II</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Develop programs using Pointers.</li> <li>2. Develop problems using functions.</li> <li>3. Solve problems using recursions.</li> <li>4. Construct programs using File Handling.</li> <li>5. Develop programs using Structures and Unions</li> <li>6. Make use of command line arguments and preprocessors to solve the given problems.</li> </ol>
<b>V Semester</b>	V18CST10  <b>Database Management Systems</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Demonstrate Database Systems, various Data Models and Database Architecture.</li> <li>2. Apply ER Modeling to Design Relational Databases for Real Time Applications.</li> <li>3. Apply SQL Constructs to Perform Database Operations.</li> <li>4. Apply Normalization Techniques to Refine Schema.</li> <li>5. Explain Transaction Management and Concurrency Control.</li> <li>6. Experiment with various database indexing techniques.</li> </ol>
<b>V Semester</b>	V18CST11  <b>Computer Networks</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Discuss fundamentals of network concepts and Reference Models.</li> <li>2. Discuss Communication media and switching techniques.</li> <li>3. Demonstrate Error control and protocols.</li> <li>4. Apply Routing algorithms and congestion control algorithms.</li> <li>5. Discuss Transport layer services and protocols.</li> <li>6. Describe Application layer protocols.</li> </ol>
<b>V Semester</b>	V18CST12  <b>Operating Systems</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Describe Operating System Services and System Calls</li> <li>2. Illustrate Process Management Concepts and CPU Scheduling Algorithms</li> <li>3. Demonstrate Process Synchronization primitives</li> <li>4. Demonstrate Deadlock Prevention, Avoidance and Detection methods</li> <li>5. Illustrate Memory Management Techniques and Page Replacement Algorithms</li> <li>6. Describe File System Concepts and Mass Storage Structures.</li> </ol>
<b>V Semester</b>	V18CST13  <b>Design and Analysis of Algorithms</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Describe asymptotic notation and basic concepts of algorithms</li> <li>2. Apply divide and conquer paradigm to solve various problems</li> <li>3. Use greedy technique to solve various problems</li> <li>4. Apply dynamic programming technique to various problems</li> <li>5. Employ backtracking technique to various problems</li> <li>6. Apply branch and bound technique to various problems.</li> </ol>



V Semester	V18CST14 <b>Unix Programming</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Illustrate the UNIX basics and the working of the built in commands in Unix.</li> <li>2. Demonstrate the file system and change the permissions associated with files</li> <li>3. Develop basic programs using shell script</li> <li>4. Demonstrate the grep family and data transforming programs sed, and awk</li> <li>5. Construct programs for process system calls</li> <li>6. Explain the concept of signals and its system call</li> </ol>
V Semester	V18CST15 <b>Advanced Computer Architecture (Elective-I)</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Describe the basics of quantitative design and analysis</li> <li>2. Illustrate memory hierarchy schemes</li> <li>3. Illustrate concepts of Instruction-Level Parallelism</li> <li>4. Explain concepts of Data-Level Parallelism</li> <li>5. Explain concepts of Thread-Level Parallelism</li> <li>6. Describe architectural aspects of Warehouse-Scale Computers.</li> </ol>
V Semester	V18CST16 <b>Advanced Data Structures (Elective-I)</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Explain external sorting method</li> <li>2. Discuss pattern matching Algorithms</li> <li>3. Illustrate various hash functions with appropriate examples</li> <li>4. Illustrate various priority queues with appropriate examples</li> <li>5. Construct self balanced tree with appropriate examples</li> <li>6. Discuss Multiway search trees</li> </ol>
V Semester	V18CST17 <b>Artificial Intelligence (Elective-I)</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Illustrate the concept of intelligent systems and current trends in AI.</li> <li>2. Apply Problem solving, Problem reduction and Game Playing techniques in AI.</li> <li>3. Illustrate the Logic concepts in AI.</li> <li>4. Explain the Knowledge representation techniques in AI.</li> <li>5. Describe Expert systems and their applications.</li> <li>6. Illustrate Uncertainty Measures.</li> </ol>
V Semester	V18CST18 <b>Computer Graphics (Elective-I)</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Understand the applications of computer graphics and learn basic algorithms.</li> <li>2. Analyze the concepts of 2D graphics along with transformation techniques.</li> <li>3. Understand 2D Views of objects and clipping algorithms.</li> <li>4. Illustrate 3D graphics and will get an idea about projections views of objects.</li> <li>5. Determine different visible surface detection methods.</li> <li>6. Understand different animation sequences and Color Models.</li> </ol>
V Semester	V18MBT53 <b>Organizational Behaviour</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Identify the basic concepts of organizational behavior.</li> <li>2. Enumerate the importance of individual personality and learning in the organizational context.</li> <li>3. Develop decision making abilities and interpersonal communication skills.</li> <li>4. Identify the basic concepts of Group dynamics.</li> <li>5. Identify the foundations of organization development.</li> <li>6. Develop team building skills.</li> </ol>
V Semester	V18CSL06 <b>Data Base Management System Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Build SQL Queries and Constraints.</li> <li>2. Experiment with various Database Indexing Techniques.</li> <li>3. Construct PL/SQL Cursors and Exceptions.</li> <li>4. Develop application programs using PL/SQL.</li> <li>5. Develop PL/SQL Functions, Procedures, and Packages.</li> <li>6. Apply projections and aggregation on collection of Mongo DB database.</li> </ol>
