**VAAGDEVI COLLEGE OF ENGINEERING**

**(AUTONOMOUS)**

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**COURSE OUTCOMES FOR B.TECH-EEE R18**

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| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **I Sem**  | **Linear Algebra and Calculus** | **B18MA01** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Define system of linear equations to matrix and explore various methods of solving homogenous and non-homogenous equations. |
| 2 | Find matrix rank, Eigen values & Eigen vectors and to find the inverse and power of matrix. Reduce linear equations to quadratic equations and transform into canonical form. |
| 3 | Discuss convergence and divergence in its simplest form, classifying difference between a sequence and series in application context and further investigate infinite process. |
| 4 | Judge the consequences and geometrical approach to the mean value theorems and engineering applications to mathematical problems. Learn to adopt different techniques for multi-dimensional change of variables to transform the coordinates over which integration proceeds. |
| 5 | Understand the maximum & minimum function of two and three variable involving limits with Partial differential equations and recognize their applications in developing mathematical models. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **I Sem**  | **Applied Physics** | **B18PH01** | **L/T/P :4/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Illustrate fabrication of semiconductors, photo detectors, design basis of quantum mechanics |
| 2 | Recall facts of wave optics extend & construct basics of wave optics. |
| 3 | Interpret about lasers, which leads to new innovations and improvements |
| 4 | Elaborate and formulate the study of characterization properties of opto-devices, organize the students to prepare new materials for various engineering applications |
| 5 | Apply basic knowledge on principles and recalls facts of light properties, and motivate for new innovations. Analyze applications of optical fibers |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 2** |
| **I Sem**  | **English** | **B18EN01** | **L/T/P :2/0 /0** |
| By the end of the course, students will be able to |
| 1 | Use English Language effectively in spoken and written forms. |
| 2 | Comprehend the given texts and respond appropriately. |
| 3 | Communicate confidently in various contexts and different cultures. |
| 4 | Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills. |
| 5 | Develops and Communicates by stating main ideas relevantly and coherently in speaking & writing |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **I Sem**  | **Engineering Chemistry** | **B18CH01** | **L/T/P :3/1 /0** |
| The basic concepts included in this course will help the student to gain: |
| 1 | Recall previous knowledge regarding atomic and molecular structure. |
| 2 | Design polymeric engineering materials. Recall basic organic reactions |
| 3 | Construct batteries and classify different electronics and electrical like cells, electrodes, etc., help them to construct different electrical/ electronic parts. |
| 4 | Examine which types of impurities are present in water, specification of drinking water and explain the corrosion behavior/ activity of metals. |
| 5 | Apply phase rule and adsorption to construct the materials by analyzing their compositions. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **I Sem**  | **English Language and Communication Skills Lab** | **B18EN02** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Capable in Better Understanding of nuances of language through audio-visual experience and group activities. |
| 2 | Develop Neutralization of accent for intelligibility |
| 3 | Speak out with clarity and confidence thereby enhances the employability skills of the students by acquiring knowledge and techniques. |
| 4 | Extend to speak fluent English, through advanced vocabulary to improve quality in speaking. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **I Sem**  | **Applied Physics Lab** | **B18PH02** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Operate different equipment’s related to light & electronics |
| 2 | Develop experimental skills to design new experiments & circuit design |
| 3 | Understand about modern equipment like solar cell, optical fiber etc., |
| 4 | Have Exposure to develop novel semiconductor devices. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **I Sem**  | **Engineering Workshop/IT Workshop** | **B18ME02** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Perform different trade exercise. |
| 2 | Assemble and Disassemble a computer and diagnostic exercises with installation of operating systems and Linux Tools |
| 3 | Explore industrial environment and operation of power tools |
| 4 | Gain knowledge of foundry, welding, black smithy, fitting and house wiring |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **II Sem**  | **Differential Equations And Vector Calculus** | **B18MA02** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Recall fundamentals of differential equations to build its solutions and Summarize differential equations and inspect its exactness process. Connect real world problems to concept of differential equations |
| 2 | Identify, analyze, formulate and perceive physical situation whose behavior can be described by ordinary differential equations. |
| 3 | Interpret the multiple integrals for functions and elaborate areas and volumes in different situations. Evaluate line, surface and volume integrals to predict its outcomes. |
| 4 | Utilize the concept of gradient, divergence and curl of vector field to predict areas and volumes |
| 5 | Explain importance of integrals theorems to design different geometries and their characteristics. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **II Sem**  | **Electrical Circuits-I** | **B18EE01** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Learn basics of electrical circuits such as laws, transformation and network reduction techniques. |
