

Department of Electronics and Telecommunication Engineering

## Articulation Matrix of CO - PO (2022-23)

Course Code	Name of Course	CO's	CO Statement	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	P011	PO12	PSOI	PSO2	PSO3
		CO 1	Apply the matrix technique (Linear algebra) to find solutions of system of linear equations arising in many engineering problem.	3											1			
BTBS101	Engineering	CO 2	Demonstrate the concept and use of partial differentiation in various problems.	3	2										1			
5155101	Mathematics-1	CO 3	Compute Jacobian of functions of several variables and their applications to engineering problems	3	2										I			
		CO 4	Identify and sketch of curves in various coordinate system	3	1										1			
		CO 5	Evaluate multiple integrals and their applications to area and volume.	3	2										1			
		CO 1	Apply the concept of types of Oscillation & ultrasonic	2	1	1		1										
		CO 2	Implement the knowledge Interference, Polarization of light ,working Principle of Lasers & Fiber optics	2	1	1		1										
BTBS102 202	Engineering Physics	CO 3	Apply the principle of motion of charged particles in EF&MF, Bainbridge Mass spectrograph, G M counter and quantum Mechanics	2	2			1										
		CO 4	Identify Types of crystals & crystal planes using Miller indices, Experimental approach for crystal determination	2	1	1		1										
		CO 5	Incorporate the concepts of types of magnetic, semiconducting and superconducting materials.	2	1	1		1										
		CO 1	Use the drawing instruments & drawing standards effectively for drawing and dimensioning and to draw basic geometrical constructions.	1														
		CO 2	Construct orthographic views of given objects, project points on different planes.	3				3										
BTES103/ 203	Engineering Graphics	CO 3	Apply concept of projections of lines, planes	3														
		CO 4	Apply concept of projections of solids	3														
		CO 5	Construct section of solids and isometric views of given objects	3				3										
		CO I	Apply speaking and writing skills in professional as well as social situations										3					
DTIDAIOA	Commission	CO 2	Overcome Mother Tongue Influence and demonstrate neutral accent while exercising English										3		2			
/204	Skills	CO 3	Apply communication skills for Presentations, Group Discussion and interpersonal interactions					10	Eng	neo		2	3	1				
		CO 4	Apply grammar correctly during Speaking and Writing situations especially in context with Presentations, Public Speaking, Report writing and Business Correspondence				- Incol	Ins	t. Co	de	2007	1	3				80	jore_
	2 <sup>1</sup>						shree	0	6797		chnot		Ę,		भवतव - सम्बद्ध 	of Do NE	armo	SORE
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		CO 1	Identify conventional ,non-conventional energy sources.	3	1		 	1									
BTE:	5105/ Energy and Environment	CO 2	Know and discuss power consuming and power developing devices for effective utilization and power consumption	2	3		 	1	I								
	Engineering	CO 3	identify various sources of air, water pollution and its effects.		I		 	1	2								
		CO 4	Know and discuss noise, soil, thermal pollution and Identify solid, biomedical and hazardous waste		1		 	1	2								
		CO I	Identify various Civil Engineering materials and choose suitable material among various options.	3			 										
BTES	Basic Civil and	CO 2	Apply principles of surveying to solve engineering problem	1			 										
/20	6 Mechanical Engineering	CO 3	Identify various Civil Engineering structural components and select appropriate structural system among various options	2			 										
		CO 4	Explain and define various properties of basic thermodynamics, materials and manufacturing processes	2	1		 										
		CO 5	Know and discuss the working principle of various power consuming and power developing devices	2			 		1								
BTBSI	07L Engineering	CO 1	Understanding the fundamental principles of optics, Laser and fiber optics based on phenomenon like interference, polarization and diffraction	3	2	1	 										
/207	L Physics Lab	CO 2	Demonstrating the experiments based on electricity, magnetism and material science.	3	2	1	 										
		CO 3	Analyse experimental data from graphical representations and to represent effectively in Laboratory reports	1	2	1	 										
		CO 1	Apply the fundamental principles of engineering Graphics to create engineering drawings of various geometric constructions, angiogenerate	1			 							2			
BTES1	8L Engineering	CO 2	Generate orthographic projections, Front view, Top view, side views of points, lines, planes and solids in both let angle projection method.	3			 3							2			
/2081	Graphics Lab	CO 3	Generate the sections of solids.	3			 										
