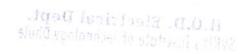


## Shri Vile Parle Kelavani Mandal's Institute of Technology, Dhule Department of Electrical Engineering

Course Outcome Statements for Academic Year 2023-24 (LAY)

		0.4		ourse Outcome Statements for Academic Tear 2023-24
	Subject Code	Subject Name	CO Number	Course outcome Statement
			CO101.1	Apply the matrix technique (Linear algebra) to find solutions of system of linear equations arising in many engineering problem
		Engineering	CO101.2	Demonstrate the concept partial derivatives and their applications to Maxima/ Minima, series expansion of multi valued functions
	BTBS101	Mathematics – 1	CO101.3	Compute Jacobian of functions of several variables and their applications to engineering problems
		Mathematics 1	CO101.4	Identify and sketch of curves in various coordinate system
			CO101.5	Evaluate multiple integrals and their applications to area and volume
			CO102.1	Develop the importance of water in industrial and domestic usage.
		Cardenarina	CO102.2	Study the knowledge of phases, components, degree of freedom and apply it in various phase diagrams.
	BTBS102	Engineering Chemistry	CO102.3	Apply the knowledge of corrosion to prevent corrosion of metallic and non-metallic surfaces.
		Chemistry	CO102.4	Examine a fuel and suggest alternative fuels.
			CO102.5	Study the basic concept of electrochemistry and use their applications in the industry.
			CO103.1	Know and apply fundamental Laws of Engineering Mechanics
	BTES103	Engineering Mechanics	CO103.2	Know and apply conditions of static equilibrium to analyze given force system
			CO103.3	Compute Centre of gravity and Moment of Inertia of plane surfaces
			CO103.4	Compute the motion characteristics of a body /particle for a Rectilinear and Curvilinear motion.
			CO103.5	Know and discuss relation between force and motion characteristics
			CO104.1	To illustrates the use of editors, translation, flowchart and Algorithm in C language
		Computer	CO104.2	To recognize various operators and implement program in C using operators
	BTES104	Computer Programming in C	CO104.3	To illustrate the use of control statement and Implement C program using control statement
1		Programming in C	CO104.4	To describe the concept of Array in C language and implement the C program using one and multidimensional Array
			CO104.5	To describe the control of Structures and Pointer and implement structure and pointer concept in C Language
			COBTES206L.1	Perform carpentry operations like planning, cutting, fitting of joints using hand and power tools
		MALESCEE AND	COBTES206L.2	Perform fitting operations such as marking, cutting, filling, drilling and tapping using hand and power tools and also basic plumbing
	BTES105L	Workshop	COBTES200L,2	On protions
	31 LOTOSE	Practices	COBTES206L.3	Perform sheet metal operations such as marking, shearing, bending, punching, and soldering using hand and power tools and Welding
			A Production of the Control of the C	operations like ioint preparations, electrode selections.  Understand the simple machining skills on lathe machine operations and its use during their project work
			COBTES206L.4	Oncervang the simple machining skins on rathe machine operations and its use during their project work.
			CO106.I	Apply basic ideas and principles of electrical engineering
	Daniel of	Basic Electrical	CO106.2	Identify protection equipment and energy storage devices  Differentiate electrical and electronics domains and explain the operation of diodes and transistors.
	BTES106	and Electronic	CO106.3	
		Engineering	CO106.4	Acquire knowledge of digital electronics
			CO106.5	Design simple combinational and sequential logic circuits.
			CO107L.1	Test the quality of water sample by determination of hardness, acidity, alkalinity and dissolve oxygen present in it.
	BTBS107L	Engineering	CO107L.2	Examine the chemical property of an oil and quality of bleaching powder.
	70.000	Chemistry Lab	CO107L.3	Determine the concentration of specific ions present in the solution using titration methods.
			CO107L.4	Examine the physical properties of liquid sample.
	BTES108L	Engineering Mechanics Lab	CO108L.1	Calculate beam reaction by Parallel Force apparatus and graphics static method and forces in truss.
	TOTAL TO- SOURCE		CO108L.2	Evaluate co-efficient of friction and centroid of irregular shaped bodies.
