

NAAC Accredited, Approved by AICTE, New Delhi & Affiliated to DBATU, Lonere E-mail : office@orchidengg.ac.in, Website : www.orchidengg.ac.in, Phone No. 9423084363 Post Box No. 154, Gut No. 16, Solapur-Tuljapur Road, Tale Hipparaga, Solapur- 413 002.

Department of Electronics and Telecommunication Engineering

	PROGRAM OUTCOME STATEMENTS
PO No.	Statements
PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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Department of Electronics and Telecommunication Engineering

	Course outcomes of all courses		
	Second Year-I		
Course	no.	Course code	Course name
C301		BTBS301	Engineering Mathematics – III
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Solve higher orde	r linear differential equation using	g appropriate techniques for
	modeling and ana	lyzing electrical circuits.	
2	Solve problems re	lated to Fourier transform, Laplac	e transform and applications to
	Communication s	ystems and Signal processing.	
3	Obtain Interpolati	ng polynomials, numerically diffe	erentiate and integrate functions,
	numerical solution	ns of differential equations using s	single step and multi-step
	iterative methods	used in modern scientific comput	ing.
4		fferentiation and integration, anal	yze the vector fields and apply to
	Electromagnetic f		
5	Analyze conformal mappings, transformations and perform contour integration of		
	complex functions in the study of electrostatics and signal processing.		
Course	no.	Course code	Course name
C302		BTETC302	Electronic Devices & Circuits
COs		ful completion of this course stude	
1		y parameters after exciting device	es by any stated method.
2	Implement circuit and test the performance.		
3		ET and MOSFET for various appl	ications.
4		amplifiers and oscillators.	
Course	no.	Course code	Course name
C303		BTETC303	Digital Electronics
COs	After the successful completion of this course student will be able to:		ent will be able to:
1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail.		
2	Design combinational and sequential circuits.		
3	Design and implement hardware circuit to test performance and application		
4	Understand the architecture and use of VHDL for basic operations and Simulate using		
	simulation software		~
Course	no.	Course code	Course name
C304		BTES303	Electrical Machines and
			Instruments
COs		ful completion of this course stude	
1		en analyze the working of any ele	_
	mathematical model under loaded and unloaded conditions.		nditions.



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ENGINEERING & TECHNOLOGY, SOLAPUR

2	Analyze the respo	onse of any electrical machine.	
3		operation of an electrical machine	2.
4	Select a suitable measuring instrument for a given application.		
5	Estimate and correct deviations in measurements due to the influence of the		
	instrument and due to the accuracy of the instrument.		
Course	Course no. Course code Course name		Course name
C305		BTETL305	Electronic Devices & Circuits Lab
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Comply and verif	y parameters after exciting device	es by any stated method.
2	Implement circuit	and test the performance.	
3	Analyze BJT, JFI	ET and MOSFET for various appl	ications.
4	Analyze Feedbac	k amplifiers and oscillators.	
5	Comply and verif	y parameters after exciting device	es by any stated method.
Course	no.	Course code	Course name
C306		BTETL306	Digital Electronics Lab
COs	After the successful completion of this course student will be able to:		
1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail.		
2	Design combinatio	nal and sequential circuits.	
3	Design and implement hardware circuit to test performance and application		
4	Understand the architecture and use of VHDL for basic operations and Simulate using simulation software.		
5	Use the basic logic	gates and various reduction technique	ues of digital logic circuit in detail.
Course	no.	Course code	Course name
C307		BTETS307	Seminar I
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Acquire the basic	skills to for performing literature	survey and paper presentation
2	Describe the current topics in Electronics, Communication, and related areas based		
	on current publications.		
3	Demonstrate oral communications skills while giving power point presentation and		
	written communication skills while writing report.		
	4 Apply ethical principles and commit to profession		-
Course	no.	Course code	Course name
C308		BTES211P	Internship – 1 Evaluation
COs		ul completion of this course stude	
1		npany profile by compiling the br	_
	-	s / services offered, key achieven	nents and market performance
	tor his / her organ	ization of internship.	