		CO 4	Develop isometric projection, convert orthographic views to isometric views and vice versa for practical engineering problems	3			 3										
		CO 1	Develop the ability to plan and deliver the well-argued presentation GD & interviews etc.				 					3					
BTHMI	9 Communication	CO 2	Overcome language barriers & use correct grammar for effective communication				 					3		2			
L/209L	Skills Lab.	CO 3	Understand appropriate corporate manners & etiquettes				 				2	3		2			
		CO 4	Identify and control behavioural aspects in organisation				 				2	3					
				1		1	1	1	1	1	1	1	1	1	1	1	1



			Discuss the peed and and and and and and and and and an											
		CO 1	complex quantities and to establish relation between circular and hyperbolic	3	1			 		 	 	1	]	 
		CO 2	Solve first and higher order differential equations and apply them as a mathematical module.		-									 
		CO 3	Solve linear differential equations and apply them as a mathematical		-			 		 	 	1		 
BTBS201	Engineering Mathematics-II	CO 4	modeling in electric and mechanical systems. Determine Fourier series representation of periodic functions over different	3	2			 		 	 	1		 
			intervals	3	2			 		 	 	1		 
		CO5	Demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence & curl in various engineering streams and also use the principles of vector integration to transform line integral to surface integral, surface to volume integral &vice versa using Green's, Stoke''s and Gauss divergence theorems.	3	2			 		 	 	I		 
		CO 1	Differentiate hard & soft water; understand different softening method, solve the related numerical problems	2	2			 		 	 			 
DTDGLGQ		CO 2	Implement Phase rule in one & two component system	2				 		 	 			 
202	Chemistry	CO 3	Understand the cause of corrosion, its consequences & methods to minimize corrosion to improve industrial design	2	2			 		 	 			 
		CO 4	Explain the properties, separation techniques of crude oil along with potential application & role of petrochemical in national economy					 	2	 	 			 
		CO 5	Demonstrate knowledge of different instruments in technical field	2				 		 	 			 
		CO 1	Apply fundamental Laws of Engineering Mechanics	2				 		 	 			 
DTERIO2	( Presidential	CO 2	Apply Conditions of static equillibrium to analyze given force system	1	2			 		 	 			 
203	Mechanics	CO 3	Computee centre of gravity and moment of interia of plane surfaces		2			 		 	 			 
		CO 4	Compute the motion characteristics of a body/particle for a rectilinear and curvilinear motion	1	2			 		 	 			 
		CO5	Know and discuss relation between force and motion characteristics	2	1			 		 	 			 
		CO I	Analyse broad perspective about the uses of computers in engineering industry and C Programming	3	1	1	1	 		 	 			 
DTECIO	Computer	CO 2	Identify and develop the basic concept of algorithm, algorithmic thinking and flowchart	3	2	2	2	 		 	 			 
204	Programming in	CO 3	Create variable, keywords and different types of operators	3	2	3	3	 		 	 			 
	C	CO 4	Demonstrate programs using c programming concept like loops,control statements and array	3	2	2	2	 		 	 			 
		CO 5	Verify tasks in which the pointers are applicable and apply them to write programs and hence use computers effectively to solve the task.	3	2	2	2	 		 	 			 



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		CO 1	Build thorough knowledge of various tools, machines, devices used in engineering practice	2					2			1			1	 	
PTERIO		CO 2	Summarize thorough knowledge of carrying out various operations in mechanical engineering workshop	2								1			2	 	
205	Workshop Practices	CO 3	Utilize measuring skills and practical skills gained in the workshop practice	2	2							1			1	 	
		CO 4	Demonstrate "Hands on" training to use of various tools, devices and machines	2								2			1	 	
		CO 5	Acquire skills in basic engineering practice for creating objects from raw materials	1	2				2			2			2	 	
		CO 1	Apply basic ideas and principles of electrical engineering	3												 	
DTERIOCI	Basic Electrical	CO 2	Identify protection equipment and energy storage devices.		2											 	
206	and Electronics Engineering	CO 3	Differentiate electrical and electronics domains and explain the operation of diodes and transistors	2									-			 	
		CO 4	Acquire knowledge of digital electronics.	3												 	
		CO5	Design simple combinational and sequential logic circuits.			2		-								 	
		CO I	Understand different techniques of quantitative chemical analysis to generate experimental skills	3	2		1			2		1			1	 	
BTBS107L	Engineering	CO 2	Apply instrumental techniques for chemical analysis	3	2		1				-	1	-		1	 	
/207L	Chemistry Lab	CO 3	Evaluate accurate results from experiment procedure & represent effectively in laboratory reports including innovative experiments	2	3		1				-	1	-		1	 	