			CO108L.3	Evaluate mechanical advantage, Velocity ratio, efficiency and mass moment of inertia.  Discuss the need and use of complex variables to find roots, to separate complex quantities and to establish relation between circular and
			CO201.1	
	BTBS201		CO201.2	hyperbolic functions Solve first and higher order differential equations and apply them as a mathematical modeling in electric and mechanical systems
			CO201.2	Find Fourier series representation of periodic functions over different intervals.
		Engineering		Demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence &curl in various
		Mathematics - II	CO201.4	engineering streams
				Apply the principles of vector integration to transform line integral to surface integral, surface to volume integral &vice versa using Green'
			CO201.5	stokes and Gauss divergence theorems
				Some superior international control of the control
		Engineering Physics	CO202.1	Apply the concept of types of oscillations in engineering.
			CO202.2	Apply the fundamentals of interference, polarization in LASER and optical fiber in engineering.
	BTBS202		CO202.3	Determine the application of trajectory of charge particle in electromagnetic field, with basic principles of quantum physics
			CO202.4	Determine the different types of crystal structures using X-ray diffraction technique, with study of Maxwell's equations
			CO202.5	Summarize the fundamentals of Magnetism, Superconductor, Semiconductor materials and its applications in engineering.
			CO203.1	Use of drawing instruments effectively for drawing and dimensioning
	DTECANA	Engineering Graphics	CO203.2	Explain conventions and methods of engineering drawing
	BTES203		CO203.3	Apply concepts of projections of points, lines, planes, solids and section of solids
			CO203.4	Construct isometric and orthographic views of given objects
			CO204.1	Apply Speaking and Writing skills in professional as well as social situations.
		Communication Skills	CO204.2	Overcome Mother Tongue Influence and demonstrate neutral accent while exercising English.
	BTHM204		CO204.3	Apply communication skills for Presentations, Group Discussion and interpersonal interactions.
				Apply grammar correctly during Speaking and Writing situations especially in context with Presentations, Public Speaking, Report writing
			CO204.4	and Business Correspondence.
1-2	BTES205	Energy and Enviornmental Engineering	CO205.1	Identify conventional, non-conventional energy sources.
			CO205.1	Know and discuss power consuming and power developing devices for effective utilization and power consumption
			CO205.2	Identify various sources of air, water pollution and its effects.
			CO205.4	Know and discuss noise, soil, thermal pollution and Identify solid, biomedical and hazardous waste.
		100 100	CO206.1	Identify various Civil Engineering materials and choose suitable material among various options.
	BTES206	Basic Civil and Mechanical Engineering		
			CO206.2	Apply principles of surveying to solve engineering problem.  Identify various Civil Engineering structural components and select appropriate structural system among various options.
			CO206.3	Explain and define various properties of basic thermodynamics, materials and manufacturing processes.
			CO206.4	explain and define various properties of basic methodynamics, materials and manufacturing processes.
			CO206.5	Know and discuss the working principle of various power consuming and power developing devices.  Describe the ultrasonic interferometer's working and estimate the velocity of ultrasonic wave in various liquid media.
	BTBS207L	Engineering Physics Lab	CO207L.1	Describe the untrasonic interferometer's working and estimate the venerity of untrasonic wave in various right modal.  Describe the unsulantia of the No. I save and unsuland contribute of control of the No. I save the united to the No. I save the United States of control of the No. I save the United States of control of the No. I save the United States of control of the No. I save the United States of control of the No. I save the United States of control of the No. I save the United States of Control of Control of the United States of
			CO207L.2	Determine the wavelength of He-Ne Laser and numerical aperture of optical fibre.  Determine the operating voltage of GM Tube and charge to mass ratio of electron by applying the concept of trajectory of charge particle i
			CO207L.3	
				electric and magnetic field.  Understand & apply the characteristics of materials for semiconductor engineering.
			CO207L.4	Understand & apply the characteristics of materials for semiconductor engineering.
			CO207L.5	Identify and draw the given crystal plane using the concept of miller indices.