2	Access the Strong	the Weelmagge Opportunities of	nd Threats (SWOT) his/har
2	organization of in	ths, Weaknesses, Opportunities at ternship	nd Inreats (SWOI) his/her
3	<u> </u>	allenges and future potential for h	is / her internship organization
5		he sector in general.	is / her internship organization
4		al learning in practical situations l	ay accomplishing the tasks
4			by accomplishing the tasks
=		ne internship period.	nositivo ottitudo and
5		t skills such as time management	-
		kills during performance of the tas	sks assigned in internship
	organization.	• • • • • • • • •	1 1 1 0
6	-	ioning of internship organization	and recommend changes for
	improvement in p		
7	Deal with industr	y-professionals and ethical issues	in the work environment.
		Second Year-II	
Course	no.	Course code	Course name
C401		BTETC401	Network Theory
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Apply basic laws of electric circuits and different network theorems to linear circuit to		
	calculate the response.		
2	Determine transien	t and steady state response of linear	circuits.
3	Apply concepts of	Laplace Transform to find circuit	parameters.
4	Compute two port	network parameters and draw equiva	lent network.
5	Apply matrix calculation method to find solution of circuit equation, design filter.		
Course			Course name
C402		BTETC402	Signals and Systems
COs	After the successful completion of this course student will be able to:		
1	Understand mathematical description and representation of continuous and discrete time		
	signals and systems.		
2	Develop input output relationship for linear shift invariant system and understand the		
	convolution operator for continuous and discrete time system.		
3	Understand and resolve the signals in frequency domain using Fourier series and Fourier		
	transforms.		
4	Understand the limitations of Fourier transform and need for Laplace transform and develop the ability to analyze the system in s-domain.		
Course	· · ·	Course code	Comme norme
	110.		Course name
C403	A fear the	BTHM403	Basic Human Rights
COs		ul completion of this course stude	ent will be able to:
1		ory of human rights.	
2	-	e, religion, region and culture.	
3	Aware of their right	ts as Indian citizen.	



4	Understand the imp	ortance of groups and communities	in the society.
5	Realize the philosophical and cultural basis and historical perspectives of human rights.		
Course	no.	Course code	Course name
C404		BTBS404	Probability Theory and Random Processes
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Understand represe	entation of random signals	
2	Investigate characteristics of random processes		
3	Make use of theore	ms related to random signals	
4	Understand propag	ation of random signals in LTI system	ms.
5	Understand represe	entation of random signals	
Course	no.	Course code	Course name
C405	BTETPE405 (A) Numerical Methods and Computer Programming		Computer Programming
COs		ul completion of this course stude	
1	U U	transcendental equations by using n	
	able to compare different numerical techniques used for this purpose and also will be able		
	to choose a proper one as per the requirement of the problem. Solve a system of linear equations with any number of variables using different direct and		
2	iterative numerical techniques.		
3		ncept of interpolation, finite differen	ce operators and their relations
C	and can apply different interpolation techniques on equi-spaced or non equi-spaced data values.		
4	Write computer programs for the numerical computational techniques.		
5	Understand application of the NMCP course in many engineering core subjects like signal		
5	processing, digital communication, numerical techniques in electromagnetics etc.		
6	Understand procedure-oriented and object-oriented programming concepts.		
7	Writing C and C++ programs efficiently.		
Course	no. Course code		Course name
C406		BTETPE405 (E)	Python Programming
COs	After the successful completion of this course student will be able to:		
1	Explain the concepts of interpreted language.		
2	Develop programs using Python Types, Operators, Expressions, Functions and OOP concepts.		
3	Provide solution to	real world needs by developing soft	ware.
4	Explain the concep	ts of testing software.	
Course	no.	Course code	Course name
C407		BTETS407	Seminar II
COs	After the successf	ful completion of this course stude	ent will be able to:



1	Acquire the basic	skills to for performing literature	survey and paper presentation
2		ent topics in Electronics, Commu	
	on current publications.		
3	Demonstrate oral	communications skills while givi	ng power point presentation and
	written communie	cation skills while writing report.	
4	Apply ethical prin	nciples and commit to professiona	l ethics while delivering seminar
Course	no.	Course code	Course name
C408	OR BTETP408 Field Training Internshi		
C+00		(Internship – 2)	Industrial Training
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Construct the con	npany profile by compiling the br	ief history, management
	structure, product	s / services offered, key achievem	ents and market performance
		ization of internship.	
2	-	ths, Weaknesses, Opportunities a	nd Threats (SWOT) his/her
	organization of in		
3	Determine the challenges and future potential for his / her internship organization		
	in particular and the sector in general.		
4	Test the theoretical learning in practical situations by accomplishing the tasks		
		ne internship period.	
5		ft skills such as time management	_
		kills during performance of the tas	sks assigned in internship
6	organization.	ioning of internation	and recommend show see for
0	-	ioning of internship organization	and recommend changes for
7	improvement in processes. Deal with industry-professionals and ethical issues in the work environment.		
/	Third Year-I		
Course	no	Course code	Course name
C501		BTETC501	Electromagnetic Field Theory
COs	After the successful completion of this course student will be able to:		
1	Understand characteristics and wave propagation on high frequency transmission		
_	lines		
2	Carryout impedance transformation on TL		
3	Use sections of transmission line sections for realizing circuit elements		
4	Characterize unif	orm plane wave	
5	Calculate reflection	on and transmission of waves at n	nedia interface
6	Analyze wave pro	ppagation on metallic waveguides	in modal form
7	Understand princ	iple of radiation and radiation cha	racteristics of an antenna
Course	no.	Course code	Course name



C502		BTETC502	Digital Signal Processing
COs	After the successf	ul completion of this course stude	
1	Understand use of a	lifferent transforms and analyze the o	discrete time signals and systems.
2	Realize the use of I	TI filters for filtering different real-	world signals.
3	Capable of calibrating and resolving different frequencies existing in any signal.		
4	Design and implem	ent multistage sampling rate convert	ter.
5	Design of different	types of digital filters for various ap	plications.
Course n	0.	Course code	Course name
C503		BTETC503	Analog Communication
COs	After the successf	ul completion of this course stude	
	Understand and identify the fundamental concepts and various components of analog		
	communication sys	tems.	
2	Understand the con	cepts of modulation and demodulation	on techniques.
3	Design circuits to g	enerate modulated and demodulated	wave.
4	Equip students with	various issues related to analog con	nmunication such as modulation,
	demodulation, trans	mitters and receivers and noise perfe	ormance.
5	Understand the con	cepts of modulation and demodulation	on techniques of angle modulation
	(frequency and pha		
	Explain signal to noise ratio, noise figure and noise temperature for single and cascaded		perature for single and cascaded
	stages in a communication system.		
	Develop the ability to compare and contrast the strengths and weaknesses of various		
Course no.		Course code	Course name
C504		BTETPE504-A	Analog Circuits
	After the successful completion of this course student will be able to:		
	Understand the characteristics of IC and Op-Amp and identify the internal structure.		
2	Understand and identify various manufacturing techniques.		ues.
	Derive and determine various performances-based parameters and their significance for		neters and their significance for
	Op-Amp.		
	Verify parameters after exciting IC by any stated method.		
_	Analyze and identify the closed loop stability considerations and I/O limitations.		
6	÷	fy linear and nonlinear applications of	
Course no	0.	Course code	Course name
C505		BTETPE504-C	Digital System Design
		ul completion of this course stude	ent will be able to:
	•••	combinational logic circuits	
	Design & analyze modular combinational circuits with MUX/DEMUX, Decoder, Encoder		
2	Design & analyze synchronous sequential logic circuits		
3	Design & analyze s		ign and simulation.