V Semester	V18CSL07 <b>Operating System and Unix Lab</b>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>1. Illustrate CPU scheduling algorithms</li> <li>2. Apply Bankers Algorithm for Deadlock Avoidance and Deadlock Prevention</li> <li>3. Use Page replacement algorithms for memory management</li> <li>4. Demonstrate the basic knowledge of Linux commands and file handling</li> </ol>

		<p>utilities by using Linux shell environment.</p> <ol style="list-style-type: none"> <li>Experiment with the concept of shell scripting programs.</li> <li>Illustrate the process of how the parent and child relationships.</li> </ol>
<b>V Semester</b>	<p>V18ENT05</p> <p><b>Professional Communication Skills – III</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Distinguish the subtle meanings of various words in different contexts, recognize similar words as well as words with contrast meanings and use them appropriately.</li> <li>Interpret the passage using different strategies and answer the questions with ease.</li> <li>Compare different pairs of words and draw analogy between the words. Choose an appropriate word to make a sentence meaningful.</li> <li>Recognize the easiest and best possible way of solving problems in the area of Number and Letter Series, Analogy, Classification, Coding &amp; Decoding Symbols, a Ranking and Analytical Reasoning.</li> <li>Investigate the different types of logics involved in Mirror and Water Images, Logical Reasoning &amp; Arithmetical Reasoning.</li> <li>Find the common traps in the questions and errors likely to be mad from the concepts of Blood Relations, Directions, Average, Clock and Calendar, Data Sufficiency, Permutations Combinations and Probability.</li> </ol>
<b>V Semester</b>	<p>V18CST62</p> <p><b>Technical Skills-III</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Apply fundamental data structures like List, Stack to solve real work problems in linear time i.e. <math>O(n)</math>.</li> <li>Make use of advanced data structures like queue, to solve complex problems in linear time , logarithmic time i.e. <math>O(n)</math> or <math>O(n \log n)</math>.</li> <li>Develop programs to solve problems by with the help of searching and sorting techniques.</li> <li>Analyze linked list by comparing with Array List and develop programs to solve optimization Problems.</li> <li>Experiment with types of Linked List to solve complex combinatorial problems.</li> <li>Develop programs to solve complex problems by using combination of stack, Queue and List.</li> </ol>
<b>VI Semester</b>	<p>V18CST19</p> <p><b>Compiler Design</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Describe the compilation process and lexical analyzer</li> <li>Construct top down parsing Techniques</li> <li>Construct bottom up parsing techniques</li> <li>Construct syntax directed translation</li> <li>Produce intermediate code generation process and run time environments</li> <li>Explain the code generation process.</li> </ol>
<b>VI Semester</b>	<p>V18CST20</p> <p><b>Data Mining</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Explain the concept of Data Mining and its functionalities.</li> <li>Discuss various Data Preprocessing Techniques.</li> <li>Demonstrate Association Analysis Techniques.</li> <li>Illustrate various Classification Techniques.</li> <li>Demonstrate Alternative techniques for Classification.</li> <li>Use different Clustering techniques to cluster data.</li> </ol>
<b>VI Semester</b>	<p>V18CST21</p> <p><b>Object Oriented Analysis and Design Through UML</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Discuss importance of modeling.</li> <li>Describe classes and relationships.</li> <li>Develop class diagrams and object diagrams.</li> <li>Develop Interaction, Use case and Activity Diagrams.</li> <li>Illustrate advanced behavioral modeling.</li> <li>Develop component and deployment diagrams.</li> </ol>
<b>VI Semester</b>	<p>V18CST22</p> <p><b>Cryptography and Network Security</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Describe the fundamentals of networks security, security architecture, threats and vulnerabilities.</li> <li>Discuss the mathematical support for both symmetric and asymmetric key cryptography.</li> </ol>

		<ol style="list-style-type: none"> <li>3. Discuss the concept of developing encryption and decryption algorithms.</li> <li>4. Illustrate various techniques of encryption and message authentication functions.</li> <li>5. Apply various Key management and Distribution techniques and its importance.</li> <li>6. Discuss the Need of Transport level and Email security algorithms. s</li> </ol>
<b>VI Semester</b>	<p>V18CST23</p> <p><b>Software Testing Methodologies (Elective-II)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Software testing objectives and methodology.</li> <li>2. Apply various Software testing techniques.</li> <li>3. Discuss Static testing techniques for software testing.</li> <li>4. Differentiate software testing and debugging process.</li> <li>5. Construct test cases by understanding test suite management.</li> <li>6. Explain modern software testing tools to support software testing.</li> </ol>
<b>VI Semester</b>	<p>V18CST24</p> <p><b>Principles of Programming Languages (Elective-II)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Syntax and Semantics of Programming Languages</li> <li>2. Illustrate Data, Data Types and basic statements of Programming Languages</li> <li>3. Explain various sub programming Issues</li> <li>4. Construct programs using Object Oriented, Concurrency and Event Handling</li> <li>5. Distinguish Programming Languages, schemes and ML</li> <li>6. Describe Logic Programming Languages</li> </ol>
