Sr. No.	Department of Electrical Engineering	
	Third Semester	
1	BEELE301T	Applied Mathematics-III
2	BEELE302T	Non Conventional Energy Sources
3	BEELE303T	Electrical Measurements And Instrumentation
4	BEELE304T	Network Analysis
5	BEELE305T	Electronics Devices and Circuits
	Fourth Semester	
1	BEELE401T	Applied Mathematics-IV
2	BEELE402T	Elements of Electromagnetic
3	BEELE403T	Digital and Linear Electronics Circuits
4	BEELE404T	Electrical Machine- I
6	BEELE405T	Computer Programming
	Fifth Semester	
1	BEELE501T	Electrical Power System-1
2	BEELE502T	Utilization of Electrical Energy
3	BEELE503T	Electrical Machine Design
4	BEELE504T	Microprocessor and Interfacing
5	BEELE505T	Electrical Machine-II
	Sixth Semester	
1	BEELE601T	Power Station Practice
2	BEELE602T	Engineering Economics and Industrial Management
3	BEELE603T	Electrical Drives And their Control
4	BEELE604T	Power Electronics
5	BEELE605T	Control System-I
6	BEELE607T	Functional English
	Seventh Semester	
1	BEELE701T	Control System-II
2	BEELE702T	Electrical Power System-II
3	BEELE703T	Flexible AC Transmission System
4	BEELE704T	High Voltage Engineering
5	BEELE705T	Electrical Installation and Design
	Eighth Semester	
1	BEELE801T	Power Quality (EL-II)
2	BEELE802T	Electrical Distribution System (EL-III)
3	BEELE803T	Switchgear and Protection
4	BEELE804T	Computer Application in Power System

Department of Electrical Engineering

The department of Information Technology has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	Identify, analyze, design lay out and provide engineering solution in the area related to electrical power system, power electronics and drives.
PSO2	To gain the skills of utilization and maintenance of electrical systems and develop

BE Electrical Engineering Third Semester	
	Applied Mathematics-III(BEELE301T)
CO301.1	Understand Laplace Transform and should able to solve differential equations,
CO301.2	Expand the function in periodic form using Fourier series and understand the
CO301.3	Will be able to formulate variational problems and analyze them to deduce key
CO301.4	Understand the fundamental concepts of complex analysis and also be able to
CO301.5	Formulate and solve linear partial differential equations problems and basic
CO301.6	Will be able to simplify the power of matrices , system of linear equations,
	Non Conventional Energy Sources(BEELE302T)
CO302.1	Important of non conventional energy sources in fast growing world, impact of conventional energy sources on environment, learn fundamentals of solar
CO302.2	To learn various types of solar energy collectors, efficiency of collector system.
CO302.3	To understand and learn various applications of solar energy.
CO302.4	Principle of wind energy conversion, site selection criteria for wind farm, different types of wind generators, various application of wind energy,
CO302.5	Understand the basics of energy from ocean, basic principle of tidal power and its
CO302.6	Understand the basics of energy from bio-mass i.e. utilization of waste,
	Electrical Measurements And Instrumentation (BEELE303T)
CO303.1	Measurement of resistance, Inductance, Capacitance using different DC and AC
CO303.2	Operating principle and working of analog instruments like PMMC, moving iron
CO303.3	Power and energy measurement in both 1- phase and 3-phase circuits and also
CO303.4	Data acquisition system, transducers types and operation.