| 2 | Explore the basic principles and concepts involved in AC circuits and analyze power in series and parallel AC circuits |
| 3 | Understand various network theorems and its applications in electrical circuits. |
| 4 | Analyze the series and parallel magnetic circuits with basic magnetic principles and laws of electromagnetic induction. |
| 5 | Explore various network topologies and analyze the networks with loop and nodal methods with dependent and independent current and voltage sources. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits:3** |
| **II Sem**  | **Electronic Devices And Circuits** | **B18EC01** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand operation of analog devices and circuits. Evaluate the characteristics and equivalent circuit of diodes |
| 2 | Acquire knowledge of rectifiers and filters and their classifications |
| 3 | Analyze the operation of oscillators and amplifiers. |
| 4 | Learn transistor biasing and stabilization |
| 5 | Design multi vibrators and wave shaping circuits using basic components |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **II Sem**  | **Programming for Problem Solving** | **B18CS01** | **L/T/P :4/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the fundamental basics of programming language and learn to illustrate a problem in flowchart. Learn the basic operators and expressions in C programming. |
| 2 | Analyze the concepts of sequencing, branching, looping with respective decision making statements and also explore various functions and storage classes. |
| 3 | Implement different operations for problems using arrays, Strings and structures. |
| 4 | Learn the basics of pointers and various operations using pointers |
| 5 | Explore various file handling functions employed in problem solving. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits:1** |
| **II Sem**  | **Electronic Devices and Circuits Lab** | **B18EC02** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the use of RPS & CRO & different meters and test electronic circuits using experiment boards. |
| 2 | Explore the operation of different electronic components and design electronic circuits to meet specific requirements. |
| 3 | Understand working principle of electronic circuits. |
| 4 | Evaluate the characteristics of the electronic circuits. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **II Sem**  | **Programming for Problem Solving Lab** | **B18CS02** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the fundamentals of C programming. |
| 2 | Analyze concepts of sequencing, branching, looping and decision making statements to solve scientific and engineering problems. |
| 3 | Implement different operations on arrays and functions to solve problems. |
| 4 | Design and implement different types of file structures using standard methodology. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **II Sem**  | **Engineering Graphics** | **B18ME01** | **L/T/P :1/0 /4** |
| After learning the contents of this subject, the student must be able to |
| 1 | Learn the principles of Engineering Graphics and their significance, ISO and ANSI standards for coordinate dimensioning- usage of Drawing instruments, lettering |
| 2 | Perform projection of lines inclined to one or two planes |
| 3 | Perform the projections and views on the planes and solids |
| 4 | Development of surfaces on solids and understand and draw different types of conic sections |
| 5 | Convert orthographic views into isometric views and vice versa. And explore various computer technologies for graphical communication |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **III Sem**  | **Electrical Circuits – II** | **B18EE07** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basics of network representation, method of analyzing the network and duality of network. |
| 2 | Analyze balanced and unbalanced three phase circuits and measure voltage, current and power in three phase star and delta connections |
| 3 | Study the transient response of series and parallel RLC circuits for DC and sinusoidal excitations. Analyze the response for step, ramp, impulse etc., using Laplace transformation |
| 4 | Study different types of network functions and evaluate the network parameters in two port network using transformed variables |
| 5 | Learn about different types of filters and Fourier analysis applied to AC circuits |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **III Sem**  | **Numerical Methods and Complex Variables** | **B18MA03** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Find a better approximate root of a given equation |
| 2 | Estimate the derivative at a given value and integral of function |
| 3 | Analyze the complex function with reference to their analyticity, integration using Cauchy’s integral and residue theorems |
| 4 | Taylor’s and Laurent’s series expansions of complex function |
| 5 | Evaluate bilinear transformation. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **III Sem**  | **Power Systems – I** | **B18EE08** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Gain the knowledge on operation of Hydro Electric generation. |
| 2 | Acquire and interpret fundamental concepts Thermal generation. |
| 3 | Understand various economic aspects of Power system and tariff. |
| 4 | Acquire knowledge on power system distribution systems and substation |
| 5 | Understand design of underground cables |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **III Sem**  | **Electrical Machines-I** | **B18EE09** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Evaluate the stored and converted energy and also exerted force in electromechanical energy conversion devices. |
| 2 | Able to analyze and design the types of dc generators |
