

# Shree Santkrupa Institute of Engineering and Technology

Department of Electrical Engineering

Academic Year: 2020-21

Semester: III

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTBSC301	ENGG MATHS 3-M3	3	1	0	4
2	BTEEC302	NETWORK ANALYSIS & SYNTHESIS	3	1	0	3
3	BTEEC303	FLUID MECHANICS & THERMAL ENGG	2	1	0	3
4	BTEEC304	MEASUREMENT & INSTRUMENTATION	2	1	0	3
5	BTEEE305C	SIGNALS & SYSTEMS	3	0	0	3
6	BTHM3401	BASIC HUMAN RIGHTS	2	0	0	Audit
7	BTHM306	ENGG ECONOMICS	2	0	0	2
8	BTEEL307	NETWORK ANALYSIS & SYNTHESIS LAB	0	0	2	1
9	BTEEL308	MEASUREMENT & INSTRUMENTATION LAB	0	0	4	2
10	BTEEM309	ELECTRICAL WORKSHOP/MINI PROJECT	0	0	2	1
11	BTEEF310	FIELD TRAINING	0	0	0	1

Semester: IV

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTEEC401	ELECTRICAL MACHINE-I	3	1	0	4
2	BTEEC402	POWER SYSTEM-I	2	1	0	3
3	BTEEC403	ELECTRICAL INSTALLATION & ESTIMATION	2	1	0	3
4	BTEEC404	NUMERICAL METHODS & PROGRAMMING	2	1	0	3
5	BTEEE406A	SOLID STATE DEVICES	2	0	0	2
6	BTID405	PRODUCT DESIGN (ONLINE COURSE)	2	0	0	2
7	BTEEOE407B	NON-CONVENTIONAL ENERGY SOURCES	2	0	0	2
8	BTEEL408	ELECTRICAL MACHINE-I LAB	0	0	2	1
9	BTEEL410	NUMERICAL METHODS & PROGRAMMING LAB	0	0	2	1
10	BTEEL409	POWER SYSTEM-I LAB	0	0	2	1
11	BTEEL411	SOLID STATE DEVICES LAB	0	0	2	1

Semester: V

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTEEC501	ELECTRICAL MACHINE-II	3	1	0	4
2	BTEEC502	POWER SYSTEM-II	3	1	0	4
3	BTEEC503	MICROPROCESSOR & MICROCONTROLLER	3	0	0	3
4	BTHM504	VALUE EDUCATION HUMAN RIGHTS & LEGISLATIVE PROCEDURE	2	0	0	Audit
5	BTEEE505C	TESTING & MAINTENANCE OF ELECTRICAL EQUIPMENTS	3	0	0	3
6	BTEEE506B	POWER PLANT ENGG	3	0	0	3
7	BTEEL507	ELECTRICAL MACHINE-II LAB	0	0	4	2
8	BTEEL508	POWER SYSTEM-II LAB	0	0	2	1
9	BTEEL509	MICROPROCESSOR & MICROCONTROLLER LAB	0	0	2	1
10	BTEEL510	IND.TRAINING	0	0	0	1

Semester: VI

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTEEC601	CONTROL SYSTEM	3	1	0	4
2	BTEEC602	PRINCIPLES OF ELECTRICAL MACHINE DESIGN	3	0	0	3
3	BTEEC603	POWER ELECTRONICS	3	1	0	4
4	BTEEE604A	IND AUTOMATION & CONTROL	3	0	0	3
5	BTEEE605A	SWITCHGEAR & PROTECTION	3	0	0	3
6	BTEEOE606B	PROJECT MANAGEMENT	3	0	0	3
7	BTEEL607	CONTROL SYSTEM LAB	0	0	2	1
8	BTEEL608	PRINCIPLES OF ELECTRICAL MACHINE DESIGN LAB	0	0	2	1
9	BTEEL609	POWER ELECTRONICS LAB	0	0	4	2

Semester: VII

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1	BTEEC701	Power System Operation & Control	3	0	0	3
2	BTEEC702	High Voltage Engineering	3	0	0	3
3	BTEEC703	Electrical Drives	3	0	0	3
4	BTEEE704A	Special Purpose Electrical Machines	3	0	0	3
5	BTEEE705D	HVDC Transmission and FACTS	3	0	0	3
6	BTEEL706	Power System Operation & Control Lab	0	0	2	1
7	BTEEL707	High Voltage Engineering Lab	0	0	2	1
8	BTEEL708	Electrical Drives Lab	0	0	2	1
9	BTEES709	Seminar	0	0	2	1
10	BTEEP710	Project Part-I	0	0	6	3
11	BTEEF711	FIELD TRAINING	0	0	0	1