CO303.5	Measurement of torque, torque meter, measurement of velocity, acceleration and
CO303.6	Temperature measurement using thermistors and RTD and pressure, flow
	Network Analysis (BEELE304T)
CO304.1	Source transformation and mesh basis equilibrium matrix approach for
CO304.2	Nodal basis equilibrium equation matrix for electrical network and concept of
CO304.3	Various Network Theorems as applied to A.C. and D.C. circuits
CO304.4	Initial and final conditions with Laplace transform to electrical network and
CO304.5	Concepts of Driving point and transfer function and poles and zeroes of transfer
CO304.6	Two port network parameters, study of series and parallel resonance and
	Electronics Devices and Circuits (BEELE305T)
CO305.1	Principle and working of basic semiconductor device, diode and its applications.
CO305.2	Principle and working of basic semiconductor device, BJT and its Biasing.
CO305.3	To design and analyze power amplifiers and negative feedback amplifiers.
CO305.4	Principle and working of Oscillator and FET.
CO305.5	Get knowledge of differential amplifier and apply as per application needed.
CO305.6	Conversion of numbers from one code to other code, Logic gates and truth tables
BE Electrical Engineering Fourth Semester	
	Applied Mathematics-IV (BEELE401T)
CO401.1	Acquaint with mathematical formulation of system and apply Laplace Transform
CO401.2	Apply the concept of Z-transform for solving difference equations and analyze
CO401.3	Deal with vague data using fuzzy sets and fuzzy logic.
CO401.4	Grasp the concept of numerical methods and apply them to solve various
CO401.5	Grasp the concept of numerical methods and apply them to solve linear and non-
CO401.6	Know discrete and continuous random variables and their probability
	Elements of Electromagnetic (BEELE402T)
CO402.1	Understand the different coordinate system, Transformation of Cartesian to
CO402.2	Understand Electric field intensity from various charge distributions, Calculate
CO402.3	Understand the application of Gauss's Law, Divergence theorem and potential of
CO402.4	Understand the concept of conductance, dielectric, capacitance and

	conditions and application of poisons and Laplace equation.
CO402.5	Understand magnetic field intensity, magnetic potential, and laws and theorems of
CO402.6	Be familiar with Maxwell's equations for time varying field.Understand the
	Digital and Linear Electronics Circuits (BEELE403T)
CO403.1	Basic fundamentals of logic families, combinational logic concepts, code
CO403.2	Basic fundamentals of flip flops, timers and digital memories.
CO403.3	Synchronous and Asynchronous counter, Arithmetic and logic unit (ALU).
CO403.4	Basic operational amplifier circuits: Inverting and non-inverting amplifier,
CO403.5	Simple linear circuits: ADC, DAC, Sample and hold. Applications of operational
CO403.6	Study of linear ICs: LM741, LM555, LM339, LM723, 78xx and 79xx.
	Electrical Machine- I (BEELE404T)
CO404.1	Construction, details, principal of 3 phase and 1 phase transformer. Calculation of efficiency of a single phase and three phase transformer with respective open circuit and short circuit test. Vector group identification of three phase
CO404.2	Three phase to two phase conversion, parallel operation of three phase
CO404.3	Construction, details, principal of operation and performance of DC machine, characteristics of DC motor and generator, control the speed of DC series
CO404.4	Construction, details, principal of 3 phase induction motor. Torque equation and torque slip characteristics varies of rotor resistance and three regions.
CO404.5	Starting method and different speed control method of three phase induction
CO404.6	Double field revolving theory, different type of single phase induction motor.
	Computer Programming (BEELE405T)
CO405.1	Structure of C program, data types, storage classes, variables, expression and
CO405.2	Use of Arrays and searching and sorting techniques.
CO405.3	Basic concepts of pointers, strings, structures and file handling in C
CO405.4	Basic concepts and characteristics of C++ and Object Oriented Programming.
CO405.5	Basic of Matlab programming, graphics tool, conditional and iterative
CO405.6	Matrix operations using Matlab functions and plotting of graphs (basic plots and
BE Electrical Engineering Fifth Semester	
	Electrical Power System-1 (BEELE501T)
CO501.1	Modeling power system component and concept of real and reactive power.
CO501.2	Per unit representation of power system components to facilitate calculation of