C506		BTETPE505-A	Control System Engineering
COs	After the successful completion of this course student will be able to:		
1	Understand the modeling of linear-time-invariant systems using transfer function and state-		
	space representations.		
2		cept of stability and its assessment for	or linear-time invariant systems.
3	Design simple feedback controllers.		
Course			
C507		BTETPE505-B	Artificial Intelligence and
			Machine learning
COs		ul completion of this course stude	ent will be able to:
1	Identify the AI bas		
2		o solve the AI problems.	
3		d explain various logic inferences.	
4	Discuss different le	arning techniques.	
Course	no.	Course code	Course name
C508	BTETM507 Mini Project – 1		
COs	After the successful completion of this course student will be able to:		
1	Practice acquired knowledge within the chosen area of technology for project		
	development.		
2		and justify the technical aspects o	f the chosen project with a
	-	nd systematic approach.	
3	Reproduce, improve and refine technical aspects for engineering projects.		
4	Work as an individual or in a team in development of technical projects.		
5		d report effectively project related	activities and findings.
Course	no. Course code Course name		Course name
C509	BTETP508 Internship-2		-
COs	After the successful completion of this course student will be able to:		
1	Construct the company profile by compiling the brief history, management		
	structure, products / services offered, key achievements and market performance		
	for his / her organization of internship.		
2	Assess the Strengths, Weaknesses, Opportunities and Threats (SWOT) his/her		
	organization of internship		
3		allenges and future potential for h	is / her internship organization
		he sector in general.	
4		al learning in practical situations	by accomplishing the tasks
		he internship period.	···· · · · · · ·
5		ft skills such as time management	-
	communication s	kills during performance of the ta	sks assigned in internship



6 Analyze the functioning of internship organization and recommend changes for improvement in processes. 7 Deal with industry-professionals and ethical issues in the work environment. Third Year-II Course no. Course code Course name C601 BTETC601 Antennas and Wave Propagation C0s After the successful completion of this course student will be able to: 1 1 Formulate the wave equation and solve it for uniform plane wave. 2 2 Analyze the given wire antenna and its radiation characteristics. 3 3 Identify the suitable antenna for a given communication system. Course name C602 BTETC602 Digital Communication C0s After the successful completion of this course student will be able to: 1 Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency. 2 Perform the time and frequency domain analysis of the signals in a digital communication system. 3 Select the blocks in a design of digital communication system. 4 Analyze Performance of spread spectrum communication system. 6003 BTETPE603 Microprocessors and Microcontrollers <th>7 Course 1 C601</th> <th>improvement in p Deal with industry</th> <th>rocesses. y-professionals and ethical issues Third Year-II Course code</th> <th>in the work environment. Course name</th>	7 Course 1 C601	improvement in p Deal with industry	rocesses. y-professionals and ethical issues Third Year-II Course code	in the work environment. Course name
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7 Deal with industry-professionals and ethical issues in the work environment. Third Year-II Course no. Course code Course name C601 BTETC601 Antennas and Wave Propagation COs After the successful completion of this course student will be able to: 1 Formulate the wave equation and solve it for uniform plane wave. 2 2 Analyze the given wire antenna and its radiation characteristics. 3 3 Identify the suitable antenna for a given communication system. Course code Course name C602 BTETC602 Digital Communication C603 After the successful completion of this course student will be able to: 1 Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency. 2 2 Perform the time and frequency domain analysis of the signals in a digital communication system. 3 Select the blocks in a design of digital communication system. 4 Analyze Performace of spread spectrum communication system. C603 BTETPE603 Microprocessors and Microcontrollers C604 <td< th=""><th>Course 1 C601</th><th>Deal with industry</th><th>y-professionals and ethical issues Third Year-II Course code</th><th>Course name</th></td<>	Course 1 C601	Deal with industry	y-professionals and ethical issues Third Year-II Course code	Course name
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C601 BTETC601 Antennas and Wave Propagation COs After the success⊥ completion of this course stud── will be able to: 1 Formulate the wave equation and solve it for uniformation and its radiation characteristics. 2 Analyze the giv─ wire antenna and its radiation characteristics. 3 Identify the suit─ antenna for a given communication system. Course Course code Course name C602 BTETC602 Digital Communication C003 After the successt□ completion of this course stud─ will be able to: Digital Communication system in terms of error rate and spectral efficiency. 2 Perform the time and requency domain analysis of the syntem. sale and given communication system. 3 Select the blocks in a design of digital communication system. system. 3 Select the blocks in a design of digital communication system. Microprocessors and Microp	C601			
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system. 3 Select the blocks i a design of digital communication system. 4 Analyze Performate of spread spectrum communication system. Course Course code Course name C603 BTETPE603 Microprocessors and Microprocessors and Microcontrollers C0s After the successful completion of this course stude to: Noterotelers 1 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. Juit of the successful completion of this course stude to: 2 Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles. Juit of the successful complete.				
3 Select the blocks in a design of digital communication system. 4 Analyze Performance of spread spectrum communication system. Course no. Course code Course name C603 BTETPE603 Microprocessors and Microcontrollers C00 After the successful completion of this course student will be able to: Microprocessor and Microcontrollers C0 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	2			
4 Analyze Performation system of spread spectrum communication system. Course no. Course code Course name C603 BTETPE603 Microprocessors and Microcontrollers C0s After the successful completion of this course student will be able to: Microprocessor and Microcontrollers 1 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	-	•		
Course no.Course codeCourse nameC603BTETPE603Microprocessors and MicrocontrollersCOsAfter the successful completion of this course student will be able to:1Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications.2Students get ability to interface mechanical system to function in multidisciplinary system like in robotics, Automobiles.				-
C603 Microprocessors and Microcontrollers COs After the successful completion of this course student will be able to: 1 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. 2 Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	-			
C603 BTETPE603 Microcontrollers COs After the successful completion of this course student will be able to: 1 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. 2 Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	Course 1			
COsAfter the successful completion of this course student will be able to:1Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications.2Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	C603		BTETPE603	-
 Students get ability to conduct experiments based on interfacing of devices to or interfacing to real world applications. Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles. 				
 to real world applications. Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles. 				
2 Students get ability to interface mechanical system to function in multidisciplinarysystem like in robotics, Automobiles.	1			
like in robotics, Automobiles.	2	**		
	4			
3 Students can identify and formulate control and monitoring systems using microprocessors.	3			ing systems usingmicroprocessors.
4 Learn use of hardware and software tools.				
5 Develop interfacing to real world devices.				
6 Graduates will be able to design real time controllers using microcontroller-basedsystem.				
7 Learn importance of microcontroller in designing embedded application.	7	Learn importance of	f microcontroller in designing embe	dded application.
Course no.Course codeCourse name	Course 1	10.	Course code	Course name
C604 BTETOE604-A IoT and Industry 4.0	C604		BTETOE604-A	IoT and Industry 4.0
COs After the successful completion of this course student will be able to:	COs	After the successf	ul completion of this course stude	nt will be able to:
r · · · · · · · · · · · · · · · · · · ·	1	Understand the driv	vers and enablers of Industry4.0	
	2	Appreciate the smar	rtness in Smart Factories, Smart citie	s, smart products and smart