			CO208.1	Use of drawing instruments effectively for drawing and dimensioning
	BTES208L	Engineering	CO208.2	Implement various fundamental geometrical constructions
	DILBLOOL	Graphics Lab	CO208.3	Apply concepts of projections of points, lines, planes, solids and section of solids
			CO208.4	Construct isometric and orthographic views of given objects
		Communication	CO209L.1	To illustrate the process of Introduction.
	BTHM209L	Skills Lab	CO209L.2	To use articulation of Phonemic sounds exercising Transcription, Stress and Intonations.
			CO209L.3	To apply Verbal and Non-verbal communication through Extempore, GD, Debate, Presentation and Interviews.
	Access to the second	200 100	CO210S.1	Learn to differentiate information from data to present it in meaning full way
	BTES210S	Seminar	CO210S.2	Learn to use and cite resources
			CO210S.3	Develop the ability of critical thinking
			CO301.1	Find Laplace transform of functions using various formulas and properties. Evaluate particular types of integration.
	BTBSC301	Engineering Mathematics-III	CO301.2	Find Inverse Laplace transform of functions using various formulas and properties. Solve linear differential/simultaneous linear different equation using Laplace and inverse Laplace transform.
			CO301.3	Find Fourier and inverse Fourier transform, Fourier sine and inverse Fourier sine transform. Cosine transform and inverse Fourier cosin
		Mathematics-III	CO301.4	Transform of functions.  Form PDE by eliminating arbitrary constant, solve PDE and use PDE to solve one and two dimensional heat flow equation.
			Conservation and the Conservation of the Conse	Determine Analytic functions//Bilinear transformation/ apply Cauchy's theorem/Cauchy's integral formula and Residue theorem to solve
			CO301.5	contour integration.
		Electrical Machine-	CO302.1	To study diff. types, construction and operating principle of diff. types of electrical machines
	BTEEC302	T	CO302.2	To illustrate the principle of energy conversion in single, multilpe excited machines and the concept of co energy.
		*	CO302.3	To analyze the performance and Characteristics of electrical machines by conducting various test.
		Electrical and	CO303.1	To understand philosophy of measurement.
	BTEEC303	Electronics	CO303.2	To understand different methods of analog and digital measurement.
		Measurement	CO303.3	To study principle of construction and operation of different transducer and display methods.
		Basic Human	CO304.1	To study concept of human values, human rights & human duties
	BTHM304	Rights	CO304.2	To explain social structure and concept of Society, Religion, Culture with their Inter-Relationship
			CO304.3	To study freedom, democracy and human Rights in Indian Constitution.
1-3		Engineering	CO305.1	To understand electrical conduction & dielectric material
	BTES305	Material Science	CO305.2	To study properties of magnectic & semiconducting material
			CO305.3	To study about insulating and special purpose materials
		Electrical Machine-	CO306.1	To Determine Polarity and Transformation ratio of Single phase Transformer
	BTEEL306	I lab	CO306.2	To study diff. parts, types of connections and operations of diff. types of electrical machines
		15.45090	CO306.3	To analyze the performance and draw Characteristics of electrical machines by conducting various test.
		1921 12 12 12	CO307.1	To illustrate the working of basic measuring instruments
		Electrical and	CO307.2	To discuss range extension methods for measuring instruments.
	BTEEL307	Electronics	CO307.3	To experiment the various methods of resistance, inductance, Capacitance and Power Measurement
		Measurement Lab	CO307.4	To use Digital Instrument for measurement of electrical quantities
			CO307.5	To use transducer for measurement of various quantities
	BTEEM308		CO308.1	To recognize various resources and components using data sheet in Electrical Engineering
	B I EEM 308	Mini Project-I	CO308.2	To implement projects based on the circuit simulation software (Tina-TI)
			CO308.3	To desing, prepration and analysis of PCB along with report writing of project
	BTES211P		CO211.1 CO211.2	To demonstrate the knowledge gained during internship with the help of survey report writing and presentation
		Field training	CO211.2	To discover engineering and management principles useful at specific work environment  To implement the learning acquired during internship to solve environmental, societal issues and in their future endeavours
			CO211.4	To practice core values of ethical principles professional ethics and responsibilities
			CO401.1	To review basic components of electric network.