CO501.3	Various types of distribution system and concept of insulator string efficiency.
CO501.4	Concept of designing of transmission line (Short, Medium, and Long) and
CO501.5	The basics concept of load flow analysis.
CO501.6	Real and reactive power control of alternator connected in parallel.
	Utilization of Electrical Energy (BEELE502T)
CO502.1	Understand applications for heating using different techniques and their
CO502.2	Understand applications for electric welding using different methods.
CO502.3	Understand illumination and it's designing with various locations.
CO502.4	To get an overview of the refrigeration and air conditioning systems.
CO502.5	Understand fans, pumps and their utilization in efficient way.
CO502.6	Understand about compressors and diesel generating sets along with energy
	Electrical Machine Design (BEELE503T)
CO503.1	To select the material for making the machine and able to calculate temperature
CO503.2	To design the transformer and able to calculate all the dimension. To understand the relation between electrical quantiles and physical dimension of
CO503.3	To find the operating characteristics of the transformer, leakage reactance and
CO503.4	To calculate the main dimension of rotating machine and able to calculate electric
CO503.5	To design the stator and rotor of the induction motor. Able to calculate operating
CO503.6	To design field coil for salient pole machine and for turbo generator rotor and able
	Microprocessor and Interfacing (BEELE504T)
CO504.1	Types of integrated circuit and how to design them using microprocessor 8085.
CO504.2	The basics of 8085 architecture with addressing modes and software instruction
CO504.3	Represent each instruction graphically using timing diagrams.
CO504.4	Concept of stack, subroutines with programs.
CO504.5	Interrupt structure and their programming.
CO504.6	The architecture of 8255 peripheral device and interface 8085 with device like ADC, DAC, Stepper motor and design the hardware application by
	Electrical Machine-II (BEELE505T)
CO505.1	Understood principle, construction, laying of armature and field windings, types,
CO505.2	Understand the concept of voltage regulation methods to determine voltage
CO505.3	Understand Synchronization and parallel operation of synchronous generators.

CO505.4	Understood principle, construction, methods of starting of synchronous motor, its operation with variable load, operation with variable excitation,
CO505.5	Understand transient behavior of machine on sudden short circuit, hunting and
CO505.6	Understood special motors like Repulsion, Hysteresis, Reluctance, Universal and
BE Electrical Engineering Sixth Semester	
	Power Station Practice (BEELE601T)
CO601.1	Different fuel used for generation of electrical energy in different power plant and able to learn different factor connected with generating station, connected
CO601.2	Site selection for thermal power plant, layout, size and number of unit. Operation of thermal power plant, different auxiliaries, electric supply to the
CO601.3	Site selection and operation of hydro station. Type of hydro power plant, different
CO601.4	To learn principal and operation of nuclear power plant and nuclear material required for generation of electricity. Different type of nuclear reactor,
CO601.5	Able to learn exciter instability and different method of stabilizing exciter
CO601.6	Able tolearn captive and cogeneration and its economics . Energy problem,
	Engineering Economics and Industrial Management (BEELE602T)
CO602.1	Understand the concept of economics regarding demand, supply, and production
CO602.2	Learn the basic laws of the economics such as laws of returns. Also learn about cost concept, price and output determination under various competitive
CO602.3	Understand the working of banking system, types of taxation, role of inflation and
CO602.4	Understand nature and scope of management in industrial arena and learn the various functions of management such as planning, organizing,
CO602.5	Understand the concepts of marketing, channel of distribution, advertising and
CO602.6	Learn about the nature and scope of financial management which includes topics such as profit and loss account, balance sheet, importance of budget and
	Electrical Drives And their Control (BEELE603T)
CO603.1	Speed-torque characteristics, starting ,running and braking of electric drive
CO603.2	Solve numerical on power capacity with effect, heating and cooling.
CO603.3	Basic idea of PLC and its programming and application.
CO603.4	Operation of DC,AC contactors and relays and their application for protection of
CO603.5	Operation of traction motor, traction characteristics.

CO603.6	The numerical on traction system and digital control of electric drive.
	Power Electronics (BEELE604T)
CO604.1	Basic operation of various power semiconductor devices.
CO604.2	Basic principal of switching devices.
CO604.3	Analyze and design an AC/DC rectifier circuit.
CO604.4	Analyse DC/DC converter circuit.
CO604.5	DC/AC Inverter circuit.
CO604.6	Role of power electronics in improving energy usage efficiency and the
	Control System-I (BEELE605T)
CO605.1	Modeling of liner system and transfer function calculation.
CO605.2	Feedback effects and electrical components.
CO605.3	Time response and various controllers.
CO605.4	Absolute stability and root locus method.
CO605.5	Frequency response tools as Bode plot, Nyquist plot.
CO605.6	Elementary concepts of state variable approach.
	Functional English (BEELE607T)
CO607.1	Will become adept in using functional grammar
CO607.2	Would be able to write at workplaces
CO607.3	Will be able to draft technical reports and write proposals
CO607.4	Will be able to understand the planning and procedure of carrying out research
CO607.5	Will become well prepared to face competitive examinations and job interviews
CO607.6	Will become dexterous in presentation skills
BE Electrical Engineering Seventh Semester	
	Control System-II (BEELE701T)
CO701.1	To know the different compensation technique of single input single output
CO701.2	To analyze the practical system for desired specification through the variable approach and concept of Eigen values and vectors with the diagonalization technique. Solution of sate equation with the determination of STM by different method.
CO701.3	To Controllability and observability and test on the design of control system in
CO701.4	To design the optimal control with and without constraints.
CO701.5	To function of non linear system and analysis the nonlinear system with phase
CO701.6	To analyze the linear time invariant discrete time system with the help of Z-
	Electrical Power System-II (BEELE702T)
CO702.1	Understand and analyze symmetrical component and sequence network.
CO702.2	Analyze the system with symmetrical fault and select circuit breakers.
CO702.3	Analyze the system with unsymmetrical faults.
CO702.4	Study power system stability.