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	services		
3	Able to outline the	various systems used in a manufactu	ring plant and their role in an
	Industry 4.0world		
4	Appreciate the power of Cloud Computing in a networked economy.		
5	Understand the opportunities, challenges brought about by Industry 4.0 and how		
	organizations and in	ndividuals should prepare to reap the	benefits
Course	no.	Course code	Course name
C605		BTETOE604-C	Computer Network
COs	After the successf	ful completion of this course stude	ent will be able to:
1	To master the term	inology and concepts of the OSI refe	rence model and the TCP-IP
	reference model.		
2	To master the conc	epts of protocols, network interfaces	, and design/performance issues in
		and wide area networks.	
3		wireless networking concepts.	
4		contemporary issues in networking	-
5		network tools and network program	0
6	• •	ment (small scale) of wide-area netw	
	(LANs) and Wireless LANs (WLANs) design it based on the market available component.		
7	For a given problem related TCP/IP protocol developed the network programming.		
Course			
C606			Employability & Skill
C606	_	BTHM605	Employability & Skill Development
C606 COs	After the successf		Development
	Have skills and p	BTHM605 ful completion of this course stude reparedness for aptitude tests.	Development ent will be able to:
COs	Have skills and p	BTHM605 ful completion of this course stude	Development ent will be able to:
COs 1	Have skills and p Be equipped with	BTHM605 ful completion of this course stude reparedness for aptitude tests.	Development ent will be able to: writing, verbal and non-verbal)
COs 1 2	Have skills and p Be equipped with Master the preser	BTHM605 Ful completion of this course stude reparedness for aptitude tests.	Development ent will be able to: writing, verbal and non-verbal)
COs 1 2 3	Have skills and p Be equipped with Master the preser Build team and le	BTHM605 Ful completion of this course stude reparedness for aptitude tests. essential communication skills (intation skill and be ready for facin	Development ent will be able to: writing, verbal and non-verbal)
COs 1 2 3 4	Have skills and p Be equipped with Master the preser Build team and le	BTHM605 Ful completion of this course stude reparedness for aptitude tests. The essential communication skills (that in skill and be ready for facin ead it for problem solving.	Development ent will be able to: writing, verbal and non-verbal) g interviews.
COs 1 2 3 4 Course	Have skills and p Be equipped with Master the preser Build team and le no.	BTHM605 Ful completion of this course stude reparedness for aptitude tests. essential communication skills (intation skill and be ready for facin ead it for problem solving. Course code	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2
COs 1 2 3 4 Course C607	Have skills and p Be equipped with Master the preser Build team and le no. After the successf	BTHM605 Ful completion of this course stude reparedness for aptitude tests. essential communication skills (nation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to:
COs 1 2 3 4 Course C607 COs	Have skills and p Be equipped with Master the preser Build team and le no. After the successf	BTHM605 Ful completion of this course stude reparedness for aptitude tests. essential communication skills (nation skill and be ready for facin ead it for problem solving. Course code BTETM607	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to:
COs 1 2 3 4 Course C607 COs	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development.	BTHM605 Ful completion of this course stude reparedness for aptitude tests. The essential communication skills (metation skill and be ready for facine that ion skill and be ready for facine and it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project
COs 1 2 3 4 Course C607 COs 1	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss a	BTHM605 Ful completion of this course stude reparedness for aptitude tests. essential communication skills (nation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project
COs 1 2 3 4 Course C607 COs 1	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss a comprehensive an	BTHM605 Ful completion of this course stude reparedness for aptitude tests. The essential communication skills (Intation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are and justify the technical aspects o	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project f the chosen project with a
COs 1 2 3 4 Course C607 COs 1 2	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss comprehensive an Reproduce, impre	BTHM605 Ful completion of this course stude reparedness for aptitude tests. The essential communication skills (Intation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are and justify the technical aspects of and systematic approach. Eve and refine technical aspects for	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project f the chosen project with a or engineering projects.
COs 1 2 3 4 Course C607 COs 1 2 3	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss a comprehensive an Reproduce, impro	BTHM605 Ful completion of this course stude reparedness for aptitude tests. A essential communication skills (Intation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are and justify the technical aspects of and systematic approach. Eve and refine technical aspects for idual or in a team in development	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project f the chosen project with a or engineering projects. of technical projects.
COs 1 2 3 4 Course C607 COs 1 2 3 4 5	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss a comprehensive an Reproduce, impre- Work as an indiv Communicate and	BTHM605 Ful completion of this course stude reparedness for aptitude tests. The essential communication skills (metation skill and be ready for facin tead it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are and justify the technical aspects of the systematic approach. The problem is a team in development d report effectively project related	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project f the chosen project with a or engineering projects. of technical projects. activities and findings.
COs 1 2 3 4 Course C607 COs 1 2 3 4 4 Course C607 COs 1 2 3 4	Have skills and p Be equipped with Master the preser Build team and le no. After the successf Practice acquired development. Identify, discuss a comprehensive an Reproduce, impre- Work as an indiv Communicate and	BTHM605 Ful completion of this course stude reparedness for aptitude tests. A essential communication skills (Intation skill and be ready for facin ead it for problem solving. Course code BTETM607 Ful completion of this course stude knowledge within the chosen are and justify the technical aspects of and systematic approach. Eve and refine technical aspects for idual or in a team in development	Development ent will be able to: writing, verbal and non-verbal) g interviews. Course name Mini-project-2 ent will be able to: a of technology for project f the chosen project with a or engineering projects. of technical projects.