Semester: VIII

Sr. No.	Course Code	Course Name	Lecture	Tutorial	Practical	Credit
1		High Power Multilevel Converters	3	0	0	3
2		Power Management and Integrated Ckt.	3	0	0	3
3	BTEEP803	Project - II	0	0	30	15

Course Outcomes

Semester : III	
Course Name	Engineering Mathematics – III
Course Code	BTBSC301
Course Outcome No	Course Outcome Statement
By the end of the course, students will be able to:	
CO 1	Explain the application of the Laplace Transform to find solutions of system of linear equations arising in many engineering problem
CO 2	Demonstrate and apply the concept Laplace Transform
CO 3	Interpret Computation of Fourier Transform and their applications to engineering problems
CO 4	Identify Partial Differential Equations and Their Applications.
CO 5	Evaluate Functions of Complex Variables.
Semester : III	
Course Name	Engineering Economics

<b>Course Code</b>		<b>BTHM 306</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Define Micro and Macro Economics,Economic Development	
CO 2	Expalin concept of time value of money	
CO 3	Comapre demand in detail	
CO 4	Illustrate Meaning of Production and factors of production	
CO 5	Relate Meaning of market,Supply and law of supply	
CO 6	Find Indian Economy, nature and characteristics	
<b>Semester : III</b>		
<b>Course Name</b>		<b>Network Analysis &amp; Synthesis</b>
<b>Course Code</b>		<b>BTEEC302</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Discuss and analyze D.C. circuits	
CO 2	Differentiate A.C and D.C circuits as complex engineering problems using first principle of mathematics	
CO 3	Demonstrate and formulate a solution plan and methodology for electrical circuit analysis using 'Network Theorems	
CO 4	Verify response of first& second order circuits, two port networks to step and sinusoidal input	"
<b>Semester : III</b>		
<b>Course Name</b>		<b>Network Analysis &amp; Synthesis Lab</b>
<b>Course Code</b>		<b>BTEEL307</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Develop relationship between measured data and Network Theorem to analyze the D.C. circuits	
CO 2	Differentiate measured data for trends and correlations to find step response of RC and RL circuit	
CO 3	Demonstrate proficiency in using Network Theorems to find required parameters of the circuit	
CO 4	Design Network analysis techniques to determine parameters of Two Port Networks and their inter connections	
<b>Semester : III</b>		
<b>Course Name</b>		<b>Measurement &amp; Instrumentation</b>
<b>Course Code</b>		<b>BTEEC304</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Illustrate various types and applications of electronic instrument.	
CO 2	Compare various errors present in measuring instruments	
CO 3	Identify the condition of balance bridge to find unknown values.	
CO 4	Explain the working principle, selection criteria and applications of various transducers used in measurement systems.	
<b>Semester : III</b>		
<b>Course Name</b>		<b>Measurement &amp; Instrumentation Lab</b>
<b>Course Code</b>		<b>BTEEL308</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain working and applications of C.R.O., Digital Storage C.R.O., C.R.O. Probes, Meggar, Tong-tester, P.F. Meter and Phase Shifter.	
CO 2	Measure power and power factor in 3-phase load by Two-wattmeter method.Measure low resistance by Crompton potentiometer, Kelvin's double bridge, and	
CO 3	Illustrate a single-phase energy meter by phantom loading at different power factors.	
CO 4	Determine the working principle, selection criteria and applications of various transducers used in measurement systems.	
CO 5	Examine various types of electronic instrument suitable for specific measurement.	
<b>Semester : III</b>		