CO702.5	Study economics operation and distributions of load between units.
CO702.6	Understand importance and types of grounding and compensation.
	Flexible AC Transmission System (BEELE703T)
CO703.1	To understand the constraints offered by transmission line related with transient stability, dynamic stability, voltage stability, thermal limit, frequency
CO703.2	To understand the importance of FACTS controller devices to improve the
CO703.3	Ability to understand and indentify the problem associated with large interconnected system like voltage instability, power oscillation,
CO703.4	Based on the problem, students are able understand to apply suitable controller (series, shunt, shunt-series, series-series) to overcome the problem in
CO703.5	Ability to understand different types of converter regulator and compensator.
CO703.6	To understand harmonic reduction and voltage control technique and its
	High Voltage Engineering (BEELE704T)
CO704.1	Students will understand about breakdown mechanism in gaseous, liquids and
CO704.2	Learn about lightening and switching over-voltages and its protection.
CO704.3	Study about insulation coordination, BIL, reduced BIL, SIL and Travelling
CO704.4	Study different methods of generation high voltage and currents.
CO704.5	Study different methods measurement of high voltage and currents in
CO704.6	Learn different methods of non destructive and High Voltage testing of
	Electrical Installation and Design (BEELE705T)
CO705.1	Concept of load forecasting, solve problems based load assessment.
CO705.2	Draw single line diagram with specification distribution network, motor and
CO705.3	Construction, installation, types and selection of PVC/XLPE cables and overhead
CO705.4	Design 11 KV and 33 KV substation layouts.
CO705.5	Determine fault level at various locations in power system and understand
CO705.6	IE rule for low, medium and .high voltage installation and understand provision
BE Electrical Engineering Eighth Semester	
	Power Quality (EL-II) (BEELE801T)
CO801.1	Knowledge of various power quality phenomenons.
CO801.2	Impact of poor power quality on various equipment of power system and
CO801.3	Various causes and origin of power quality problem.
CO801.4	Controlling of various power quality phenomenon to improve performance of
CO801.5	Monitoring of power quality phenomenon in order to protect and minimize

CO801.6	Assessment of power quality problem and phenomenon on line as well as offline
	Electrical Distribution System (EL-III) (BEELE802T)
CO802.1	To understand the different load factor, classification of load.
CO802.2	To understand different feeders, engineering consideration for voltage level and
CO802.3	To understand calculation of power loss and voltage drop. Method of solution of
CO802.4	To understand equipment for voltage control, effect of different equipment like
CO802.5	To understand the automation in distribution system, data acquisition control and
CO802.6	To understand layout, equipment of the substation.
	Switchgear and Protection (BEELE803T)
CO803.1	Classify the faults in power system.
CO803.2	Design the operating time of over current relays including backup protection.
CO803.3	Understand necessity of protection in power system.
CO803.4	Choose the proper protection system for various equipment like transformer,
CO803.5	Select circuit breakers for different voltage application.
CO803.6	Plot the characteristics of various distance relays and relay classification.
	Computer Application in Power System (BEELE804T)
C0801.1	Understand the fundamental concepts of graph theory. Determine Admittance matrix (required for Load flow) by graphically, Inspection and building
C0804.2	Bus Impedance matrices(required for Short circuit Studies) for system without
C0804.3	Three phase balance network elements with balanced and unbalanced excitation,
C0804.4	Load flow study of a power system by Newton-Raphson and Gauss-Seidal
C0804.5	Three phase Short circuit studies for balanced and unbalanced faults.
C0804.6	Transient stability by using Euler's, Modified Euler's and RK-4th order