COs	After the successful completion of this course student will be able to:		
1		company profile by compiling	
	-	cts / services offered, key achiev	ements and market performance
	-	nization of internship.	
2	-	ths, Weaknesses, Opportunities a	nd Threats (SWOT) his/her
	organization of in		
3		allenges and future potential for h the sector in general.	is / her internship organization
4	Test the theoretic	al learning in practical situations l	by accomplishing the tasks
	assigned during the	he internship period.	
5	Apply various soft skills such as time management, positive attitude and		
	communication s	kills during performance of the tas	sks assigned in internship
	organization.		
6	Analyze the funct	tioning of internship organization	and recommend changes for
	improvement in p		
7	Deal with industr	y-professionals and ethical issues	in the work environment.
Final Year-I			
Course			
C701	BTETC701 Digital Communication		
	After the successful completion of this course student will be able to:		
COs		_	
COs 1	Analyze the perfo	rmance of a baseband and pass ba	and digital communication
1	Analyze the perfo system in terms of	rmance of a baseband and pass ba f error rate and spectral efficiency	and digital communication
	Analyze the perfo system in terms o Perform the time	rmance of a baseband and pass ba	and digital communication
1	Analyze the perfo system in terms of	rmance of a baseband and pass ba f error rate and spectral efficiency	and digital communication
1	Analyze the perfo system in terms of Perform the time communication system.	rmance of a baseband and pass ba f error rate and spectral efficiency	and digital communication the signals in a digital
1 2	Analyze the perfo system in terms of Perform the time communication system. Select the blocks	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of	and digital communication the signals in a digital ion system.
1 2 3	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performa	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat	and digital communication the signals in a digital ion system.
1 2 3 4 Course	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performa	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum communicat	ion system.
1 2 3 4	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performa	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum commun	ion system. Course name
1 2 3 4 Course	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano.	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum communicat	ion system. ication system. Elective 3 - Fiber Optic Communication
1 2 3 4 Course C702	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano.	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum communicat Course code BTETPE702 (D)	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to:
1 2 3 4 Course C702 COs	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performa no. After the successf Explain the princ	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum communicat Course code BTETPE702 (D) ful completion of this course stude	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to: n, the components
1 2 3 4 Course C702 COs 1	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano. After the successf Explain the princ Describe the prop Describe the oper	rmance of a baseband and pass baseband and pass baseband and pass baseband ferror rate and spectral efficiency and frequency domain analysis of a design of digital communicate ance of spread spectrum communicate Course code BTETPE702 (D) Ful completion of this course stude iples of fiber-optic communication perties of the optical fibers and optication of Lasers, LEDs and Optication of the spectrum communication communication of the spectrum communication of the spectrum communication of the spectrum communication commu	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to: n, the components tical components. 1 Detectors.
1 2 3 4 Course C702 COs 1 2	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano. After the successf Explain the princ Describe the prop Describe the oper	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicate ance of spread spectrum communicate Course code BTETPE702 (D) ful completion of this course stude iples of fiber-optic communication perties of the optical fibers and optical	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to: n, the components tical components. 1 Detectors.
1 2 3 4 Course C702 COs 1 2 3	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano. After the successf Explain the princ Describe the prop Describe the oper	rmance of a baseband and pass ba f error rate and spectral efficiency and frequency domain analysis of in a design of digital communicat ance of spread spectrum communicat Course code BTETPE702 (D) ful completion of this course stude iples of fiber-optic communication perties of the optical fibers and optical performance of optical communication	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to: n, the components tical components. 1 Detectors.
1 2 3 4 Course C702 COs 1 2 3	Analyze the perfo system in terms of Perform the time communication system. Select the blocks Analyze Performano. After the successf Explain the princ Describe the prop Describe the oper Analyze system p	rmance of a baseband and pass baseband and pass baseband and pass baseband ferror rate and spectral efficiency and frequency domain analysis of a design of digital communicate ance of spread spectrum communicate Course code BTETPE702 (D) Ful completion of this course stude iples of fiber-optic communication perties of the optical fibers and optication of Lasers, LEDs and Optication of the spectrum communication communication of the spectrum communication of the spectrum communication of the spectrum communication commu	ion system. Course name Elective 3 - Fiber Optic Communication ent will be able to: n, the components tical components. 1 Detectors.