<b>Course Name</b>		<b>SIGNALS &amp; SYSTEMS</b>
<b>Course Code</b>		<b>BTEEEE305C</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Classify of signals and system	
CO 2	Analyze different types of time signal	
CO 3	Summarize and resolve the signals in frequency domain using Fourier series and Fourier transforms.	
CO 4	Analyze signal and system properties like stability and causality using Laplace and Z transforms	
CO 5	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system.	
<b>Semester : III</b>		
<b>Course Name</b>		<b>ELECTRICAL WORKSHOPS/MINI PROJECT</b>
<b>Course Code</b>		<b>BTEEM309</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Practice acquired knowledge within the chosen area of technology for project development.	
CO 2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.	
CO 3	Reproduce, improve and refine technical aspects for engineering projects.	
CO 4	Work as an individual or in a team in development of technical projects.	
CO 5	Communicate and report effectively project related activities and findings.	
<b>Semester : III</b>		
<b>Course Name</b>		<b>FLUID MECHANICS &amp; THERMAL ENGG</b>
<b>Course Code</b>		<b>BTEEC303</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Define fluid and various properties of the fluid. Determine hydrostatic forces on the plane and curved surfaces.	
CO 2	Explain the stability of floating bodies, several types of flow and the construction and working of Centrifugal and reciprocating pumps. Determine the acceleration of fluid particles.	
CO 3	Explain First & second Law of Thermodynamics, the Concept of Entropy & Enthalpy. Determine indicated power and thermal efficiency of internal combustion engines.	
CO 4	Interpret the operating principles of air compressors, Identify the common types of compressors and their applications.	
CO 5	Illustrate the fundamental principles and applications of refrigeration and air conditioning systems and the basic air conditioning processes on psychometric charts.	
<b>Semester : III</b>		
<b>Course Name</b>		<b>BASIC HUMAN RIGHTS</b>
<b>Course Code</b>		<b>BTHM3401</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain the history of human rights.	
CO 2	Recall responsibilities of others caste, religion, region and culture.	
CO 3	Remember the importance of groups and communities in the society.	
CO 4	Analyse the philosophical and cultural basis and historical perspectives of human	
CO 5	Aware of their responsibilities towards the nation.	
<b>Semester : IV</b>		
<b>Course Name</b>		<b>Electrical Machine- I</b>
<b>Course Code</b>		<b>BTEEC401</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Describe construction, working and application of single phase transformer & three phase transformer	
CO 2	Illustrate energy conservation principles	

CO 3	Determine construction, working and application of DC generator
CO 4	Analyze behavior of DC motor
CO 5	Use a special machine for a particular application
<b>Semester : IV</b>	
<b>Course Name</b>	<b>Power System-1</b>
<b>Course Code</b>	<b>BTEEC402</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Analyze the general structure of power system
CO 2	Impart the knowledge of generation of electricity based on conventional and nonconventional energy sources
CO 3	Explain the concept of microgrid and distributed generation"
CO 4	Identify the mechanical and electrical design aspects of transmission system
CO 5	Enable the students to do analysis of different types of distribution systems and its design
<b>Semester : IV</b>	
<b>Course Name</b>	<b>Electrical Installation &amp; Estimation</b>
<b>Course Code</b>	<b>BTEEC403</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Evaluate estimates and costing of electrical installations of power system
CO 2	Develop the estimation of underground and overhead service mains
CO 3	Analysis of design and estimation of motor installation
CO 4	Implement procedures of contracting and purchase
CO 5	Examine the erection, repairing and jointing of power lines
CO 6	Analyze the substation symbols, electrical connections, single line diagram & equipments of substation
<b>Semester : IV</b>	
<b>Course Name</b>	<b>NUMERICAL METHODS &amp; PROGRAMMING</b>
<b>Course Code</b>	<b>BTEEC404</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Solve Ordinary Differential Equations (ODE) by using MATLAB Programming
CO 2	Demonstrate Approximations and Errors
CO 3	Evaluate problems on Numerical Differentiation and Integration:
CO 4	Identify Numerical methods to solve Linear and Nonlinear Equations
CO 5	Analyze the concept of Regression and Interpolation
CO 6	
<b>Semester : IV</b>	
<b>Course Name</b>	<b>Solid State Devices</b>
<b>Course Code</b>	<b>BTEEE406A</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Estimate Semiconductor Devices and their applications
CO 2	Identify various Signal and Power Amplifiers
CO 3	Analyze the working of Operational Amplifiers
CO 4	Explain different Active Filters and Oscillators
CO 5	Design Various Converters and IC applications
<b>Semester : IV</b>	
<b>Course Name</b>	<b>Power System Lab</b>
<b>Course Code</b>	<b>BTEEL409</b>

Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Explain various aspects of design considerations of different type of power plant and electrical equipment.	
CO 2	Describe various aspects design of various components of distribution system. Calculate voltage drop, size of conductor,	
CO 3	Analyze various types of transmission line parameter to design transmission line and understand the sending end and receiving end circle	
CO 4	Acquire knowledge of substation, various electrical equipment, high voltage testing of electrical equipment, and flashover voltage testing of	
CO 5	Apply techniques to evaluate capacitance and dielectric loss of an insulating material.	
<b>Semester : IV</b>		
<b>Course Name</b>		<b>Electrical Machine- I (LAB)</b>
<b>Course Code</b>		<b>BTEEL408</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Classify construction, working and application of Single Phase & Three phase transformer.	
CO 2	Describe construction, working, application and Characteristics of DC Machine.	
CO 3	Illustrate operational behaviour of DC Motor by taking different test.	
CO 4	Demonstrate Speed Control & Breaking test on DC Motor.	
<b>Semester : IV</b>		
<b>Course Name</b>		<b>Product Design</b>
<b>Course Code</b>		<b>BTID405</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Explore the fundamental concepts of probability theory, statistics and commonly used probability distributions.	
CO 2	Identify joint distributions and calculate the different moments in addition to establishing goodness of fit	
CO 3	Analyze the effect of display size, shape, color and function in industrial products	
CO 4	Apply industrial design methodology while designing new products.	
CO 5	Evaluate products for its function, ergonomics and aesthetics	
<b>Semester : IV</b>		
<b>Course Name</b>		<b>NUMERICAL METHODS &amp; PROGRAMMING LAB</b>
<b>Course Code</b>		<b>BTEEL410</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Apply numerical methods to solve problems from various scientific and engineering disciplines, including linear and nonlinear equations, interpolation, numerical	
CO 2	Make use of high-level programming language, such as Python or MATLAB, to implement and solve mathematical models, and to develop algorithms that solve	
CO 3	Analyze the accuracy and convergence properties of numerical algorithms, and evaluate the performance of different numerical methods for a given problem.	
CO 4	Develop effective computational strategies and techniques for solving large-scale problems, and use modern software tools and libraries to perform data analysis,	
CO 5	Communicate technical ideas and results effectively, both orally and in writing, using appropriate mathematical notation, terminology, and visualization tools, and	
<b>Semester : IV</b>		
<b>Course Name</b>		<b>Non Conventional Energy Sources</b>
<b>Course Code</b>		<b>BTEEOE 407B</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Demonstrate the generation of electricity from various Non-Conventional sources of energy, have a working knowledge on types of fuel cells.	
CO 2	Estimate the solar energy, Utilization of it, Principles involved in solar energy collection and conversion of it to electricity generation'	
CO 3	Explore the concepts involved in wind energy conversion system by studying its components, types and performance.	
CO 4	Illustrate ocean energy and explain the operational methods of their utilization.	
CO 5	Acquire the knowledge on Geothermal energy.	
<b>Semester : IV</b>		

<b>Course Name</b>		<b>Solid State Devices Lab</b>
<b>Course Code</b>		<b>BTEEL411</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain characteristics of zener diode	
CO 2	Analyze the working of Clippers and Clampers.	
CO 3	Analyze the characteristics of transistors and amplifiers	
CO 4	Identify the working of different IC's	
CO 5	Analyze the working of integrator and differentiator.	
<b>Semester : V</b>		
<b>Course Name</b>		<b>ELECTRICAL MACHINE-II</b>
<b>Course Code</b>		<b>BTEEC501</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain basic concept for AC machine	
CO 2	Estimate winding of AC machine & harmonics	
CO 3	Describe Synchronous machine	
CO 4	Demonstrate construction & working of 3 phase Induction machine	
CO 5	Operate special machine for a particular application & demonstrates different frictional kilowatt motors	
<b>Semester : V</b>		
<b>Course Name</b>		<b>Testing &amp; Maintenance of Electrical Equipment</b>
<b>Course Code</b>		<b>BTEEE505C</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain the process of testing	
CO 2	Describe the steps of various maintenance methods / techniques	
CO 3	Identify the trouble shooting methods to improve life of electrical equipment	
CO 4	Use required testing procedure for different equipment using proper tools and methods.	
<b>Semester : V</b>		
<b>Course Name</b>		<b>Power Plant Engineering</b>
<b>Course Code</b>		<b>BTEEE506B</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Recall the basics of Power Plants.	
CO 2	Compare the power generation by renewable and non-renewable energy resources"	
CO 3	Classify the different types of cycles and natural resources used in powerplants and their applications. "	
CO 4	Illustrate the principle of construction and operation of different conventional power plants.	
CO 5	Determine basic components of power system, energy sources	
<b>Semester : V</b>		
<b>Course Name</b>		<b>ELECTRICAL MACHINE-II LAB</b>
<b>Course Code</b>		<b>BTEEL507</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Identify construction, working and application of Synchronous by performing various test	
CO 2	Demonstrate operation of induction motor by performing blocked rotor test	
CO 3	Illustrate Starting & Speed controlling methods of Induction motors	
<b>Semester : V</b>		
<b>Course Name</b>		<b>Microprocessor and Microcontroller</b>
<b>Course Code</b>		<b>BTEEC503</b>

Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Explain the architecture of Microprocessor 8085 and its operation.	
CO 2	Identify the different ways of interfacing memory and I/O with 8085 microprocessor	
CO 3	Design microprocessor I/O ports in order to interface the processor to various devices .	
CO 4	Explain the architecture, operation and instruction set of microcontroller(8051)	
CO 5	Identify the different ways of interfacing and programming with microcontroller.	
<b>Semester : V</b>		
<b>Course Name</b>		<b>Microprocessor and Microcontroller Lab</b>
<b>Course Code</b>		<b>BTEEL509</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Explain the architecture of Microprocessor 8085 and its operation.	
CO 2	Design and implement Assembly language programs on 8085 microprocessor.	
CO 3	Design interfacing circuits with 8085	
CO 4	Design and implement programs on 8085 microprocessor	
CO 5	Design programs on Arithmetic Operations.	
<b>Semester : V</b>		
<b>Course Name</b>		<b>VALUE EDUCATION HUMAN RIGHTS &amp; LEGISLATIVE PROCEDURE</b>
<b>Course Code</b>		<b>BTHM504</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Understand value of education and self-development	
CO 2	Develop good values and character	
CO 3	Know Human right and legislative procedure	
CO 4	Explain the history of human rights.	
CO 5	Remember the importance of groups and communities in the society.	
<b>Semester : V</b>		
<b>Course Name</b>		<b>POWER SYSTEM-II</b>
<b>Course Code</b>		<b>BTEEC502</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Know the fundamental concepts of power system.	
CO 2	To study different parameters of power system operation and control	
CO 3	Analyze load flow and Diff. methods of reactive power control.	
CO 4	Evaluate diff. methods of fault analysis	
CO 5	Illustrate diff. methods of stability study	
<b>Semester : V</b>		
<b>Course Name</b>		<b>POWER SYSTEM-II LAB</b>
<b>Course Code</b>		<b>BTEEL508</b>
Course Outcome No	Course Outcome Statement	By the end of the course, the student will be able to:
CO 1	Know the fundamental concepts of power system.	
CO 2	Analyze different types of short-circuit faults which occur in power systems	
CO 3	To study load flow and Diff. methods of reactive power control.	
CO 4	Evaluate diff. methods of fault analysis and stability study using MATLAB	
CO 5	To solve optimal power flow problem.	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>PRINCIPLES OF ELECTRICAL MACHINE DESIGN</b>



<b>Course Code</b>		<b>BTEEC602</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Describe principles of electric machine design.	
CO 2	Implement design different electric apparatus	
CO 3	Evaluate design of AC & DC windings	
CO 4	Demonstrate concept of heating, cooling & Ventilation	
CO 5	Analyze the knowledge of design of Transformer, by using Computer.	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>Project Management</b>
<b>Course Code</b>		<b>BTEEOE606B</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Write concepts of project management.	
CO 2	Evaluate a project plan.	
CO 3	Develop the project implementation strategy.	
CO 4	Analyze post project affects.	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>Switchgear and Protection</b>
<b>Course Code</b>		<b>BTEEE605A</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Explain principles of protective relaying, Different types of switchgear	
CO 2	Explain principle of construction, operation and selection of different type of circuit breaker used in power system	
CO 3	Interprt Digital And Numerical Protection	
CO 4	Construct Bus bar & relay	
CO 5	Experiment of Protection of Alternators and Transformers	
CO 6	Function Insulation co-ordination and over current protection	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>POWER ELECTRONICS</b>
<b>Course Code</b>		<b>BTEEC603</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>After end of this course, students will be able to:</b>
CO 1	Recall principle of construction,operation and characteristics of basic semiconductor device	
CO 2	Explain knowledge about various power semiconductor devices	
CO 3	Apply and analyze performance of DC to DC converters,DC to AC convert	
CO 4	Analyze performance of AC voltage controller.	
CO 5	Build performance of controlled and uncontrolled converters.	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>PRINCIPLES OF ELECTRICAL MACHINE DESIGN LAB</b>
<b>Course Code</b>		<b>BTEEL608</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Remember all electrical Symbols & Electrical Installation	
CO 2	Synthesis design of DC Machine	
CO 3	Implement design of AC Machine	
CO 4	Illustrate Design of Transformer	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>POWER ELECTRONICS LAB</b>