| 3 | Able to select appropriate D.C Generator to meet the requirements of the application in industry |
| 4 | To understand the characteristics and concept s of speed control. |
| 5 | Able to Test the performance and select appropriate D.C machine to meet the requirements of the application in industry. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **III Sem**  | **Electromagnetic Fields** | **B18EE10** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Analyze the relation between the electric field and the magnetic field, about the various laws such as EFI, Potential and other concepts of these fields |
| 2 | Understand the behavior of conductors and dielectrics, their boundary conditions, Maxwell’s equations with respect to electrostatics. |
| 3 | Understand the magnetic field concepts using Biot-Savart law and Ampere's law |
| 4 | Analyze the relation between two or more conductors when subjected to magnetic fields |
| 5 | Understand the concepts of time varying fields in both electric and magnetic fields and their relationship in evaluating power |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **III Sem**  | **Object Oriented Programming & Data Structures** | **B18CS50** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Find the difference between structured programming and object oriented programming language and understanding the features of C++ supporting object oriented programming. |
| 2 | Explain and apply the major object oriented concepts to implement object oriented programs in C++. |
| 3 | Build the basic knowledge to handle operations like insertions, deletions, searching, and traversing mechanisms in linear data structures. |
| 4 | Examine with advanced data structure such as hash tables and priority queue data structures. |
| 5 | Attain the knowledge on trees, balanced trees, graphs and developing C++ code for nonlinear data-structures and Pattern Matching Algorithms. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **III Sem**  | **Electrical Circuits Lab** | **B18EE11** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Explain the concept of circuit laws |
| 2 | Verify network theorems |
| 3 | Determine Z, Y and ABCD parameters for a given two port network. |
| 4 | Evaluate the time response and frequency response characteristics of RLC series circuit and their resonance conditions. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **III Sem**  | **Data Structures Through C++ Lab** | **B18CS08** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | To be able to design and implement Object Oriented Programing concepts. |
| 2 | To select the appropriate Data Structure for given problem |
| 3 | To illustrate operations like searching, insertion, deletion and traversing mechanism on various Data Structures and to gain practical knowledge on the applications of Data Structure |
| 4 | To understand and apply the hashing techniques and to able to design and implement Linear and Non-Linear Data Structure. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 0** |
| **III Sem**  | **Environmental Sciences** | **B18MC02** | **L/T/P :2/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Recall previously learned ecosystem and find how the biodiversity changes went in the environment. |
| 2 | Demonstrate outlines of types of pollutions and related to day-to-day life. |
| 3 | Organize important seminars on natural resources |
| 4 | Apply models of food chains and energy flow models to solve the identified parameters. |
| 5 | Classify the types of pollutants and distinguish the functions of sustainable development that take part in the environment. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **IV Sem**  | **Pulse Digital And Linear Integrated Circuits** | **B18EC45** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand operational amplifiers with linear integrated circuits |
| 2 | Classify the different families of digital integrated circuits and their characteristics. |
| 3 | Identify the applications of diode as integrator, differentiator, clippers, clamper circuits |
| 4 | Understand the timer circuits and phase locked loops |
| 5 | Explore various A-D and D-A converters and its applications |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **IV Sem**  | **Electrical Machines-II** | **B18EE12** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the concepts and performance of single phase transformer. |
| 2 | Test the performance of single phase Transformer |
| 3 | Choose a suitable three phase transformer based on its application and also convert three phase to two phases or vice versa. |
| 4 | Understand the concepts of Construction, operation characteristics, testing (concept of circle diagram) and speed. |
| 5 | Analyze speed torque characteristics and control the speed of induction motors |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **IV Sem**  | **Electrical Measurements and Instrumentation** | **B18EE13** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Identify Different types of measuring instruments and their construction, operation and characteristics |
| 2 | Classify Resistance, voltage, current measurements through potentiometers, voltage and current measurements through instruments transformers |
| 3 | Find Power and energy measurements through watt and energy meters with examples. |
| 4 | Calculate Resistance measurements through DC bridges, capacitance and inductance measurements through AC bridges and different types of transducers |
| 5 | Gain Knowledge on Measurement of frequency and phase through CRO, range extension of measuring instruments and different types of errors & their reduction methods in measuring instruments. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **IV Sem**  | **Power Systems – II** | **B18EE14** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Represent power system in P.U values. |
| 2 | Calculate inductance and capacitance of single phase and three phase. |
| 3 | Analyse performance of transmission line |