			Networks
COs	After the successful completion of this course student will be able to:		
1	Design wireless sensor networks for a given application		
2	Understand emerging research areas in the field of sensor networks		
3	Understand MAC WSN	protocols used for different com	munication standards used in
4	Explore new prot	ocols for WSN.	
Course	no.	Course code	Course name
C704		BTETPE703 (B)	Elective 4 - Artificial Intelligence Deep learning
COs	After the successf	ul completion of this course stude	ent will be able to:
1	Identify the AI ba	sed problems.	
2	Apply techniques	to solve the AI problems.	
3	Define learning a	nd explain various logic inference	es.
4	Discuss different	learning techniques.	
Course	no. Course code Course name		
C705	BTETPE704 (F) Elective 5 - Electronics in Smart City		
COs	After the successful completion of this course student will be able to:		
1	Explain necessity of smart city with Global and Indian Perspective		
2	Explain Concept of IOT and apply IOT in Smart City		
3	Explain concept of Smart Objects and use smart objects in Smart city Projects		
4		ties from the perspective of distrib	outed intelligence and central
	planning.		
5		otocols for Smart City projects	~
Course	no.	Course code	Course name
C706		BTHM705	Financial Management
COs	After the successful completion of this course student will be able to:		
1	Understand and define basic terminology used in finance and accounts		
2	Prepare& appraise Financial Statements and evaluate a company in the light of different measurement systems.		
3	Analyze the risk a	and return of alternative sources o	f financing.
4	Estimate cash flow capital spending.	vs from a project, including opera	ting, net working capital, and
5	Estimate the requi	red return on projects of differing nt project, calculate the appropriat the project, and make a recomme	te discount rate, determine the
6		strate the important elements in pr	oject finance Using financial