	BTEEC401	Make Control Walley Street Co.	CO401.2	To design and develop network equations and their solutions.
		Network theory	CO401.3	To apply Laplace theorem for electric network analyses
			CO401.4	To analyze AC circuit.
			CO402.1	Discuss basic operation of power system & its components.
	BTEEC402	Power System	CO402.2	Discuss Various design aspects of transmission lines & their performance paramters
			CO402.3	To become familiar with the types of distribution system & its various parameters.
		Electrical Markins	CO403.1	To study different methods of speed control of AC Machine
	BTEEC403	Electrical Machine-	CO403.2	To study importance and procedure of different performance test on AC Machine
		П	CO403.3	Interpret the behavior of AC machines using phasors, equivalent circuits and its operating characteristics.
			CO404.1	To illustrate working of transistor as an amplifier, types and characteristics of an amplifier.
		Analog and Digital	CO404.2	To comprehend constructional details, characteristics and applications of operatinal amplifier.
	BTBS404	Electronics	CO404.3	To distinguish basic number system and fundamentals of Boolean algebra and various minimization techniques.
			CO404.4	To comprehend types, design and characteristics of logic gates.
	-		CO404.5	To implement digital systems using combinational and sequential circuits.
	BTEEPE405		CO405.1	To discuss fuel cell and its performance parameter
-4		Advance renewable Energy sources	CO405.2	To discuss different types of renewable energy system, their components and their performance parameters
	BIEEFE403		CO405.3	To explain different types of storage systems
		CHARLES CHARLES AND CONTROL OF CHARLES	CO405.4	To describe different aspects of alternative energy sources and power generation from them along with their integration with power grid
			CO406.1	Verify the laws of electrical networks.
	BTEEL406	Network theory	THE STREET, SHIP S	Verify the various theorems of electrical networks.
		Lab	CO406.2 CO406.3	Analyze the response of RLC circuits.
			CO406.3	To Understand basic operation of power Plants
	BTEEL407	Power System lab	CO407.1	To discuss the major equipments used in power station.
			CO407.3	To recognize Various components of Transmission Lines
			CO407.4	To Analyze the Performance of different types of transmission Lines
	BTEEL408	Electrical Machine- II lab	CO408.1	To conduct test on induction machine to determine the performance characteristics
			CO408.2	To conduct test on synchronous generator (alternator) to determine the performance characteristics
			CO408.3	To conduct test on synchronous motor to draw the performance curves
				Examine input and output characteristics of transistor in CE mode and Frequency response of RC coupled and transformer coupled
	BTBSL409	Analog and Digital Electronics lab	CO409.1	amplifiers.
			CO409.2	Estimate Op-Amp parameters and examine operation of Op-Amp in inverting and noninverting mode.
			CO409.3	Study and verify Basic Gates and Universal Gates (NAND & NOR) truth table, and implement Boolean Functions using the gates.
			CO409.4	Design and analyze combinational and sequential circuits.
			CO501.1 CO501.2	To illustrate the modeling of power systems and per unit system and its applications  To obtain the load flow analysis of power system networks using different iterative methods.
	1			Lo optain the load flow analysis of nower system networks using different iterative methods
	Company to the	Power System	and the second s	
	BTEEC501	Power System Analysis 1509	CO501.3 CO501.4	To analyze the transients and shrot circuits on transmission lines.

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			CO501.5	To analyze unsymmetrical faults and security/contigency of transmission lines.
		Microprocessor	CO502.1	To know the architecture of 8085 and 8051.
	BTEEC502	and	CO502.2	To understand interfacing and interrupt features of 8085 and 8051.
		Microcontroller	CO502.3	To develop program for basic applications.
			CO503.1	Explain the need for and selection of appropriate switching device for power converters.
		en entre w	CO503.2	Analyze the performance of controlled and uncontrolled converters.
	BTEEC503	Power Electronics	CO503.3	Analyze the performance of DC-DC and DC-AC converters.