| 4 | Understand the transients on transmission line |
| 5 | Compute sag and string efficiency. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **IV Sem**  | **Control Systems** | **B18EE15** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the concept of feedback and analyze the control system components by their Mathematical modeling |
| 2 | Estimate the time domain specifications and steady state error |
| 3 | Apply various time domain and frequency domain techniques to assess the system performance. |
| 4 | Improve the system performance by designing a suitable controller and/or a compensator for a specific application |
| 5 | Test system Controllability and Observability using state space representation and applications of state space representation to various systems. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **IV Sem**  | **Switching Theory and Logic Design** | **B18EC05** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Utilize and explain the functionality of logic gates (AND, NAND, OR, NOR, XOR, XNOR, NOT). |
| 2 | Design different combinational circuits using minimization techniques. |
| 3 | Explain various flip flops, and design of registers and counters. |
| 4 | Apply the design procedures to design basic sequential circuits. |
| 5 | Analyze and design of small sequential circuits and to use standard sequential functions/building blocks to build more complex circuits. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **IV Sem**  | **Pulse Digital and Linear Integrated Circuits Lab** | **B18EC47** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the applications of diode as integrator, differentiator, clippers and clamper circuits. |
| 2 | Design circuits using operational amplifiers for various applications. |
| 3 | Analyze the VCO & PLL circuits. |
| 4 | Understand and implement DAC conversions using OP AMP. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **IV Sem**  | **Electrical Machines Lab-I** | **B18EE16** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Select range of apparatus based on the ratings of DC Machines. |
| 2 | Determine Characteristics of DC machines by conducting tests |
| 3 | Evaluate the efficiency of the machine by analyzing test results. |
| 4 | Study speed control methods for dc machines |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Electrical Machines-III** | **B18EE17** | **L/T/P :3/0/0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Demonstrate basic concepts of AC machines. |
| 2 | Analyze the concepts of regulation of synchronous generators |
| 3 | Evaluate performance characteristics of synchronous machines. |
| 4 | Analyze the operating characteristics of synchronous motors |
| 5 | Identify the Construction, operation and characteristics of single-phase motor and special machines |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Power System Protection** | **B18EE18** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basic construction and principle of arc interruptions in Circuit Breaker and its types |
| 2 | Understand the basic principle of electromagnetic Relay Operation and its various types to different applications. |
| 3 | Explore the various schemes of protecting generator and transformers. |
| 4 | Explore various relaying operation in protecting the transmission line and bus bar. |
| 5 | Learn the necessity of neutral grounding and protection against overvoltage. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **V Sem**  | **Power Electronics** | **B18EE19** | **L/T/P :3/1 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the differences between signal level and power level devices |
| 2 | Examine single phase-controlled rectifier circuits. |
| 3 | Understand three phase-controlled rectifier circuits. |
| 4 | Learn the operation of DC-DC choppers |
| 5 | Study the operation of DC-AC converters and AC-AC voltage regulators |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Electric Machine Design** | **B18EE20** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basic design consideration, standards. Study the heat dissipation, cooling characteristics and electrical characteristics of various dielectric materials. |
| 2 | Understand the design, choice of materials and specifications in DC machines |
| 3 | Understand and design the main dimensions of each parts of a transformers |
| 4 | Design the constructional features of induction motors and estimate their currents and reactance |
| 5 | Design the constructional features of synchronous motors |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Electrical Distribution Systems** | **B18EE21** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand design of various loads |
| 2 | Analyze the need of substations and there erection and site selection |
| 3 | Understand protection of distribution system. |
| 4 | Acquire knowledge of power factor improvement. |
| 5 | Calculate the distribution voltage drop calculations. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Signals And Systems** | **B18EC03** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Apply the knowledge of vectors, orthogonal basis to signals. Analyze the spectral characteristics of continuous-time periodic signals using Fourier series. |
| 2 | Demonstrate and apply Fourier transform on various signals. |
| 3 | Apply the Laplace transform and Fourier transform for the analysis of continuous-time signals |
| 4 | Analyze systems based on their properties and determine the response of LTI system |
| 5 | Understand the concepts of convolution and correlation of signals. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Database Management Systems** | **B18CS04** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the fundamental concepts of database management and analyze database models & Entity Relationship models and to draw the E-R diagram for the given case study. |