<b>Course Code</b>		<b>BTEEL609</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>After end of this course, students will be able to:</b>
CO 1	Illustrate the characteristics of various power electronics devices.	
CO 2	Analyze different phase controlled converter	
CO 3	Analyze three phase bridge inverter	
CO 4	Simulation of Single phase controlled converter	
CO 5	Simulation of Single phase inverter	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>Control System</b>
<b>Course Code</b>		<b>BTEEC601</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Identify components of a control system & Solve the Transfer Function	
CO 2	Analyse Time Domain Responce	
CO 3	Analyse Frequency Domain Responce & Build the root locus, Bode Plot, polar plot	
CO 4	Classify & design PID controller.	
CO 5	Analyse state variable technique. Solve Variable Technicque	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>Control System Lab</b>
<b>Course Code</b>		<b>BTEEL607</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Creat & Solve the Programme of Transfer Function	
CO 2	Creat & Solve the Programme of Transfer Function Test Signals	
CO 3	Creat & Solve the Programme of Transfer Function Bode Plot & Nyquist Plot using MATLAB	
CO 4	Design The PID Controllers	
CO 5	Creat & Solve the Programme of Sate Space Model	
<b>Semester : VI</b>		
<b>Course Name</b>		<b>Industrial Automation and Control</b>
<b>Course Code</b>		<b>BTEEE604A</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Analyze different methods of industrial measurement.	
CO 2	Know the new trends in industrial process control.	
CO 3	Familiar with various automation technologies in manufacturing and process industries.	
CO 4	Familiar with various communication technologies in manufacturing and process industries.	
CO 5	Design and implement electro-pneumatic/hydraulic solutions for automated systems	
<b>Semester : VII</b>		
<b>Course Name</b>		<b>Electrical Drives</b>
<b>Course Code</b>		<b>BTEEC703</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Analyze the dynamics of Electrical Drives System	
CO 2	Use various control techniques for controlling the speed of AC and DC motor.	
CO 3	Analyze the DC drives.	
CO 4	Analyze the AC drives.	
CO 5	To select/recommend the appropriate Drive according to the particular application.	
CO 6	State the recent technology of AC and DC drive	

<b>Semester : VII</b>		
<b>Course Name</b>		<b>Project Part 1</b>
<b>Course Code</b>		<b>BTEEP710</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Execute the technical knowledge acquired in the program for solving real world problems.	
CO 2	Implement new technologies & design techniques (platform, database, etc.) concerned for devising a solution for a given problem statement	
CO 3	Use project management skills (scheduling work, procuring parts and documenting Expenditures and working within the confines of a deadline).	
CO 4	Construct with team mates, sharing due and fair credits and collectively apply effort for making project successful.	
CO 5	Differentiate technical information by means of written and oral reports.	
<b>Semester : VII</b>		
<b>Course Name</b>		<b>Seminar</b>
<b>Course Code</b>		<b>BTEES709</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Evaluate the exact title of the seminar	
CO 2	Define the motivation for selecting the seminar topic and its scope	
CO 3	Search pertinent literature and information on the topic	
CO 4	Critically review the literature and information collected	
CO 5	Demonstrate effective written and verbal communication	
<b>Semester : VII</b>		
<b>Course Name</b>		<b>High Voltage Engineering</b>
<b>Course Code</b>		<b>BTEEC702</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Illustrate the concept of electric field stresses, applications of insulating materials and methods for non-destructive testing of equipments.	
CO 2	Explain the breakdown process in solid, liquid, and gaseous materials	
CO 3	Categorize methods for generation and measurement of High Voltages and Currents (both AC & DC)	
CO 4	Describe the phenomenon of over-voltage and choose appropriate insulation coordination levels based on IS & IEC Standards.	
CO 5	Demonstrate high voltage test of materials and apparatus	
<b>Semester : VII</b>		
<b>Course Name</b>		<b>High Voltage Engineering Lab</b>
<b>Course Code</b>		<b>BTEEL707</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Design and development of high voltage equipments and utility establishment.	
CO 2	Illustrate and measure the magnitude of HVDC, HVAC (power frequency & high frequency) and impulse by different measurement schemes.	
CO 3	Use high voltage test of materials and apparatus.	
CO 4	Verify the form of discharges in Gaseous, Liquid and Solid dielectrics.	
<b>Semester : VII</b>		
<b>Course Name</b>		<b>Special Purpose Electrical Machine</b>
<b>Course Code</b>		<b>BTEEE704A</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Discuss construction, working and application of Synchronous reluctance motor	
CO 2	Explain construction, working and application of stepping moto	
CO 3	Describe construction, working and application of switched reluctance motor	