		CO 4	Analyse different properties of lubricant for selection of good lubricant	3	3		1	-				1			1	 	
		CO 1	Apply the fundamental laws of Engineering Mechanics	3	3											 	
BTES108L	Engineering	CO 2	Apply condition of static equilibrium to analyze given force system	3	2						-					 	
/208L	Mechanics Lab	CO 3	Compute centre of gravity and moment of inertia of plane surface	3				-								 	
		CO 4	Know and discuss relation between force and motion characteristics	3				-					-			 	
		CO 1	Establish motivation for any topic of interest and develop a thought process for technical presentation		1 1		1			1						 	
		coa	Organize a detailed literature survey and build a document with respect to tachnical publications		1 3	,	- 1			1						 	
BTES110S	Seminar	CO	Analysis and comprehension of proof-of-concept and related data	-	2	2			1							 	
72103		CO	Effective presentation and improving soft skills	-							1	1	3	-		 	
		CO	5 Make use of new and recent technology for creating technical reports	-					2	JOLE	19ipes	-			1		
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		COI	Able to define, recall Laplace Transform & its properties and to implement to evaluate Integrals.	3	2				 	 	 	1	1		
	Engineering	CO2	Able to apply Laplace Transform & its inverse to solve Initial value Problem	3	2				 	 	 	1	1		
B⊤BS301	Mathematics -	CO3	Understand & analyze the basic Concept of Fourier Transform.	3	2				 	 	 	1	I		
	111	CO4	Understand & apply separation of variable method to solve Wave Equation , Heat Equation & Laplace Equation $% \left( {{\rm E}_{\rm A}} \right)$	3	2				 	 	 	1	1		
		CO5	Understand the analytic functions & apply Cauchy Integral Theorem & formulae.	3					 	 	 	1	1		
		COI	Comply and verify parameters after exciting devices by any stated method.	3	1				 	 	 	1	1		
BTETC302	Electronic Devices &	CO2	Implement circuit and test the performance.	2	2				 	 	 		1	1	
	Circuits	CO3	Analyze BJT, JFET, and MOSFET for various applications.		3				 	 	 		1		
		CO4	Analyze feedback amplifiers and oscillators.	3	2				 	 	 		1		
		CO1	Use the basic logic gates and various reduction technices of digital logic circuit in detail	1		2			 	 	 		1		
		CO2	Design combinational and sequential circuits		2	1	3		 	 	 		I	1	
BTETC303	Digital Electronics	CO3	Design and implement hardware circuit to test performance and applications.			2		3	 	 	 		1	1	
		CO4	Understand the architecture and use of VHDL for basic operations and simulate using simulation software.				2	3	 	 	 		1	1	
		COI	The ability to formulate and then analyze the working of any electrical machine using mathmatical model under loaded and unloaded conditions.	3	1				 	 	 	2	1	2	
		CO2	The skill to analyze the response of any electrical machine.	2	2				 	 	 	2	1	2	
BTES304	Electrical Machines and	CO3	The ability to troubleshoot the operation of an electrical machine.		3				 	 	 	2	1	2	
	Instruments	CO4	The ability to select a suitable measuring instrument for a given application.	3					 	 	 	1	3	2	
		CO5	The ability to estimate and correct deviations in measurement due to the influence of the instrument and due to the accuracy of the instrument.	2					 	 	 	2	2	2	
		COI	An ability conduct exoeriments, and analyze and interpret data	2			2	2	 	 1	 				
	Electronic	CO2	Demonstrate the working of semiconductor devices in different electronic circuits	2			1	2	 	 1	 		1		
BTETL305	Devices & Circuits Lab	CO3	Evaluate different performance parameters of semiconductor devices and various electronic circuits like oscillators, amplifiers, regulator	2			1	2	 	 1	 		1	1	
	ľ	CO4	Build electronic circuit on breadboard and multisim, examine and show its working					3	 	 1	 		1		



		con 14	apply boolean laws/K map method. Oume McCluskey method to reduce a	3	1												
		COL	uven boolean function														
		CO2 [	Design and realize combinational logic circuits using logic gates MSI circuit,	3	3									 1	*		
		0.02	"LD for various practical applications														
BTETI 306	Digital	CO3	Demonstrate the operation of flip flop counters and shift register	3	2	2											
	Electronics Lab	CO4	Design synchronous sequential machine using Moore and Mealy machine	3	-	2		2						1			
		C05	Distinguish between various memories and implementation of digital circuits using PLA.	3		2	-	2		-	-			 1	3	2	
		C06	Demonstrate logical skills, debuging skills in designing small digital circuits for industrial annications	3		2	1	2	-					 1	1	1	
		COI	Identify an engineering problem, analyse it and propose a work plan to solve it	3	3	2	3	3	2			3		 3	1	2	
		602	Be familiar with basic technical writing concepts and terms, such as					2	3		3	1 :	2	 2	2	1	
BTETS307	Seminar 1	002	audience analysis, format, visuals, and presentation.														