| 2 | Apply relational Database Theory, and be able to write relational algebra expressions for queries and Utilize the knowledge of basics of SQL and construct queries using SQL. |
| 3 | Apply Normalization Process to construct the database. Explain Basic Issues of transaction processing |
| 4 | Understand Concurrency control and Recovery strategies of DBMS. |
| 5 | Compare the basic Database storage structures and access techniques: File Organization, indexing methods including B- Tree and Hashing. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Computer Organization** | **B18EC12** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Explain the I/O and memory organization in depth. |
| 2 | Develop assembly language programs for various applications |
| 3 | Estimate the basic components of computers and extend the design of Digital Logic Circuits and apply to Computer Organization. |
| 4 | Analyze the memory organization and evaluate the performance of Computer systems. |
| 5 | Understand the basic chip design and organization of 8086 with assembly language programming and Compare RISC and CISC Architectures. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **V Sem**  | **Internet of Things** | **B18CS40** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Interpret the vision of IOT from a global context. |
| 2 | Perceive building blocks of Internet of Things and its characteristics. |
| 3 | Learn the basic concepts of Python |
| 4 | Implement the python programming using Raspberry |
| 5 | Design a REST |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **V Sem**  | **ELECTRICAL MACHINES – II LAB** | **B18EE22** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Select range of apparatus based on the ratings. |
| 2 | Draw the Equivalent circuits and analyze various AC machines |
| 3 | Determine performance and Characteristics of AC machinery |
| 4 | Evaluate the efficiency of the machine by analyzing test results |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1.5** |
| **V Sem**  | **Electrical Measurements & Instrumentation Lab** | **B18EE23** | **L/T/P :0/0 /3** |
| After learning the contents of this subject, the student must be able to |
| 1 | Compare performance of MC, MI and Dynamometer types of measurements, Energy meter. |
| 2 | Determine the circuit parameters using AC and Dc bridges. |
| 3 | Compute the errors CT’s and PT’s. |
| 4 | Understand the performance of industrial instruments |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **V Sem**  | **Control Systems Lab** | **B18EE24** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Analyze the time & Frequency response of control systems |
| 2 | Evaluate the performance of feedback control systems. |
| 3 | Examine the response of PID controllers |
| 4 | Identify the Performance of AC & DC servo motors |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 0** |
| **V Sem**  | **Human Values and Professional Ethics** | **B18MC09** | **L/T/P :2/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Perceive the importance of ethics and values in life and society |
| 2 | Develop moral responsibility and mould them as best professionals. |
| 3 | Create ethical vision and achieve harmony in life |
| 4 | Provide a critical perspective on the socialization of men and women. |
| 5 | Perceive the important issues related to gender in contemporary India. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Power System Operation and Control** | **B18EE25** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Analyse economic operation of power system. |
| 2 | Understand the working of hydrothermal coordination. |
| 3 | Analyse load frequency control of Single area and Two area power system |
| 4 | Understand power factor and voltage control |
| 5 | Acquire knowledge on reactive power control. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Managerial Economics and Financial Analysis** | **B18MB01** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the nature, scope and importance of Managerial Economics. |
| 2 | Know what is demand, analyze demand and how elasticity of demand is used for pricing decisions and to evaluate methods for forecasting demand |
| 3 | Know how production function is carried out to achieve least cost combination of Inputs and how to analyze cost. |
| 4 | Understand the characteristics of different kinds of markets and outline different form of business organization and analyze how capital budgeting techniques are used for investment decisions. |
| 5 | Know how to prepare final accounts and how to interpret them, analyze and interpret financial statements using ratio analysis. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Power Semiconductor Drives** | **B18EE26** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Analyze the operation of converter fed dc motors and four quadrant operations of dc motors using dual converters |
| 2 | Describe the chopper fed dc motors in various quadrants of operation |
| 3 | Know the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters. |
| 4 | Differentiate the stator side control and rotor side control of three phase induction motor. |
| 5 | Explain the speed control mechanism of synchronous motors. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Renewable Energy Systems** | **B18EE27** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Apply the technology to capture the energy from the renewable sources like sun, wind, ocean, biomass, geothermal. |
| 2 | Use different renewable energy sources to produce electrical power. |
| 3 | Minimize the use of conventional energy sources to produce electrical energy. |
| 4 | Identify the fact that the conventional energy resources are depleted. |
| 5 | Explore the direct energy sources. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Electrical Engineering Materials** | **B18EE28** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Impart the knowledge on electrical engineering materials classification and their applications |