				Analysis the performance of AC voltage controllers
			CO503.4	To discuss basics related to importance of power quality, types & sources of power quality problems and power quality evaluation
		Power Quality	CO504.1	To descuss basics related to importance of power quality, types & sources of power quality.  To demonstrate different types power quality problems, their effects and corrective measure to maintain the power quality.
	BTEEPE504B	Issues	CO504.2	To demonstrate different types power quality problems, their effects and corrective measure to manual are power quality
		155005	CO504.3	To describe important aspects of power quality monitoring
			CO505C.1	To understand the electrical safety in various hazards and general requirements for grounding and bonding
	DTEEOESOSC	Electrical Safety	CO505C.2	To understand safety programmer structure and safety maintenance requirement
	BTEEOE505C	Electrical Salety	W	To understand the National electrical safety code and Indian Electricity acts related to safety
			CO505C.3	to understand the National electrical safety code and find the control of the con
5			CO506.1	Students will demonstrate, at a minimum level of proficiency in speaking German language
	BTHM506A	Foreign Language	CO506.2	To gain a background in the literary, linguistic and cultural histories of a country.
			CO506.3	To achieve cultural competency through living in german culture and linguistic environment.
			CO507.1	To also in the V hour matrix of given power system using MiPower
		Power System		To analyze the load flow problem for a given power system using iterative methods ike Gauss siedel, Newton Raphson and Fast Deoupled
	BTEEL507		CO507.2	methode using MiPayer
		Analysis Lab	COSOT 1	To obtain the short circuit analysis for various faults like L-G, L-L, L-L-G and L-L-L on transmission lines using MiPower.
			CO507.3	To obtain the short circuit analysis for various ratus like E-6, E-2, E-2-6 and E-2 2 of various ratus
		Microprocessor	CO508.1	To study Characteristics of salient pole synchronous machine
	BTEEL508	and	CO508.2	To study the power limit and various compensation techniques on Transmission line model.
	D I E E E E SUN		CO508.3	To perform Different types of fault analysis in AC Network Analyzer.
		Microcontroller	CO508.4	To identify & formulate solutions to problems relevant to power system using software tools.
		1.0	CO509.1	To demonstrate the characteristics of power semiconductor switches.
	DTEE1 500	Power Electronics	CO509.1	To demonstrate controlled converters circuit.
	BTEEL509	lab		To analyze performance of DC-DC, DC- AC and AC-DC converters.
		73.56	CO509.3	10 analyze performance of DC-DC, DC- Ac and AC-DC convertes.
			CO509.1M	To explain the knowledge gained during project preparation with help of survey report writing
	BTEEM509	Mini Project-II	CO509.1M	To apply basic principles of engineering to order to solve societal and environmental challanges
	The second secon		CO509.1M	To use different research techniques in order to formulate problem statements
			CO410.1	To demonstrate the knowledge gained during internship with the help of survey report writing and presentation
	0.0000000000000000000000000000000000000	en menggarana mengal	CO410.2	To discover engineering and management principles useful at specific work environment
	BTEEP410	Industrial Training	CO410.3	To implement the learning acquired during internship to solve environmental, societal issues and in their future endeavours
				To practice core values of ethical principles professional ethics and responsibilities
			CO410.4	To practice core values of ethical principles professionar curies and responsibilities
	Les Variable Cap	Switchgear and	CO601.1	To explain need of power system protection with different types of relay
	BTEEC601	Protection	CO601.2	To explain the construction and working of different types of circuit breakers and fuses
		Tiotection	CO601.3	To explain different protection schemes used in power system engineering
			CO 602.1	To explain principles of electric machine design and introduction computer aided designing
	BTEEC602	Electrical Machine	CO 602.2	To design different moving parts of electrical machine.
	DIEEC002	Design	CO 602.3	To design different stationary components of electrical machine
				To know different basic concepts and components of a control system
			CO603.1	To know different basic concepts and components of a control system
		Control System	CO603.2	To derive transfer functions of basic control system components.
	BTEEC603	Engineering	CO603.3	To perform stability analysis using time domain and frequency domain response on a given system.
		Lingineering	CO603.4	To design and analyze PID controller.
			CO603.5	To understand and analyze state variable technique
			CO604.1	Understand Load ability of the AC and HVDC transmission line.