		CO3	Improve skills to read, understand, and interpret material on technology.		1		1	2			2	2		 			
		CO4	Improve communication and writing skills.					3	2		3	3	3	 2			
		01	Develop practical skills, critical thinking, problem solving skills by working on projects.	2	1	2	1							 	1	2	
		CO2	Apply theoretical knowledge to real world problem.	3	1	1								 	1	2	
BTES211	internship - I	CO3	Build communiaction and teamwork skills.						3	3				 	1	2	
	Evaluation	CO4	Develop a professional network and gain exposure.						3	2	2			 	an a	2	
		CO5	Reflect on ersonal strengths and areas for professional develoment and career advancement						2			3		 -	1	2	
		CO6	Document and prepare report.							3			2	 	1	2	
		COI	Apply knowlege of mathamatics to solve numerical based on network simplification and it will be used to analyze the same.	1	2									 			
BTETC401	Network Theory	CO2	Design passive filters and attenutors theoritically and practically. To apply knowledge for design of active filters as well as digital filters and even extend this to advance adaptive filters.		2	2								 			
	. technolik Theory	CO3	Identify issues realted transmission of signals, analyze different RLC network	k	2	2								 		~~~	
		CO4	Find technology recognition for the benefit of the society				2							 			-
		CO5	Analyze design of Analog filter design			- 2								 			
		COI	Analyze mathetical description and representation of continuous and discret	e 3	3		2	1						 1		2	
	Signals and	CO2	Illustrate input output relationship for linear shift invarient system and	3	3		. 3	3						 2		3	
BTETC402	Sucteme	CO3	Resolve the signals in frequency domain using Fourier series and Fourier	3	3		- 3	3						 2		3	1
	systems	CO4	Examine continuous and discrete time signals using Fourier transform	3	1				. 6					 2		2	1
		CO5	Analyze the system in S domain using laplace transform and analyze discret	te 3	3				At	Audio	900	N		 1	-	2	



		c01	Acquire the fundamental knowledge of probability, discrete & continuous random	2	0							1			1	2	1	
BTBS404	Probability Theory and Random	CO2	Identify one and two dimensional random variables along with their distributions a	n <b>1</b>	2							1			1	1	2	
	Processes	С03	Apply moments & characteristic functions, inequalities and probabilistic distributio	<sup>n</sup> 1	1							1			1	1	2	
		CO4	Apply the sequence of convergence on Mean & probability distribution. (K3)	1	0							1			0	1		
		CO5	Demonstrate the specific applications to Poisson and Gaussian processes and repres	2	1							1			0	1		
		C01	Learn how computers work.	2	2										3	2	2	
	Computer	CO2	Know basic principles of computer's working	2	1										3	1	1	
BTETPE40 5C	Organization and	CO3	Analyze the performance of computers.	2	1	2									3	1	2	
	Architecture	C04	Know how computers are designed and built	2	2	2									3	1	2	
		C05	Evaluate interrupts structure and DMAcontroller.	2	1										3	1		
		COI	Apply knowledge of mathematics to solve numerical based on network simplification and it will be used to analyze the same	2			2	2				1				1	2	
BTETL406	Network Theory Lab	CO2	Design passive filters and attenutors theoritically and practically. To apply knowledge for design of active filters as well as digital filters and even extend this to advance adaptive filters.	2			1	2				1				1	2	
		CO3	Identify issues realted transmission of signals, analyze different RLC network	2			1	2				1				1		
		CO4	Find technology recognation for the benefit of the society	2			1	2				1					1	
		CO1	Illustrate applications of MATLAB/SCILAB	3	3		2	1							1		2	
	Signals and	CO2	Generate various signals and sequences and perform operations on signals	3	3		3	3							2		5	
BTETL406	Sustans Lab	CO3	Demonstrate concept of convolution and correlation	3	3		3	3							2		3	
	Systems Lab	CO4	Analyze signal spectrum using Fourier series	3	1										2		2	
		CO5	Obtain frequency domain representation of signals and sequences using fourier, laplace and Z transform	3	3										1		2	
		COI	Identify an engineering problem, analyse it and propose a work plan to solve it.	3	3	2	3	3	2			3			3		2	
BTETS407	Seminar II	CO2	Be familiar with basic technical writing concepts and terms, such as audience analysis, format, visuals, and presentation.					2	3		3	1	2		2	2		