| 2 | Study the performance characteristics of various semiconducting, dielectric and insulation materials and their applications in design of electrical and electronic devices. |
| 3 | Identify various magnetic materials and their classification |
| 4 | Learn various special purpose of materials |
| 5 | Design various electronic components |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Digital Signal Processing** | **B18EC16** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Explain the time domain and frequency domain representation of the signals. |
| 2 | Identify the different types of the systems and their responses. |
| 3 | Understand the inter relationship between DFT and various transforms and fast computation of DFT and appreciate the FFT processing |
| 4 | Classify the different types of windowing techniques |
| 5 | Design a digital filters for a given specifications and Apply the knowledge to real world processing applications. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Advanced Power Electronics** | **B18EE29** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Classify driver circuits for various power semiconductor devices |
| 2 | Analyze the operation of multi-pulse converters |
| 3 | Understand the operation of resonant converters. |
| 4 | Know the differences between VSI and CSI. |
| 5 | Gain knowledge on the operation of multilevel inverters. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **Advanced Control Systems** | **B18EE30** | **L/T/P :3/0/0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand different non linearities and their describing functions. |
| 2 | Describe the methods of Phase-plane trajectory of nonlinear control systems. |
| 3 | Apply various theorems for stability analysis of linear and nonlinear systems. |
| 4 | Implement modal control and calculus of variations. |
| 5 | Formulate and solve optimal control problems. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VI Sem**  | **High Voltage Engineering** | **B18EE31** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand Transients in power system. |
| 2 | Acquire the knowledge on breakdown in solid, Liquid and gaseous dielectrics. |
| 3 | Understand the generation of high voltage and current. |
| 4 | Identify the measurement of high voltage and current. |
| 5 | Analyze power apparatus and insulation coordination. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VI Sem**  | **Power Electronics Lab** | **B18EE32** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Study Characteristics of various Power Semiconductor devices. |
| 2 | Analyze AC/AC and AC/DC Converters. |
| 3 | Analyze the behavior of various DC/DC and DC/AC converters |
| 4 | Understand types of Power Electronic converters and identify their applications |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VI Sem**  | **Power Systems Lab** | **B18EE33** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Calculate Transmission line parameters, efficiency and regulation. |
| 2 | Evaluate the Performance analysis of Over/Under Voltage Relay |
| 3 | Understand the Analysis and performance testing of Feeder Protection System |
| 4 | Calculate Sequence Reactances of 3-Φ Transformer. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 2** |
| **VI Sem**  | **Electronics Design Lab** | **B18EE34** | **L/T/P :1/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Design the various regulated power supplies for control boards. |
| 2 | Gain knowledge on designing of various triggering circuits for SCR |
| 3 | Develop scaling and conditioning circuits for various sensors. |
| 4 | Develop PWM control and gate driver circuits for various power electronic applications. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 0** |
| **VI Sem**  | **Logical Reasoning and Quantitative Aptitude** | **B18MC05** | **L/T/P :2/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Improve their logical thinking in terms of general and mathematical concepts. |
| 2 | Compete in academic as well as competitive levels through which students are able to solve the real world problems. |
| 3 | Analyze the number systems |
| 4 | Make quick decisions to face the critical arithmetic problems. |
| 5 | Analyze the mathematical problems. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Computer Methods in Power Systems** | **B18EE35** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Learn to differentiate the incidence and primitive matrices of a network and form Ybus for network calculations |
| 2 | Perform load flow to evaluate the complex voltage at all nodes in the power system |
| 3 | Understand the faulted power system using Zbus of the system |
| 4 | Analyse symmetrical components. |
| 5 | Know the stability of the power system for small and large disturbance. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Microprocessors and Microcontrollers** | **B18EC20** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Illustrate the internal organization of popular 8086/8051 microprocessors/microcontrollers. |
| 2 | Contrast hardware and software interaction and integration. |
| 3 | Design microprocessors and microcontrollers-based systems and develop microcontroller based systems for real time applications. |
| 4 | Develop knowledge about microcontroller 8051 and its programming. |
| 5 | Explain the Memory organization, classification and their applications and Assess programming, interfacing etc of various devices with microprocessors and external world. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Soft Computing Techniques** | **B18EE36** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Learn the basic concepts of soft computing and differentiate it from hard computing |
| 2 | Explore the fuzzy logic sets and fuzzy logic controller application to its real time problems |