		Flexible AC	CO604.2	Emphasize the importance and prerequisite of the FACTS Controller along with the objective of shunt compensation.
	BTEEPE604A	Transmission	CO604.3	Analyze the reactive power compensation techniques through various Thyristorized Shunt Controller.
	BILEF LOOTA	System	CO604.4	Analyze the Current and Voltage control with series compensators.
		System		Analyze the current and votage control with series compensators.  Analyze the real and reactive power flow and control in transmission lines with Static and combined shunt-series compensators.
			CO604.5	Analyze the real and reactive power now and control in transmission mes with order and Amelications
			CO604B,1	To discuss various aspects of the smart grid Technologies, Components, Architectures and Applications
	BTEEPE604B	Smart Grid	CO604B.2	To Use RE Technology in Micro Grid, DG System & Electric Vehicle
	DIECTEOU4B	Technology	CO604B.3	To Explain Various Communication Technology used in Smart Grid
		0.500,000,000,000,000	CO604B.4	To implement different control startegies for efficient & secure operation of smart grid
			CO605A.1	To illustrate the handling and management of hazardous waste.
6			CO605A.1	To explain the toxicity due to hazardous waste.
	DEFENDENCE	E-waste Management		To describe the occupational perspectives of recycling e-waste in India.
	BTEEOE605A		CO605A.3	
		- 0700 - Paul (1707)	CO605A.4	To illustrate the handling of electrical and electronic equipment waste.
			CO605A.5	To describe the technologies for recovering and recyling of E-waste.
			CO605B.1	Discuss and analyze the economics involved in power plant and interpret the performance of power plants based on load variations.
	BTEEOE605B	Power Plant	CO605B.2	Discuss power generation by renewable and non-renewable energy resources.
	-21	Engineering	CO605B.3	Explain the issues and benefits of power plants interconnection and interface to grid.
	Clud C	Switchgear	CO606.1	To determine characteristics of relay & fuses
	BTEEL606	Protection Lab	CO606.2	To demonstrate working of protection schemes for transmission line, transformer & alternator
				To identify different components of circuit breaker
	DIEBEROO		CO606.3	
	DIDE	Lab	00/07 1	
		2015 10 001978 1000	CO607.1	To understand general electrical symbol
		Electrical Machine	CO607.2	To understand electrical installation layout
	BTEEL607	2015 10 001978 1000	CO607.2 CO607.3	To understand electrical installation layout To design different components of electric machine
		Electrical Machine	CO607.2	To understand electrical installation layout To design different components of electric machine To design Transformer
		Electrical Machine	CO607.2 CO607.3	To understand electrical installation layout To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems
	BTEEL607	Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1	To understand electrical installation layout To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems
		Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1 CO608.2	To understand electrical installation layout To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability.
	BTEEL607	Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1 CO608.2 CO608.3	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.
	BTEEL607	Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1 CO608.2 CO608.3 CO608.4	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.
	BTEEL607	Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1 CO608.2 CO608.3 CO608.4 CO 609.1	To understand electrical installation layout To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability. Design various kinds of controllers. Determine state space models and systems represented in transfer function. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.
	BTEEL607 BTEEL608	Electrical Machine Design lab Control System Engineering Lab	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop strandard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.  To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.  To identify promising new directions of various cutting edge technologies.