	calculator and Excel in a variety of problems.				
Course no.		Course code	Course name		
C707		BTETP709	Project Part I		
COs	After the successful completion of this course student will be able to:				
1	Identify and formulate Engineering problem addressing needs of Industry &				
	Society.				
2	Conduct investigations of the Engineering problem formulated by using				
	Engineering Sciences.				
3	Design and develop solution(s) for Engineering problem with due consideration to				
	public health, safety, culture, society, environment and sustainability.				
4	Create, select and apply modern tools for investigating, designing and developing				
	solution(s) to engineering problem.				
5	Work as individual and in team for communicating and managing the project work				
	and its finances.				
6	Apply professional ethics while identifying the problem, investigating the problem,				
	designing a solution to the problem, working as a individual or team for communicating and managing the project work and its finances.				
7	Develop ability for independent & life long learning.				
Course		Course code	Course name		
course	100		Field Training/ Internship/		
C708		BTETF611	Industrial Training		
			Evaluation		
COs	After the successful completion of this course student will be able to:				
1	Construct the company profile by compiling the brief history, management				
	structure, products / services offered, key achievements and market performance				
	for his / her organization of internship.				
2	Assess the Strengths, Weaknesses, Opportunities and Threats (SWOT) his/her				
	organization of internship				
3	Determine the challenges and future potential for his / her internship organization				
	-	in particular and the sector in general.			
4	Test the theoretical learning in practical situations by accomplishing the tasks				
_	assigned during the internship period.				
5	Apply various soft skills such as time management, positive attitude and				
	communication skills during performance of the tasks assigned in internship				
	organization.				
6	Analyze the functioning of internship organization and recommend changes for				
7	improvement in processes.				
7	Deal with industry-professionals and ethical issues in the work environment.				



Final Year-II					
Course no.		Course code	Course name		
C801		BTETP806	Project Part-II		
COs	After the successful completion of this course student will be able to:				
1	Identify and formulate Engineering problem addressing needs of Industry &				
	Society.				
2	Conduct investigations of the Engineering problem formulated by using				
	Engineering Sciences.				
3	Design and develop solution(s) for Engineering problem with due consideration to				
	public health, safety, culture, society, environment and sustainability.				
4	Create, select and apply modern tools for investigating, designing and developing				
	solution(s) to engineering problem.				
5	Work as individual and in team for communicating and managing the project work				
	and its finances.				
6	Apply professional ethics while identifying the problem, investigating the problem,				
	designing a solution to the problem, working as a individual or team for				
	communicating and managing the project work and its finances.				
7	Develop ability for independent & life long learning.				