| 3 | Understand various architecture of ANNs and explore its applications of ANNs to solve some real-life problems |
| 4 | Learn the basic concepts of GA and its different architecture to solve single objective optimization problem |
| 5 | Understand the concept of multi-objective optimization problems (MOOPs) and issues of solving it. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Advanced Electrical Drives** | **B18EE37** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Analyse the operation of three phase converter fed dc motors |
| 2 | Describe the VSI and CSI fed induction motor operation. |
| 3 | Know the concept of vector control of induction motor drive. |
| 4 | Understand the concept of direct torque control for three phase induction motor. |
| 5 | Gain knowledge on vector control of PMSM drives and introduction to BLDC drives. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **HVDC and FACTS** | **B18EE38** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basic knowledge on converters control schemes of HVDC system |
| 2 | Apply harmonics filters for reactive power control. |
| 3 | Analyze power flow analysis in HVDC systems. |
| 4 | Understand basic concepts and necessity of FACTS controllers. |
| 5 | Design various shunt and series compensators. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Electrical and Hybrid Vehicles** | **B18EE39** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Gain the knowledge on basic concepts of Electric Vehicles. |
| 2 | Acquire and interpret fundamental concepts of advanced batteries and super capacitors. |
| 3 | Identify various Motor drives used for Electric Vehicles. |
| 4 | Understand various concepts of Electric Train. |
| 5 | Acquire knowledge on series and parallel connections of EHV. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Power Quality** | **B18EE40** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Know the terminology, and definitions of various power quality problems |
| 2 | Define and understand the components of current/power in sinusoidal/non-sinusoidal single phase supply/load systems |
| 3 | Define and understand the components of current/power in sinusoidal/non-sinusoidal three phase supply/load systems |
| 4 |  Analyze the power outages, unbalance, voltage sag and distortions in power systems |
| 5 | Design the passive shunt/series compensators and power filters |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Digital Control Systems** | **B18EE41** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Acquire a strong foundation in sampling and reconstruction Z-transforms. |
| 2 | Apply knowledge of Mathematics, Z-plane analysis to discrete time control systems. |
| 3 | Replace the conventional control system with Digital control system. |
| 4 | Evaluate and apply Z-plane analysis of discrete time control systems |
| 5 | Apply state feedback controllers and observers |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Management Science** | **B18MB02** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Plan an organizational structure for a given context in the organization carry out production operations through Work study |
| 2 | Carry out production operations through Work study. |
| 3 | Understand the markets, customers and competition better and price the given products appropriately. |
| 4 | Ensure quality for a given product or service |
| 5 | Plan and control the HR function better. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Oops Trough Java** | **B18CS52** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Describe the concepts of Java Programming language |
| 2 | Demonstrate the concepts of Polymorphism and Inheritance |
| 3 | Develop robust applications using Exception handling.  |
| 4 | Develop multithreaded applications with synchronization |
| 5 | Design GUI based applications and Applets for web applications. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **VLSI Design** | **B18EC21** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand IC technology and basic electrical properties of MOS and BiCMOS. |
| 2 | Discuss the design process of VLSI circuit |
| 3 | Develop and design the gate level circuits. |
| 4 | Gain the knowledge to design data path subsystems like Adders, Shifters, ALUs etc |
| 5 | Illustrate different programmable logic devices and CMOS testing |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VII Sem**  | **Business Intelligence and Big Data** | **B18CS37** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Learn the basics concepts and fundamentals of big data analysis and examine its various types |
| 2 | Understand the key technologies such as manipulating, storing, and analyzing big data. |
| 3 | Understand the concept of map reduce and explore its extensions |
| 4 | Explore various big data solutions to real world problems |
| 5 | Understand the ethics and practices of big data analysis in the real world. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VII Sem**  | **Microprocessors and Microcontrollers Lab** | **B18EC29** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Demonstrate experimentally basic programming of Microprocessor. |
| 2 | Exhibit microprocessor interfacing with various peripherals for various applications. |
| 3 | Demonstrate experimentally basic programming of microcontroller. |
| 4 | Exhibit microprocessor interfacing with various peripherals for various applications. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VII Sem**  | **Electrical Simulation Lab** | **B18EE42** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Get the basic simulation knowledge on electrical subjects |
| 2 | Learn the time response and frequency response analysis |
| 3 | Conduct load flow analysis |
| 4 | Gain working knowledge on PSPICE software |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VII Sem**  | **Advanced English Communication Skills Lab** | **B18EN03** | **L/T/P :0/0 /2** |