	BTEEL607	Electrical Machine Design lab	CO607.2 CO607.3 CO607.4 CO608.1 CO608.2 CO608.3 CO608.4 CO 609.1	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.  To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.  To identify promising new directions of various cutting edge technologies.  To impart skills in preparing detailed report describing the project and results
	BTEEL607 BTEEL608	Electrical Machine Design lab Control System Engineering Lab	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2	To understand electrical installation layout To design different components of electric machine To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability. Design various kinds of controllers. Design various kinds of controllers. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them. To identify promising new directions of various cutting edge technologies. To impart skills in preparing detailed report describing the project and results
	BTEEL607 BTEEL608	Electrical Machine Design lab Control System Engineering Lab	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3 C0 609.4	To understand electrical installation layout To design different components of electric machine To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability. Design various kinds of controllers. Determine state space models and systems represented in transfer function. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them. To identify promising new directions of various cutting edge technologies. To impart skills in preparing detailed report describing the project and results To effectively communicate by making an oral presentation before an evaluation committee
	BTEEL607 BTEEL608	Electrical Machine Design lab Control System Engineering Lab	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3	To understand electrical installation layout To design different components of electric machine To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability. Design various kinds of controllers. Determine state space models and systems represented in transfer function. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them. To identify promising new directions of various cutting edge technologies. To impart skills in preparing detailed report describing the project and results To effectively communicate by making an oral presentation before an evaluation committee
	BTEEL607 BTEEL608 BTEEM609	Electrical Machine Design lab Control System Engineering Lab	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3 C0 609.4	To understand electrical installation layout To design different components of electric machine To design different components of electric machine To design Transformer Develop standard test signals and determine the response of closed loop systems Demonstrate time and frequency domain response and stability. Design various kinds of controllers. Determine state space models and systems represented in transfer function. To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them. To identify promising new directions of various cutting edge technologies. To impart skills in preparing detailed report describing the project and results To effectively communicate by making an oral presentation before an evaluation committee Illustrate the concept of electric field stresses, applications of insulating materials and methods for Non-destructive testing of equipment transformers, insulators, isolators, bushings, lightning arrestors, cables, circuit breakers and surge diverters
	BTEEL607 BTEEL608	Electrical Machine Design lab  Control System Engineering Lab  Seminar  High Voltage	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3 C0 609.4 C0701.1	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.  To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.  To identify promising new directions of various cutting edge technologies.  To impart skills in preparing detailed report describing the project and results  To effectively communicate by making an oral presentation before an evaluation committee  Illustrate the concept of electric field stresses, applications of insulating materials and methods for Non-destructive testing of equipment transformers, insulators, isolators, bushings, lightning arrestors, cables, circuit breakers and surge diverters  Evaluin the breakdown process in solid, liquid, and gaseous materials
	BTEEL607 BTEEL608 BTEEM609	Electrical Machine Design lab  Control System Engineering Lab  Seminar	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3 C0 609.4 C0701.1	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.  To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.  To identify promising new directions of various cutting edge technologies.  To impart skills in preparing detailed report describing the project and results  To effectively communicate by making an oral presentation before an evaluation committee  Illustrate the concept of electric field stresses, applications of insulating materials and methods for Non-destructive testing of equipment transformers, insulators, isolators, bushings, lightning arrestors, cables, circuit breakers and surge diverters  Explain the prehadown process in solid, liquid, and gaseous materials  Explain the methods for generation and measurement of High Voltages and Currents (both ac and de)
	BTEEL607 BTEEL608 BTEEM609	Electrical Machine Design lab  Control System Engineering Lab  Seminar  High Voltage	C0607.2 C0607.3 C0607.4 C0608.1 C0608.2 C0608.3 C0608.4 C0 609.1 C0 609.2 C0 609.3 C0 609.4 C0701.1	To understand electrical installation layout  To design different components of electric machine  To design Transformer  Develop standard test signals and determine the response of closed loop systems  Demonstrate time and frequency domain response and stability.  Design various kinds of controllers.  Determine state space models and systems represented in transfer function.  To study research papers for understanding of a new field, in the absence of a textbook, to summarize and review them.  To identify promising new directions of various cutting edge technologies.  To impart skills in preparing detailed report describing the project and results  To effectively communicate by making an oral presentation before an evaluation committee  Illustrate the concept of electric field stresses, applications of insulating materials and methods for Non-destructive testing of equipment transformers, insulators, isolators, bushings, lightning arrestors, cables, circuit breakers and surge diverters  Evalain the breakdown process in solid, liquid, and gaseous materials

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	BTEEC702	In a	GOZOS S	
		Power System	CO702.2	Analyze the transient stability of power system using swing equation and equal area criteria.
	BIEEC/02	Operation And Control	CO702.3	Explain function and types of excitation system.
		Control	CO702.4	Demonstrate load frequency control of single and multi area systems.