		CO3	Improve skills to read, understand, and interpret material on technology.		1		1	2			2	2						1
		CO4	Improve communication and writing skills.					3	2		3	3	3		2			
		COI	Understand the applications of electromagnetic engineering.	2	2										3	1		
	Electromagnetic	CO2	Boundary conditions for Electrostatic fields and Magnetic field, Basic Law's	2	1										3	1		
BTEXC501	Field	CO3	Inderstand characteristics and wave propagation on high frequency ransmission lines	2	1	2						-/2	otErg	Sinee	3	1		
		CO4 0	Characterize uniform plane wave and Calculate reflection and transmission	2	2	2				_	7	131				1		
		CO5	analyze wave propagation on metallic waveguides in modal form	2	1						[[	5	151.	ode	1 to C	ì	1	

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		CO1	Aware of the fundamenals of digital signal processing and analyze the discrete time signals and existence	3	3								 	2			
		CO2	Able to analyze the discrete time signal sampling, alasing and different	3	2								 	2	1		
RTETOSO2	Digital Signal		Able to apply transformation for the interview of the second seco	2	2	2							 	2	1	1	
01010302	Processing	CO3	processing	3	2	2											
		CO4	Able design and implement IIR filters needed for different application	3	1	1							 	1	1	2	
		C05		3	2	2		2					 	2	1	2	
		005	Able design and implement FIR filters needed for different application	3	2	2		2									
		CO1	Understnad and identify the fundamental concepts and variours components of analog communication system	2	2								 				
		-CO2	Understand the concpets of modulation and demodulation techniques	2	2								 				
RTETORAR	Analog	CO3	Design circuits to generate modulated and demodulated waves	2	2	3							 	2			
DIEICOUS	Communication		Equip students with various issue related to applice communication such as	1	2	2	1						 				
		CO4	modulation, demodulation, transmeter and receiver and noise performance														
			Understand the concept of modulation and demodulation techniques of	2	2	1							 				
		CO5	analog modulation (frequency and phase)	2	2	1											
		CO1	Analyze operational amplifers structure, characteristics, parameters, mode of	3									 				
			operation and response.														
		CO2	Design various linear modes of operational amplifier configuratopms and their outputs	2	1	1							 				
BTETPE50	Analog Circuits	CO3	Design various non-linear modes of operational amplifier configuratopms	2	1	1							 				
-			and their outputs	2	1	1							 				
		CO4	and their outputs	-													
		CO5	Compare the operational amplifer based various converters and their outputs	2									 				
		CO1	Explain the modeling of linear-time -invariant systems using transfer	2			2						 		2		
		COI	function and state-space representations	2	2		2						 			1	
BTETOE50	Control System	CO2	Analyze the time response, the frequency response and the stability of systems	5	2		5						 				
5	Engineering	CO3	Explain the root locus, bode plots, nyquist plots	2			3						 		1		
		CO4	Design PID controller, lead and lag compensators	2	2		3	3				2	 2	3	1	1	
		CO5	Design simple feedback system	3	2		5	5				2	 2	2	1	2	1
		CO1	Understand use fo diffrent transform and analyze the discrete time signals	5	5								 	2	1	1	
		C02	and systemes. Realize the use of LTI filtersfor filtering different real world signals.	3	2								 	2	1		
	Digital Signal	02	Capable of calibrating and resolving different frequencies existing in any	3	2	2							 	2	1	1	
BTETL506	Processing Lab	CO3	signal.													-	
		CO4	Design and implement multistage sampling rate converter.	3	1	1			1	oiner	0		 	1	1	2	
		COS	Design of different types of digital filters for various applications.	3	2	2		2	24		190	<u></u>	 	2	1	2	
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		COI	Define principals and working of analog modulation/Demoduation process											_				
STETL506	Analog communication	CO2	Define principals and working of analog modulation/Demoduation process use MATLAR Software	1				2										
	Lab	CO3	Understnad and analyse input output waveforms of various modulation methods		3	3												
		CO4	Understand ASK/FSK and PSK				2		2						1			
		COI	Apply theoretical knowledge for implementing designed small circuit and systems physically	3											3	2	1	
TETM507	Mini Project - 1	CO2	Built physical system			3		3	2					-		1		