<b>VI Semester</b>	<p>V18CST25</p> <p><b>Machine Learning (Elective-II)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate basics of Machine Learning.</li> <li>2. Explain Various Classification Techniques.</li> <li>3. Explain Tree Based Learning and Ensemble Learning.</li> <li>4. Demonstrate Neural Networks and Multi Layer Perceptrons.</li> <li>5. Explain Multi Layer Perceptrons and Back Propagation.</li> <li>6. Demonstrate Dimensionality Reduction Techniques .</li> </ol>
<b>VI Semester</b>	<p>V18CST26</p> <p><b>Image Processing (Elective-II)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate the different Transforms Techniques &amp; their use in Image Processing applications.</li> <li>2. Demonstrate Spatial &amp; frequency domain filtering (like smoothing &amp; sharpening operations) on Images</li> <li>3. Describe Restoration operations/techniques on Images.</li> <li>4. Demonstrate the Image compression Techniques and multi-resolution processing on Images.</li> <li>5. Illustrate Morphological operations on Images &amp; Image segmentation.</li> <li>6. Illustrate the different color Image Processing Techniques on Images.</li> </ol>
<b>VI Semester</b>	<p>V18CSL08</p> <p><b>Object Oriented Analysis and Design Through UML Lab</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Develop OOAD and UML concepts to identify Classes, Use Cases and their relationships.</li> <li>2. Develop Class diagrams.</li> <li>3. Develop Use case diagrams.</li> <li>4. Construct Interaction diagrams.</li> <li>5. Develop State chart, Activity diagrams.</li> <li>6. Develop Component and Deployment diagrams.</li> </ol>
<b>VI Semester</b>	<p>V18CSL09</p> <p><b>Data Mining Lab</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate Data Preprocessing techniques.</li> <li>2. Demonstrate Association Rule Mining techniques.</li> <li>3. Demonstrate Classification techniques.</li> <li>4. Demonstrate the Clustering techniques.</li> </ol>
<b>VI Semester</b>	<p>V18ENT06</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Express writer's tone and relevant ideas using different types of writing skills and</li> </ol>

	<b>Professional Communication Skills – IV</b>	<p>prepare resume to show case skills and accomplishments.</p> <ol style="list-style-type: none"> <li>Organize thoughts in the discussions and express views without reticence and face interviews with aplomb.</li> <li>Infer the meaning of the picture by thinking out of the box and speak without inhibitions.</li> <li>Demonstrate problem solving skills through the concepts of Percentages, Profit and loss, Simple Interest &amp; Compound Interest and Allegation.</li> <li>Analyze appropriate methods of logical thinking on Ratio and Proportion, Partnership, LCM and HCF, Number System, Areas &amp; Volumes.</li> <li>Calculate the end results of Cubes, Dice and Data Analysis, Time &amp; Work, Time &amp; Distance, Race &amp; Games.</li> </ol>
<b>VI Semester</b>	V18CST63 <b>Technical Skills-IV</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Demonstrate java fundamentals to solve real world computational problems.</li> <li>Illustrate object orientated concepts in solving problems with reusability feature.</li> <li>Apply collections on java to solve complex problems in linear time.</li> <li>Make use of StringBuffer and StringBuilder to solve problems in linear and logarithmic time.</li> <li>Experiment with Object Oriented concepts to reduce complexity of problems.</li> <li>Develop programs to solve robust programs by using Exception Handling.</li> </ol>
<b>VI Semester</b>	V18CETOE1 <b>Repair And Rehabilitation Of Structures</b> <i>(Open Elective-I Offered by Civil Engineering)</i>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Describe the deterioration of concrete in structures</li> <li>Estimate the degree of deterioration using Non Destructive Test methods</li> <li>Assess the failures and causes of failures in structures</li> <li>Relate different materials used for repair and rehabilitation of structures</li> <li>Employ and suggest suitable retrofitting techniques</li> <li>Organize the case studies and report the condition of structures</li> </ol>
<b>VI Semester</b>	V18CEOE2 <b>Remote Sensing And Geographical Information System</b> <i>(Open Elective-I Offered by Civil Engineering)</i>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Define the basic principles of Remote Sensing and GIS, including ground, air and satellite based sensor platforms</li> <li>Interpret the aerial photographs and satellite imageries</li> <li>Relate the process of input spatial data entry and its types</li> <li>Examine the Spatial Data for a variety of applications</li> <li>Employ RS and GIS for diverse applications</li> <li>Apply RS and GIS concepts in water resources engineering</li> </ol>
<b>VI Semester</b>	V18EEOE1 <b>Energy Audit &amp; Conservation</b> <i>(Open Elective-I Offered by EEE)</i>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>Describe the concepts and procedures for Energy Audit.</li> <li>Explain the necessity of Energy efficient lighting systems.</li> <li>Discuss the role of Energy instruments in Energy Audit.</li> <li>Describe the impact of harmonics on electrical systems.</li> <li>Discuss various space heating methods.</li> <li>Explain the necessary steps to take for energy conservation.</li> </ol>
<b>VI Semester</b>	V18EEOE2 <b>Electrical Measuring Instruments</b> <i>(Open Elective-I Offered by EEE)</i>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>choose right type of instrument for measurement of voltage and current for ac and dc.</li> <li>choose right type of instrument for measurement of power and energy – able to calibrate energy meter by suitable method.</li> <li>calibrate ammeter and potentiometer.</li> <li>select suitable bridge for measurement of electrical parameters.</li> <li>use the ballistic galvanometer and flux meter for magnetic measuring instruments</li> <li>measure frequency and phase difference between signals using CRO. Able to use</li> </ol>

		digital instruments in electrical measurements.