CO 4	Illustrate construction, working and application of permanent magnet brushless DC motor and of P.M. synchronous motor
CO 5	Analyze behavior of induction generator and induction machine
<b>Semester : VII</b>	
<b>Course Name</b>	<b>Power System Operation &amp; Control</b>
<b>Course Code</b>	<b>BTEEC701</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Explain the fundamental concept of power system.
CO 2	Design the mathematical model of synchronous machine.
CO 3	Design the mathematical model Excitation system and speed governing system.
CO 4	Analyze the transient stability of power system using swing equation and equal areacriteria.
CO 5	Analyze the economic operation of power system.
<b>Semester : VII</b>	
<b>Course Name</b>	<b>Power System Operation &amp; Control lab</b>
<b>Course Code</b>	<b>BTEEL706</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Explain the fundamental concept of power system.
CO 2	Design the mathematical model of synchronous machine.
CO 3	Design the mathematical model Excitation system and speed governing system.
CO 4	Analyze the transient stability of power system using swing equation and equal areacriteria.
CO 5	Analyze the economic operation of power system.
<b>Semester : VII</b>	
<b>Course Name</b>	<b>HVDC Transmission and FACTS</b>
<b>Course Code</b>	<b>BTEEE705D</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Develop the knowledge of HVDC transmission and HVDC converters
CO 2	Analyze various types of converters and their working
CO 3	Evaluate the control scheme of HVDC converters.
CO 4	Express the operating principles of various FACTS devices
CO 5	Define the role of SVC & STATCOM in improving the power system dynamics
<b>Semester : VII</b>	
<b>Course Name</b>	<b>Electrical Drives Lab</b>
<b>Course Code</b>	<b>BTEEL708</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Use various control techniques for controlling the speed of AC and DC motor.
CO 2	Simulate various AC drive system
CO 3	Simulate various DC drive system
<b>Semester : VIII</b>	
<b>Course Name</b>	<b>High Power Multilevel Converter</b>
<b>Course Code</b>	
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>
<b>By the end of the course, the student will be able to:</b>	
CO 1	Define the Multilevel Converters: concept and fundamentals.
CO 2	Analysis, design, and implementation of low frequency control of multilevel inverters.
CO 3	Evaluate Modular Multilevel Converters (MMCs): Generalized approach to develop higher voltage level inverters.
CO 4	Compile the operation and comparison of various multilevel converter topologies.

CO 5	Develop and implement control for multi-voltage level inverters.	
<b>Semester : VIII</b>		
<b>Course Name</b>		<b>Project-II</b>
<b>Course Code</b>		<b>BTEEP803</b>
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Demonstrate literature survey and technical pre-requisites of the selected project topic.	
CO 2	Predict the challenges in practical implementation of the project hardware/software and draft their possible alternate solutions.	
CO 3	Design engineering solutions of complex problems utilizing systems and engineering approach.	
CO 4	Practically fabricate /implement, test /debug and run/simulate the project (hardware/software)	
CO 5	Communicate with the engineering community in written and oral forms.	
<b>Semester : VIII</b>		
<b>Course Name</b>		<b>Power Management and Integrated Ckt.</b>
<b>Course Code</b>		
<b>Course Outcome No</b>	<b>Course Outcome Statement</b>	<b>By the end of the course, the student will be able to:</b>
CO 1	Design a power management voltage and current mode controller circuit	
CO 2	Design an integrated power stage	
CO 3	Design supervisory circuitry – undervoltage lockout, bandgap references	
CO 4	Design of a complete power management integrated circuit	
CO 5	Study Modeling and control of converters	