			Test the systems for functional verification			2	3				-				2	1	2	
	-	CO4	Write technical reports on circuit and system developed								3							
		COI	Develop practical skills, critical thinking, problem solving skills by working on projects	2	1	2	}									1	2	
		CO2	Apply theoretical knowledge to real world problem.	3	1	1											-	
BTETP408	Internship - 2	CO3	Build communiaction and teamwork skills						3	3						1	2	-
	EVALUATION	CO4	Develop a professional network and gain exposure.						3	2	2					1	-	
		CO5	Reflect on ersonal strengths and areas for professional develoment and career						2			3				1	2	
		CO6	Document and prepare report.							3			2			1	-	
		CO1	Formulate the wave equation and solve it for uniform plane wave.	2	2										3	1		
		CO2	Identify the performance characteristics of ground wave, space wave and sky	2	1										3	1		
		CO3	Realize the importance of basics of antenna and measure the antenna	2	1	2									3	1		
BTETC601	Antennas and Wave	CO4	Analysis of Linear and Loop wire antennas and Complete Analytical treatment of all these elements	2	-	-												
	Propagation	C05	Determine the radiation pattern, half power beam width and directivity of broadside array and end fire array using pattern multiplication method.	2	1										3	1	_	
		CO6	Identify the suitable antenna for a given communication system.	2		2						-			- 3	1	1	
		COI	Analyze the performance of a baseband and pass band degital communication system in terms of error rate and spectral efficiancy	3	2											1		
BTETC802	Digital	CO2	perform the time and frequency domain analysis of the signals in a digital communication system	3	2	1										1		
	Communication	CO3	Select the blocks in a design of digital communication system	2	2											1		
		CO4	Analyze performance of spread specturn communication system	2	2	2										1	1	
		COL	Illustrate 8085 Microprocessor architecture and its types with programming	3	2											3		
			model Use instruction set of 8085 microprocessor to write assembly language	3		2		-									3	
	Microprocessors	CO2	programs		2	3	A	Eng	neen	20							3	
TETPE603 -	and	CO3	Illustrate 8051 Microcontroller architecture and its programming model		4	,	1/2	$\sim$		1							3	
	Microcontrollers	CO4	Use architectural primitives of 8051 microcontrolller in array and C program			3	SUL		Cog	3	E S							3
		CO5	Design interfacing diagrams using 8085 Microprocessor, 8051 Microcontroller and periherals				6 1	Has	6791	100	3		3	3				3

		CO1	Discuss and contrast the concept of OSI & TCP/IP referice models and discuss switched networks and paclet switching	3	2				-			-	-			2		
		C02	Discuss and Analyse Data link control, Multiple access and wired Wthernet	3	2								-			1		
ITETOE604 -	Computer Network	CO3	Extend knowledge of computer Network in Wireless LANS & Virtual Circuit Networks and netwroks Layer	3	2											1		
		CO4	Explain the details of Transport Layer Protocols (UDP, TCP) and suggest appropriate protocol in communication	3	2											1		
		C05	Analyze the features and iperations of various application layer protocols such as HTTP, ETP, DNS and SNMP	3	2											1	1	_
		CO1	Have skills and preparedness for aptitude tests.	3	1								-					
BTHM605	Employability & Skill	CO2	Be equipped with essential communication skills (writing, verbal and non- verbal)	2	2													
	Development	CO3	Master the presentation skill and be ready for facing interviews.		3			-									-	
		CO4	Build team and lead it for problem solving.	3	2												-	
		CO1	Analyse principle and working of Digital Modulation/Demodulation Process	1				2				-	-			_	_	
DITE COS	Digital	CO2	Define principles and working of Digital Modulation/Demodulation Process. Use Matlab Software	1				2				-			-			
BILILOUG	lab	CO3	Understand and analyse input/output waveforms of various modulation methods.		3	3			2							-		
		CO4	Understand ASK,FSK,PSK,PCM,DM modulation				2											
		CO1	Understand the fundamentals of microprocessor and 8085 & 8051 board	3			- 2		-						3			
	Microprocessors	CO2	Understand the fucntion and working of simulator 8085 & 8051 for simulate the programs	2			- 2			-					3			
BTETL606	Microcontrollers lab	CO3	Analyze different case studies by applying knowledge of Addressing modes, instruction set of microprocessor 8085 & 8051	3	3		- 2											