<b>VI Semester</b>	V18EEOE3 <b>Industrial Safety</b> <i>(Open Elective-I Offered by EEE)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Understand the overview of industrial safety 2. Understand the importance and role of industrial safety. 3. Understand the industrial safety training methods 4. Explain the role of management in industrial safety. 5. Choose proper design of electrical systems in order to control the Physical Hazards. 6. Describe the safety legalization.
<b>VI Semester</b>	V18MEOE1 <b>Basic Mechanical Engineering</b> <i>(Open Elective-I Offered by MECH)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Understand classification and working of major components in thermal power plants. 2. Discuss various metal joining processes 3. Classify types of air compressors and refrigeration systems. 4. Illustrate the working of internal combustion engines 5. Understand basics of heat transfer 6. Discuss about functions and operations of machine tools including milling, shaping, grinding and lathe machines
<b>VI Semester</b>	V18MEOE2 <b>Green Engineering Systems</b> <i>(Open Elective-I Offered by MECH)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Understand about solar radiation and its collection 2. Discuss about various solar energy storage systems and applications. 3. Explain about bio-mass, geothermal energy and ocean energy 4. Classify the energy efficient systems. 5. Describe different energy efficient processes. 6. Discuss about features of green buildings
<b>VI Semester</b>	V18MEOE3 <b>Introduction To Robotics</b> <i>(Open Elective-I Offered by MECH)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Explain various automations and components. 2. Discuss the anatomy of the robot with its components 3. Illustrate robot configurations 4. compute trajectory planning system 5. Discuss various robot actuation and feedback sensors 6. Explain different robot applications in industrial purpose
<b>VI Semester</b>	V18ECTO1 <b>Internet of Things</b> <i>(Open Elective-I Offered by ECE)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Describe M2M and IOT Technologies. 2. Identify the layers and protocols in IOT. 3. Describe various communication technologies used in IOT. 4. Demonstrate various hardware components required for IOT applications. 5. Identify the cloud technologies. 6. Explain the applications of IoT.
<b>VI Semester</b>	V18ECTO2 <b>Principles of Communication Systems</b> <i>(Open Elective-I Offered by ECE)</i>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Demonstrate the fundamentals of communication systems. 2. Compare the various analog modulation and demodulation schemes. 3. Compare the various digital modulation and demodulation schemes. 4. Explain the wireless communication system concepts. 5. Outline the satellite communication system principles. 6. Outline the Optical communication system principles.
<b>VI Semester</b>	V18ECTO3 <b>Introduction to VLSI Design</b>	<b>After Successful completion of the Course, the student will be able to:</b> 1. Demonstrate the fundamentals of IC technology such as various MOS fabrication technologies. 2. Compute electrical properties of MOS circuits such as Ids – Vds relationship, And

	<i>(Open Elective-I Offered by ECE)</i>	<p>MOS circuit parameters.</p> <ol style="list-style-type: none"> <li>3. Develop stick diagrams, layouts using design rules of various MOS Technologies.</li> <li>4. Compute the sheet resistance, area capacitance of various MOS layers And inverter delays.</li> <li>5. Explain the various MOS circuit parameters scaling and assess the Effects of scaling.</li> <li>6. Demonstrate VHDL synthesis, simulation, design capture tools design Verification tools.</li> </ol>
<b>VII Semester</b>	<b>VI8CST27 Advanced Java and Web Technologies</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate the basic concepts of HTML and CSS.</li> <li>2. Develop dynamic webpages and validate with java Script.</li> <li>3. Illustrate the basic concepts of NODE JS and Angular.</li> <li>4. Illustrate Extensible markup language &amp; AJAX.</li> <li>5. Build database driven web applications using JSP.</li> <li>6. Develop web applications using PHP and MySQL.</li> </ol>
<b>VII Semester</b>	<b>VI8MBT52 Management Science</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand various approaches to Management.</li> <li>2. Explain the principles and practices of operations Mmanagement.</li> <li>3. Understand the Functions of Human Resource Management and Marketing Management.</li> <li>4. Sketch the networks for better project Mmanagement.</li> <li>5. Understand the Concept of Strategic Management .</li> <li>6. Describe the knowledge of contemporary management practices.</li> </ol>
<b>VII Semester</b>	<b>VI8CST28 Advanced Operating Systems (Elective – III)</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Architectures of Distributed Systems and Distributed Mutual Exclusion.</li> <li>2. Illustrate the concepts of Deadlock Handling Strategies in Distributed Systems.</li> <li>3. Explain the various Resource Management Techniques for Distributed Systems.</li> <li>4. Discuss Fault Tolerance and Fault Recovery concepts in Distributed Systems .</li> <li>5. Interpret the concepts of Cryptography and Data Security in Distributed Systems.</li> <li>6. Describe Multiprocessor Operating System, Process Synchronization, Scheduling.</li> </ol>
<b>VII Semester</b>	<b>VI8CST29 Statistics with R Programming (Elective – III)</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate different data structures in R.</li> <li>2. Demonstrate about control statements and functions in R.</li> <li>3. Compute different mathematical operations using R pre defined functions.</li> <li>4. Construct and edit visualizations with R.</li> <li>5. Identify appropriate statistical tests using R.</li> <li>6. Examine linear and non linear models to create testable hypotheses.</li> </ol>