			CO702.5	Analyze unit committment and economic load dispatch problems.
			CO703.1	Use of different methods of electrical heating and electric welding.
	BTEEPE703D	Electrical	CO703.2	Illustrate the fundamentals on electrolytic Processes and their modern applications
		Utilization	CO703.3	Examine various design application of illumination scheme
		Cunzación	CO703.4	Identify types of Traction System
			CO703.5	Elaborate Train movement & Breaking in Traction system.
	BTEEOE704C	Mechatronics	CO704.1	To Explain the fundamental concepts of Mechatronics System
			CO704.2	To discuss various Sensor & Signal Conditioning devices
			CO704.3	To explain Mechanical Acquisition System
		SOURCE CONTRACTOR OF SOURCE	CO704.4	To describe role of Microprocessor in Mechatronics System
			CO704.5	To discuss PLC & Robotics System
M-7		Testing,	CO705.1	To understand the concept maintenance and Condition Monitoring of electrical equipment.
		Maintenance and		
	BTEEOE705A	Commissioning of Electrical	CO705.2	To study the condition monitoring of electrical machine
		Equipment	CO705.3	To study the maintenance and testing of electrical equipment
		Engineering	CO706.1	To explain various functions in organization and operations management.
		Operations and	CO706.2	To explain various characteristics and framework of decision methodology.
	BTHM706	Project	CO706.3	To explain manufacturing system design and forecasting demand.
		Management	CO706.4	To explain objectives of aggregate planning and scheduling activities.
		Transagement	CO706.5	To understand various types of scheduling and functioning of lean system.
		High Voltage Engineering Lab	CO707.1	Demonstrate the breakdown mechanism in solid, liquid, and gaseous dielectrics.
	BTEEL707		CO707.2	Demonstrate the performance of high-voltage generation and protection devices.
			CO707.3	Illustrate the effect of high voltage on biodiversity and protection by means of electrostatic shielding.
	BTEEP610		CO610.1	To demonstrate the knowledge gained during internship with the help of survey report writing and presentation
		Internship – III	CO610.2	To discover engineering and management principles useful at specific work environment
	DILLION	internamp – m	CO610.3	To implement the learning acquired during internship to solve environmental, societal issues and in their future endeavours
			CO610.4	To practice core values of ethical principles professional ethics and responsibilities
		In house project-I / Mini project-III Introduction To Inductry 4.0 And Industrial Internet Of Things	CO708.1	To demonstrate the knowledge gained during project preparation with help of survey report writing and presentation
			CO708.2	To use different research techniques in order to formulate problem statements
	BTEEM708		CO708.3	To design the relevant solution in order to address the problem statement formulated
			CO708,4	To practice core values of ethical principles, professional ethics and responsibilities
			CO708.5	To evaluate different solution based on fixed performance parameter in order to justify the applicability
			CO801F.1	Know about IoT and Industry 4.0 principles and its scope.
	BTEEO801F		CO801F.2	Learn fundamentals of cyber security, Physical system and business models.
			CO801F.3	Know fundamentals of networking protocols and sensors of IIoT.
			CO801F.4	Learn HoT Analytics, data management and advanced technologies.
			CO801F.5	Development of application based on HoT for Industry 4.0.
	BTEEO801G	Entreprenuership Essential	CO801G.1	To study Key issues faced by entrepreneurs & managers at different stages
			CO801G.1	
1-8			CO801G.2	To study entrepreneurial qualities, Competitive Advantage and marketing management
11-0			CO801G.3	To understand different Financial Statements & business plan to start a startups
			CO801G.5	To identify several funding methods & study Break Even Points
			THE RESIDENCE OF THE PARTY OF T	To understand HR management in Start-up's
		Project Phase-II	CO802.1	To demonstrate the knowledge gained during project preparation with help of survey report writing and presentation
	DECEDORA		CO802.2	To use different research techniques in order to formulate problem statements
	BTEEP802		CO802.3	To design the relevant solution in order to address the problem statement formulated
			CO802,4	To practice core values of ethical principles, professional ethics and responsibilities
			CO802.5	To evaluate different solution based on fixed performance parameter in order to justify the applicability

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