		CO4	Simulate and disign interfacing system of real world input and output devices	s		- 3	-	- 3	3				- 2		- 3			
		COI	Apply theoretical knowledge for implementing designed small circuit and systems physically.	3											- 3	2	2	
DTET MOT	Mini project 2	CO2	Built physical system.				3		3 2	2					-		2	
BIEIMOU/	mini-project - 2	CO3	Test the systems for functional verification.				2	3			- 7		ina		- 2	1	2	
		C04	Write technical reports on circuit and system developed.								1 se	T	10/1	- 1/3				
		0.04								11	SI		1	( 9° )				

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		001	Develop practical skills, critical thinking, problem solving skills by working on projects	2	1	2	1									1	2	1.004
	tield	002	Apply theoretical knowledge to real world problem	3	1	1	10 1 1 1 1 1	1.777.9		1.0.0		19-14 1	e -4.4 3		1.00	1	- 2	
BTETP608	Tranning Interns	003	Build communiaction and teamwork skills	1111 A.D.	6.919,15	4. B. 1711	6.0.0.0		3	3		4.5.20			. V	1	2	1.11.11.11.11.11.11.11.11.11.11.11.11.1
	Traning	004	Develop a professional network and gain exposure.	4.0.0 h	4.444.55	0.11.12.0	Sector Ad. Co.		3	2	2	10,714	1.224		1.1.1.1	1	2	
		C05	Reflect on ersonal strengths and areas for professional develoment and career advancement.			16.00.00 <sup>-00</sup>	6-6-0	1.119.19	2	4-1 % h	1.000	3	1, 19 A A	1015		1	2	h 1
		C06	Document and prepare report.		1.1.1.4	1. m. etc. 10				3			2		1. (). And	1	2	404 9/10
		C01	Analyze the performance of a baseband and pass band degital communication system in terms of error rate and spectral efficiancy	3	2	5.5.078				1000	N			allere et		1		B776, 07, 0
BTETC701	Digital Communication	CO2	perform the time and frequency domain analysis of the signals in a digital communication system	3	2	l	Berde 13. vie	(3.1646)10		hin u h		1-1,108			1.114	l	waters	torin a
		CO3	Select the blocks in a design of digital communication system	-2	2					1.10 To 10		11-12-10 <sup>-10</sup>				1	1.12.005	
		CO4	Analyze performance of spread specturn communication system	-2	2	2						1110.000	1 1. i.i.		1	1	1	
		CO1	Formulate the wave equation in wave guide for analysis.	2	-2		2						1-1-1-1		1-1-10	had to		
		CO2	Identify the use of microwave components and devices in microwave applications	2	2		3				a ta			1-1-1-1		***	0.0.74	
BTETPE70	Microwave Theory &	CO3	Carry out the microwave network analysis.	3	3		3						1.10.00		ana kage	11 Mar 14	No. 10. 16	forth local
24	Techniques	CO4	Undertand the working priciples of all the microwave tube and select it for particular applications	2	2													1. With the
		CO5	Understand the working principles of all the solid state devices and select the suitable microwave measurement instruments fand carry out the required measurement	2	2	3	3					2			3	76. YE. 16.	7. <b>8</b> . 118	
		COI	Model any digital circuit or FSM with HDL, simulate, synthesis	3		3	2	3								1	1	
		CO2	Explain PLD architectures and able to prototype in PLDs	3		3		3								1		
BTETPE70	VLSI Design &	CO3	Explain chip level implementation issues	2	3											1	1	
30	Technology	CO4	Design a combo or sequential logic with a testability		2	3	3	3								1	2	
		CO5	Design analog & digital CMOS circuits for specified specifications and applications	1	2	3	3	3							2	1	2	1
		COI	Identification of key elements of mechatronics system and its representation in terms of block diagram	2				-							3	1		1
PTETDE70		CO2	Understaning concept of signal processing in a controll system and representing it using block diagram	2											1	1	1	
4C	Mechatronics	CO3	Interfacing sensors actuators using appropriate DAQ microcontroller	2	2	1		-							3	1	1	
		CO4	Development of PLC ladder programming and implementation of real time system	2	1					1	No of	Engi/	ee.		3	1		
		CO5	Implentation of PID controller system.	2	2					0			120	1	2	1	1	1
										Nanshre	O.Sa	itara *	lechnool					

		CO1	The students would be able to understand and define basic terminology used in finance and accounts	1												1		
		CO2	The students would be able to prepare&, appraise Financial Statements and evaluate a company in the light of different measurement systems.		2											1		
		CO3	The students would be able to analyze the risk and return of alternative sources of financing			2										1		