<b>VII Semester</b>	<b>VI8CST30 Information Retrieval Systems (Elective – III)</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Identify the basic concepts of information retrieval.</li> <li>2. Describe the Capabilities of IRS, cataloging and indexing.</li> <li>3. Explain the data structures and retrieving documents.</li> <li>4. Describe the difficulty of representing and retrieving documents.</li> <li>5. Explain the latest technologies for describing and searching the web.</li> <li>6. Illustrate searching procedure for user-text and Information System Evaluation.</li> </ol>
<b>VII Semester</b>	<b>VI8CST31 Human Computer Interaction</b>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe the principles and characteristics of GUI.</li> <li>2. Recognize how a computer system may be modified to include human diversity.</li> <li>3. Select an effective style for a specific application.</li> <li>4. Discuss Screen Designing mock-ups and carry out user and expert evaluation of</li> </ol>



	<b>(Elective – III)</b>	<p>interfaces.</p> <ol style="list-style-type: none"> <li>5. Explain System Menus &amp; Navigation Schemes.</li> <li>6. Discuss Device and Screen based controls.</li> </ol>
<b>VII Semester</b>	<p>VI8CST32</p> <p><b>Distributed Systems</b> <b>(Elective – IV)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe distributed system and desired properties of such systems.</li> <li>2. Discuss the theoretical concepts, namely, virtual time and agreement.</li> <li>3. Discuss the basic concepts of distributed systems and Characteristics of IPC protocols.</li> <li>4. Explain the mechanisms such as Remote procedure call (RPC/RMI) and OSS</li> <li>5. Explain the mechanisms such as file systems and P2P algorithms.</li> <li>6. Discuss the Transactions and Replications in distributed systems.</li> </ol>
<b>VII Semester</b>	<p>VI8CST33</p> <p><b>Scripting Languages</b> <b>(Elective – IV)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate the concepts of scripting languages.</li> <li>2. Develop Scripting for application using Ruby.</li> <li>3. Explain the concepts of Programming in Perl.</li> <li>4. Construct programs using Perl.</li> <li>5. Describe TCL Scripting and their applications.</li> <li>6. Discuss features of Groovy when compare with other Scripting Languages.</li> </ol>
<b>VII Semester</b>	<p>VI8CST34</p> <p><b>Deep Learning</b> <b>(Elective – IV)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Explain the basics of machine learning.</li> <li>2. Demonstrate the working of an artificial neural network.</li> <li>3. Identify various parameters and issues while training a deep neural network.</li> <li>4. Explain the working of convolution neural networks.</li> <li>5. Explain the working of recurrent neural networks.</li> <li>6. Recognize the ways of applying deep learning techniques for complex problem-solving.</li> </ol>
<b>VII Semester</b>	<p>VI8CST35</p> <p><b>Social Networks and Semantic Web</b> <b>(Elective – IV)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate knowledge by explaining the three different “named” generations of the web.</li> <li>2. Construct a social network.</li> <li>3. Relate knowledge representation methods for semantic web.</li> <li>4. Explain the key aspects of Web Architecture.</li> <li>5. Describe web services and its Applications.</li> <li>6. Develop “Linked Data” Applications using Semantic Web Technologies.</li> </ol>
<b>VII Semester</b>	<p>VI8CSL10</p> <p><b>Advanced Java and Web Technologies Lab</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Develop static web pages using HTML, CSS.</li> <li>2. Demonstrate the concepts of JavaScript, DHTML and XML.</li> <li>3. Develop Web Applications using JSP.</li> <li>4. Develop dynamic Web Applications using PHP &amp; MySQL.</li> </ol>
<b>VII Semester</b>	<p>VI8CEOE03</p> <p><b>Environmental Pollution And Control</b> <i>(Open Elective-II Offered by Civil Engineering)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe about air pollution and its control methods to students</li> <li>2. Develop the student to understand about industrial wastewater and ways to control it</li> <li>3. Describe student to understand about solid waste and methods to control it</li> <li>4. Express to student about importance of Environmental sanitation</li> <li>5. Prepare student to understand about Hazardous waste and ways to control it</li> <li>6. Illustrate the importance of Sustainable development to student</li> </ol>

<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18CEOE03</p> <p style="text-align: center;"><b>Disaster Management</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by Civil Engineering)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe to student to have a idea on different natural hazards and disaster management</li> <li>2. Develop the student to understand manmade disaster and their management</li> <li>3. Prepare the student in such a way inorder to understand building codes and vulnerability of disaster</li> <li>4. Illustrate to student about role of technology in disaster management</li> <li>5. Assess the importance of education and community preparedness in disaster management to student</li> <li>6. Classify the multi-sectional issues caused by disaster to student.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18EETOE4</p> <p style="text-align: center;"><b>Non Conventional Energy Sources</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by EEE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand the solar radiation and calculate geometric angle.