| After learning the contents of this subject, the student must be able to |
| 1 | Develop sound vocabulary and its proper use contextually |
| 2 | Inculcate flair for Writing and felicity in written expression. |
| 3 | Enhance job prospects. |
| 4 | Acquire effective speaking abilities. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 2** |
| **VII Sem**  | **Mini Project and Summer Internship** | **B18EE43** | **L/T/P :0/0 /0** |
| 1 | Students will be able to practice acquired knowledge within the chosen area of technology for project development |
| 2 | Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach. |
| 3 | Reproduce, improve and refine technical aspects for engineering projects |
| 4 | Work as an individual or in a team in development of technical projects and Communicate and report effectively project related activities and findings. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 4** |
| **VII Sem**  | **Project Stage – I** | **B18EE44** | **L/T/P :0/0 /8** |
| 1 | Identify the problem by applying acquired knowledge. |
| 2 | Ability to plan and implement an investigative or developmental project.  |
| 3 | In-depth skill to use some laboratory, modern tools and techniques |
| 4 | Ability to communicate results, concepts, analyses and ideas in written and oral form. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Neural Networks and Fuzzy Systems** | **B18EE45** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the concepts of feed forward neural Networks |
| 2 | Acquire adequate knowledge about feedback networks. |
| 3 | Get knowledge about the concept of fuzziness involved in various systems and about fuzzy set theory. |
| 4 | Gain knowledge of fuzzy logic control and adaptive fuzzy logic and to design the fuzzy control using genetic algorithm. |
| 5 | Explore knowledge of application of fuzzy logic control to real time systems in engineering. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Utilization of Electrical Energy** | **B18EE46** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Choose a right drive for a particular application |
| 2 | Identify Heating and welding schemes for given application. |
| 3 | Explain the basics of lighting and methods of illumination and its parameters |
| 4 | Understand the different schemes of traction systems, its characteristics and its main components. |
| 5 | Analyze electrical energy consumption for traction system. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Smart Grids** | **B18EE47** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand technologies for smart grid and features of Smart Grid in the context of Indian Grid. |
| 2 | Assess the role of automation in Transmission/Distribution/substation |
| 3 | Know various communication technologies involved in smart grids and importance of PMUs, EMS, WAMS, SCADA |
| 4 | Classify various Smart Distribution Technologies |
| 5 | Clarify the regulations and market models for smart grid and various tariffs |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Entrepreneurship Development** | **B18MB03** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the qualities and skills of entrepreneurship |
| 2 | Explore various aspects that promotes entrepreneur in the society |
| 3 | Understand the necessity of ethical guidelines in business |
| 4 | Understand the basics of corporate governance and its mechanism |
| 5 | Understand the impact of social responsibility of a entrepreneur |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Embedded Systems** | **B18EC31** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basics of an embedded system |
| 2 | Learn the method of designing an embedded system for any type of applications. |
| 3 | Understand the operating systems concepts, types and choosing RTOS. |
| 4 | Understand types of memory and interacting to external world. |
| 5 | Learn embedded firmware design approaches. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Power Plant Engineering** | **B18ME36** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the layout of power generation units for different energy sectors. |
| 2 | Identify different subsystem and systems of power generation sector. |
| 3 | Compare existing and emerging alternative energy sources |
| 4 | Analyze the opportunities in contributing towards the solving of energy crisis. |
| 5 | Discuss general arrangement of power distribution. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 3** |
| **VIII Sem**  | **Intellectual Property Rights** | **B18MB06** | **L/T/P :3/0 /0** |
| After learning the contents of this subject, the student must be able to |
| 1 | Understand the basics and importance of intellectual property rights |
| 2 | Explore the Purpose and function of trade marks and related processes |
| 3 | Understand the importance of copy right and the issues involved in its violation |
| 4 | Analyze the trade secrets and its associated laws |
| 5 | Explore the new developments in IPR |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 1** |
| **VII Sem**  | **Technical Seminar** | **B18EE48** | **L/T/P :0/0 /0** |
| 1 | Identify and analyze the real time Electrical Engineering problems |
| 2 | Acquire awareness on latest technology and current trends in the field of Electrical Engineering. |
| 3 | Participate in discussions for enhancement of knowledge |
| 4 | Apply communication skills and Document and present technical reports following professional ethics. |
| **Course Outcome** | **Semester**  | **Subject Name** | **Subject Code** | **No. of Hours** | **Credits: 8** |
| **VII Sem**  | **Project Stage – II** | **B18EE49** | **L/T/P :0/0 /16** |
| 1 | Identify the problem by applying acquired knowledge. |
| 2 | Ability to plan and implement an investigative or developmental project.  |
| 3 | In-depth skill to use some laboratory, modern tools and techniques |
| 4 | Ability to communicate results, concepts, analyses and ideas in written and oral form. |