BTHM705	Financial Management	CO4	Estimate cash flows from a project, including operating, net working capital, and capital spending				2									1		
		CO5	To estimate the required return on projects of differing risk, to estimate the cash flows from an investment project, calculate the appropriate discount rate, determine the value added from the project, and make a recommendation to accept or reject the project.			2										I	I	
		C06	To describe and illustrate the important elements in project finance Using financial calculator and Excel in a variety of problems.					3						I		1		1
		COI	Undertand functionality of different microwave components in microwave testbench.	2			2									1		
		CO2	Test and measure various microwave modules in Lab.	2			3									1		
BTETL706	Microwave Theory &	CO3	Analyze significance of TE, TM modes inside rectangular waveguide and rectangular waveguide cavity for microwave applications.	3			3									1	1	
	Techniques Lab	CO4	Observe and calculate different parameters of different material samples inserted in rectangular waveguide cavity	2			3									1		
		CO5	Observe and undertand the use of coaxial transmission lines in microwave transmission system.	2	2							2			3	1		
		COI	Model various combo and sequential circuits with CAD tool at RTL level and device level	1	1		2	2				1			2	1	1	
BTETL 707	VLSI Design &	CO2	Analyze the performance of the circuit	1	1	1	1	2				1			2	1	2	
D. L. L. L.	Technology Lab	CO3	Demonstrate layout for circuit using layout design rules			1	2	2				- 1			2	1	2	
		CO4	Design a layout for various combo / sequential circuits.			1	2	2				1			2	1	2	1
		COI	measure temperature and displacement using RTD and LVDT respectively	2				2	2						3	1		
		CO2	Demonstrate operation of hydrualic valve and stepper motor	2				2	2						3	1	1	
BTETL708	Mechatronics Lab	CO3	Explain R-2R ladder circuit and PLC based boolean operation and latch programming	2		2		2							3	1	1	
		CO4	Model time domain and frequency domain analysis system and transient domain analysis	2				2			Engin	eerin	2		3	1		
	-	CO5	Use of spectrum analyzer and DSO for measurement of process variables	2		2				and a		36	2 cel		2	1	1	I
										US,	795.	67	1. The					



BTETP709/ BTMEP803	Project Part VProject Part II	COI	Identify various technologies and fileds for making projects	3			2								2	2	2	
		CO2	Aware of process to make reports and presentations	2	2	2									2		1	
		CO3	Apply Engineering knowledge to solve various industrial problems	3	2	2		3							2	1	3	
		CO4	Analyse ethical practice and tools used for different technologies							3	1				2		1	2
		CO5	Justify the performance on designing parameters and other technical aspects	2	2	2	2	2							2	I	1	
		CO6	Design and develop the skills to make software / hardware related to project for serving the society							3	3	2	2	2	2		3	2
BTETF611	field Tranning/Interns hip/ Industiral Traning Evaluation	CO1	Develop practical skills, critical thinking, problem solving skills by working on projects.	2	1	2	1									1	2	
		CO2	Apply theoretical knowledge to real world problem.	3	1	1										I	2	
		CO3	Build communiaction and teamwork skills.						3	3						1	2	
		CO4	Develop a professional network and gain exposure.						3	2	2					1	2	
		CO5	Reflect on ersonal strengths and areas for professional develoment and career advancement.						2			3				1	2	
		CO6	Document and prepare report.							3			2			1	2	
Online Course 1	Introduction to internet of things	COI	Discuss fundamental of sensors, actuators, networking and communcation protocols	3												1		
		CO2	Design a portable IoT using Arduino/Raspberry Pi or equivalent boards and relvant protocols	2		2		2								1		
		CO3	Understand basics of SDN and cloud computing for loT	3	2											1		
		CO4	Identify sensor technologies for sensing real world entities and understand the role of $\log T$ in various domain of industries		2	2	2		2							1		
Online Course 2	Industrial Automation and Control	CO1	Use the sensors, actutors and DAQ in detail	3	1											1		
		CO2	Desing control system and block diagram for meachanical system	2	2											1		
		CO3	Understand the control of systems with inverse response		3											1		
		CO4	Understand the role of IA & C in various domains of industry	3	2											1		



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