</li> <li>2. Understand the working of solar thermal collectors.</li> <li>3. Understand the working of solar photo voltaic systems and develop the maximum power point techniques.</li> <li>4. Understand the wind energy conversion systems, Betz coefficient and tip speed ratio.</li> <li>5. Understand the basic principle and working of hydro and tidal systems.</li> <li>6. Understand the basic principle and working of, biomass, fuel cell and geothermal systems.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18EEOE5</p> <p style="text-align: center;"><b>Electrical Engineering Materials</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by EEE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Familiarise the properties of different conducting materials and their applications.</li> <li>2. Analyse the properties of Insulating materials.</li> <li>3. Understand semi conducting and dielectric materials and their properties.</li> <li>4. Understand Magnetic materials and their properties.</li> <li>5. Comprehend the working function of Special purpose materials.</li> <li>6. Understand and analyse the working of Various Batteries.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18EEOE6</p> <p style="text-align: center;"><b>Servicing of Electrical Appliances</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by EEE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand Testing of Electrical Domestic Appliances.</li> <li>2. Understand maintenance of U.P.S and SMPS.</li> <li>3. Understand Maintenance of Electrical Power devices.</li> <li>4. Understand Safety procedure.</li> <li>5. Understand Departmental Tests.</li> <li>6. Understand Rural electrification and Indian Electricity Act.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18MEOE4</p> <p style="text-align: center;"><b>Computer Aided Design</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by MECH)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Explain the basic fundamentals of CAD tools</li> <li>2. Find the characteristics of curves, Representation and continuity requirements</li> <li>3. Illustrate the Geometric Transformations.</li> <li>4. Demonstrate various types of surfaces and Representation.</li> <li>5. Differentiate between the methods of representing Solid Modelling.</li> <li>6. Apply the local and global properties for product development</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18MEOE5</p> <p style="text-align: center;"><b>Condition Monitoring and Machine Learning</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by MECH)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand various condition monitoring techniques</li> <li>2. Demonstrate the construction and principle of working of sensors for condition monitoring.</li> <li>3. Interpret the concepts of signal processing analysis</li> <li>4. Assess various failure analysis and maintenance.</li> <li>5. Examine the elements of Machine condition monitoring</li> <li>6. Examine the concepts of machine learning systems for signal analysis and fault detection systems.</li> </ol>



<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18ECTO E4</p> <p style="text-align: center;"><b>Principles of Wireless Comm.</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by ECE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Discuss the cellular system evolution of mobile radio systems.</li> <li>2. Illustrate the basic cellular concepts.</li> <li>3. Explain the Various Propagation models.</li> <li>4. Discuss the need of modulation, diversity and equalization in cellular &amp; Mobile Communication.</li> <li>5. Demonstrate the knowledge about GSM architecture, multiple access schemes like FDMA, TDMA, CDMA.</li> <li>6. Summarize the concepts of upcoming technologies like 3G, 4G etc.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18ECTO E5</p> <p style="text-align: center;"><b>Medical Electronics</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by ECE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Explain the basic concepts of Bio-Medical Instrumentation.</li> <li>2. Explain the concepts of electrode theory, classification of Electrodes and Transducers used in Bio-Medical Applications.</li> <li>3. Explain the Anatomy and Physiology of Cardiovascular system and Illustrate the application of Bio-Medical Instruments to measure the Physiological Parameters of Cardiovascular System.</li> <li>4. Discuss the elements used for Patient's Health care &amp; monitoring.</li> <li>5. Explain the Principles of Diagnostic Techniques and the concepts of Bio-Telemetry.</li> <li>6. Classify different types of monitors, discuss the principles of recorders and Illustrate the methods of accident preventions.</li> </ol>
<p style="text-align: center;"><b>VII Semester</b></p>	<p style="text-align: center;">V18ECTO E6</p> <p style="text-align: center;"><b>Concepts of Embedded Systems</b></p> <p style="text-align: center;"><i>(Open Elective-II Offered by ECE)</i></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe the Basic Concepts of embedded systems-</li> <li>2. Describe the characteristics of Embedded Systems -</li> <li>3. Explain the Architecture and Pin Description of 8051-</li> <li>4. Explain various Addressing Modes and Instructions of 8051-</li> <li>5. Discuss the various Interrupts , Modes of Timers/Counters in 8051-</li> <li>6. Discuss the fundamentals of RTOS based embedded firmware design</li> </ol>
<p style="text-align: center;"><b>VIII Semester</b></p>	<p style="text-align: center;">VI8CST36</p> <p style="text-align: center;"><b>Software Project Management (Elective – V)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Software Project Management Terminology.</li> <li>2. Explain various Software development process Models and software Life cycle phases.</li> <li>3. Illustrate various Effort Estimation Techniques and activity network models for Software Project Planning.</li> <li>4. Demonstrate Risk Management Concepts and resource allocation.</li> <li>5. Explain the importance of Project monitoring and control for accomplishing project goals.</li> <li>6. Describe Software Quality models.</li> </ol>
<p style="text-align: center;"><b>VIII Semester</b></p>	<p style="text-align: center;">VI8CST37</p> <p style="text-align: center;"><b>Big Data Analytics (Elective – V)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Discuss the challenges of Big Data using Hadoop.</li> <li>2. Interpret Hadoop's architecture and core components of Hadoop Distributed File System.</li> <li>3. Apply data modelling techniques to large data sets using map reduce programs.</li> <li>4. Describe the Hadoop I/O classes.</li> <li>5. Examine the use of Pig Framework to work with big data.</li> <li>6. Develop a data analytical system using HIVE.</li> </ol>
<p style="text-align: center;"><b>VIII Semester</b></p>	<p style="text-align: center;">VI8CST38</p> <p style="text-align: center;"><b>Soft Computing (Elective – V)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Discuss about Soft Computing, Requirements and Applications of Soft Computing.</li> <li>2. Discuss about various Supervised and Unsupervised Learning Networks.</li> <li>3. Illustrate various Fuzzy Logic, Fuzzy Sets, Crisp sets, Fuzzification and De-fuzzification Principles.</li> <li>4. Discuss about Fuzzy Arithmetic and Fuzzy measures.</li> </ol>

		<ol style="list-style-type: none"> <li>5. Discuss about Genetic Algorithms and its Operators.</li> <li>6. Discuss about Various Hybrid Soft Computing Techniques.</li> </ol>
<b>VIII Semester</b>	<p>VI8CST39</p> <p><b>Cloud Computing (Elective – V)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>7. Outline the concepts of cloud computing architecture.</li> <li>8. Describe the Virtualization concepts in different scenarios.</li> <li>9. Explain the best policies for cloud deployment.</li> <li>10. Illustrate the design issues of Cloud computing.</li> <li>11. Illustrate the security and privacy of the data in cloud computing.</li> <li>12. Demonstrate cloud instances in Amazon Web Services.</li> </ol>
<b>VIII Semester</b>	<p>VI8CST40</p> <p><b>Software Architecture &amp; Design Patterns (Elective – VI)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe Architectural Structures and Quality Attributes.</li> <li>2. Explain the mechanism of Evaluating Architecture.</li> <li>3. Demonstrate Creational Patterns.</li> <li>4. Construct Structural Patterns for a given Scenario.</li> <li>5. Construct Behavioural Patterns for a given Scenario.</li> <li>6. Examine various Case Studies in utilizing Software Architectures.</li> </ol>
<b>VIII Semester</b>	<p>VI8CST41</p> <p><b>Middleware Technologies (Elective – VI)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate Middleware, E- Business, IT architecture, RPC, RDC.</li> <li>2. Demonstrate Internet Applications and Web services.</li> <li>3. Summarize Technical issues in Middleware.</li> <li>4. Demonstrate the Use of Middleware in Building Distributed Technologies.</li> <li>5. Identify Security Issues with Distributed Applications.</li> <li>6. Apply Appropriate Middleware Technology to Develop Real Time Applications.</li> </ol>
<b>VIII Semester</b>	<p>VI8CST42</p> <p><b>Natural Language Processing (Elective – VI)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Illustrate the Syntax and semantics and Language models of Natural Language Processors.</li> <li>2. Classify Morphology and Finite State Transducers, Markov Models and Entropy Models.</li> <li>3. Explain about Statistical parsing and probabilistic CFGs.</li> <li>4. Demonstrate semantic analysis.</li> <li>5. Explain Discourse Analysis and Lexical Resources.</li> <li>6. Develop a Statistical Methods for Real World Applications and explore deep learning-based NLP.</li> </ol>
<b>VIII Semester</b>	<p>VI8CST43</p> <p><b>Cyber Security (Elective – VI)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe about Cybercrimes.</li> <li>2. Explain Cyber criminals and their attacks.</li> <li>3. Illustrate Cybercrimes and security in mobile devices</li> <li>4. Discuss about the Tools and methods used to overcome Cybercrimes.</li> <li>5. Discuss about Cyber Laws and IT Acts.</li> <li>6. Explain about Computer Forensics.</li> </ol>
<b>VIII Semester</b>	<p>V18CEOE05</p> <p><b>Solid Waste Management (Open Elective –III Offered by Civil Engineering)</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Generalize Solid Waste and its management.</li> <li>2. Assess different elements for managing Solid Waste.</li> <li>3. Employ different methods for transfer and transport of solid waste .</li> <li>4. Employ different methods for Separation and Transformation of Solid waste.</li> <li>5. Organize different methods for processing and treatment of municipal solid waste</li> <li>6. Identify suitable disposal methods with respect to solid waste.</li> </ol>
<b>VIII Semester</b>	<p>V18CEOE06</p> <p><b>Water Quality</b></p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Describe the Engineering Hydrology and application</li> </ol>

	<p style="text-align: center;"><b>and Conservation Systems</b> (Open Elective-III Offered by Civil Engineering)</p>	<ol style="list-style-type: none"> <li>2. Assess the importance and necessity of water supply systems</li> <li>3. Relate different sources of surface and ground water</li> <li>4. Predict the quality of water in reference to IS and WHO standards</li> <li>5. Design of plumbing and sanitary fittings</li> <li>6. Employ different conservation techniques</li> </ol>
<b>VIII Semester</b>	<p style="text-align: center;">V18EEOE7</p> <p style="text-align: center;"><b>Energy Storage Systems</b> (Open Elective-III Offered by EEE)</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Identify the Factors for the Need of Energy Storage.</li> <li>2. Classify various types of energy Storages.</li> <li>3. Describe the performance factors of Energy Storage Systems.</li> <li>4. Describe charging patterns in Battery Storage Systems.</li> <li>5. Identify Various Types of Fuel Cells.</li> <li>6. Identify various applications of Electrical Storage.</li> </ol>
<b>VIII Semester</b>	<p style="text-align: center;">V18EETOE8</p> <p style="text-align: center;"><b>Basics of Electrical Power Generation</b> (Open Elective-III Offered by EEE)</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand the various energy sources, substations and switchgear devices.</li> <li>2. Understand the principle of operation of different components of thermal power stations.</li> <li>3. Understand the principle of different components of a Nuclear power stations.</li> <li>4. Understand the principle of operation of different components of hydro power stations.</li> <li>5. Understand the working of solar photo voltaic systems and applications.</li> <li>6. Understand the wind energy conversion systems, efficiency and power generation.</li> </ol>
<b>VIII Semester</b>	<p style="text-align: center;">V18EEOE9</p> <p style="text-align: center;"><b>Industrial Automation</b> (Open Elective-III Offered by EEE)</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand the basic concepts of control systems.</li> <li>2. Understand the concepts of industrial automation and components of control system.</li> <li>3. Illustrate the concepts of electrical actuators and controllers.</li> <li>4. Analyse the Control Procedures in Control systems</li> <li>5. Analyse the Process control</li> <li>6. Understand the concept of PLC and its application</li> </ol>
<b>VIII Semester</b>	<p style="text-align: center;">V18MEOE6</p> <p style="text-align: center;"><b>Power Plant Engineering</b> (Open Elective-III Offered by MECH)</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Explain the working and layout of steam power plant and the different systems comprising the plant.</li> <li>2. Outline the working principle of diesel power plant and its layout.</li> <li>3. Illustrate the working and layout of gas turbine power plant and various auxiliaries comprising the plant.</li> <li>4. Construct the working principle and basic components of the hydro electric plants.</li> <li>5. Describe the and basic components and working principle of different reactors of nuclear power plant.</li> <li>6. Outline the power plant economics .</li> </ol>
<b>VIII Semester</b>	<p style="text-align: center;">V18MEOE7</p> <p style="text-align: center;"><b>Mechatronics</b> (Open Elective-III Offered by MECH)</p>	<p><b>After Successful completion of the Course, the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Understand the elements of Mechatronics &amp; levels and explain various types of sensors , transducers and Mechatronics design process.</li> <li>2. Sketch and explain various types of solid state devices like Diode, BJT, MOSFET, etc.,</li> <li>3. Illustrate and explain basic principles of Hydraulic, pneumatic, electro hydraulic, electro hydraulic servo actuating systems.</li> <li>4. Illustrate and explain microprocessors, microcontrollers and PLC</li> <li>5. Sketch and explain System interfacing and data acquisition systems.</li> <li>6. Sketch and explain Digital Controllers and Design of mechatronics systems.</li> </ol>
<b>VIII</b>	V18ECTO7	<p><b>After Successful completion of the Course, the student will be able to:</b></p>

Semester	<b>Fundamentals of Digital Image &amp; Video Processing</b> <i>(Open Elective-III Offered by ECE)</i>	<ol style="list-style-type: none"> <li>Analyse Image transforms for various Image processing operations</li> <li>Examine Spatial &amp; frequency domain filtering like smoothing &amp; sharpening Operations on Images.</li> <li>Estimate Image degradation functions and Analyze various Image Restoration Techniques on Images</li> <li>Analyze various Image segmentation techniques</li> <li>Describe various Image compression techniques</li> <li>Explain basic concepts regarding to motion estimation, video filtering and Video standards.</li> </ol>
VIII Semester	V18ECTO8 <b>Embedded RTOS</b> <i>(Open Elective-III Offered by ECE)</i>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Describe the basics of Real time OS.</li> <li>Explain the tasks, Interrupts, Security.</li> <li>Describe the basics of <math>\mu</math>COS-II RTOS.</li> <li>Describe the basics of <math>\mu</math>COS-II RTOS.</li> <li>Illustrate the mechanism of target image creation and porting.</li> <li>Explain the Application of RTOS.</li> </ol>
VIII Semester	V18ECTO9 <b>Principles of Digital TV Engineering</b> <i>(Open Elective-III Offered by ECE)</i>	<b>After Successful completion of the Course, the student will be able to:</b> <ol style="list-style-type: none"> <li>Illustrate the fundamentals of television engineering.</li> <li>Explain about TV signal transmission.</li> <li>Explain the colour TV fundamentals.</li> <li>Classify Digital TV transmission standards.</li> <li>Explain the operation of Digital TV receiver.</li> <li>Describe the working of LCD and Plasma screens.</li> </ol>