

Dept: ECE-BTech (FT)

Mapping of COs and Pos

2017 regulation-UG(FT)

Sem	Course	Title of the	60-		2850				F	POS					
	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1	PO 11	PO 12
I	17147811	Communicative English	 Read articles of a general kind in magazines and newspapers. Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English. Comprehend conversations and short talks delivered in English Write short essays of a general kind and personal letters and emails in English. 					3	✓	1	✓	√	✓	√	12
			 Use both the limit definition and rules of differentiation to differentiate functions. Apply differentiation to solve maxima and minima problems. Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus. Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables. Evaluate integrals using techniques of integration, such as substitution, partial 	✓		~	~							✓	1
	17148S12	Engineering Mathematics – I	fractions and integration by parts. • Determine convergence/divergence of					On		1					

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	Code	Course	COS	PO	PO	PO	PO	PO	PO	PO	PO	РО	PO1	PO	PC
			improper integrals and evaluate convergent improper integrals.Apply various techniques in solving differential equations.	1		3	4	5	6	7	8	9	0	11	1:
	17149813	Engineering Physics	 The students will gain knowledge on the basics of properties of matter and its applications, The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics, The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers, The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes, and The students will understand the basics of crystals, their structures and different crystal growth techniques. 	√		~	✓							~	~
	17149S14	Engineering Chemistry	 The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning. 	1	~	1	1	X	lue	ung				✓	√

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	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1	PO	P(
	17154S15	Engineering Graphics	 Familiarize with the fundamentals and standards of Engineering graphics Perform freehand sketching of basic geometrical constructions and multiple views of objects. Project orthographic projections of lines and plane surfaces. Draw projections and solids and development of surfaces. Visualize and to project isometric and perspective sections of simple solids. 	✓	da	3	7	3	0	7	0	9		11	11
	17150S16	Problem Solving and Python Programming	 Develop algorithmic solutions to simple computational problems Read, write, execute by hand simple Python programs. Structure simple Python programs for solving problems. Decompose a Python program into functions. Represent compound data using Python lists, tuples, dictionaries. Read and write data from/to files in Python Programs. 	√	· /	✓	✓	✓	0.1					✓	~
	17150L97	Problem Solving and Python	 Write, test, and debug simple Python programs. Implement Python programs with 	✓	V	1	1	N	lu	uf				/	1

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		Programming Laboratory	 conditionals and loops. Develop Python programs step-wise by defining functions and calling them. Use Python lists, tuples, dictionaries for representing compound data. Read and write data from/to files in Python. 							,	0		0		12
	17149L18	Physics and Chemistry Laboratory	Upon completion of the course, the students will be able to apply principles of elasticity, optics and thermal properties for engineering applications. • To make the student to acquire practical skills in the determination of water quality parameters through volumetric and instrumental analysis. • To acquaint the students with the determination of molecular weight of a polymer by viscometery.	√	✓ .	√	√							1	✓
Po	Denarment (ne Department of Electronics and tionValuencering nEducations thus a	 To learn about philosophy of Life and Individual qualities To learn and practice social values and responsibilities To learn and practice mind culture, forces acting on the body To learn more of Responsibilities and Rights as Professional and facing Global Challenges 			✓		✓	Ø	Elu	11111	·	~	√	

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			conviction to be a role-model in the society.												
II	17147S21	Technical English	 Read technical texts and write area-specific texts effortlessly. Listen and comprehend lectures and talks in their area of specialisation successfully. Speak appropriately and effectively in varied formal and informal contexts. Write reports and winning job applications. 					1	✓	√	✓	~	1	~	1
	17148S22	Engineering Mathematics – II	 Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices. Gradient, divergence and curl of a vector point function and related identities. Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification. Analytic functions, conformal mapping and complex integration. Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients. 	1	· ·	~	1							✓	~
	17149 \$23	Physics for Electronics riment	Gain knowledge on classical and quantum electron theories, and energy band structuues, Acquire knowledge on basics of	1	1	1	1		04	llu	my			1	1

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			semiconductor physics and its applications in various devices, • Get knowledge on magnetic and dielectric properties of materials, • Have the necessary understanding on the functioning of optical materials for optoelectronics, • Understand the basics of quantum structures and their applications in spintronics and carbon electronics.		-										**
	17153S24 B	Basic Electrical and Instrumentation Engineering	 Understand the concept of three phase power circuits and measurement. Comprehend the concepts in electrical generators, motors and transformers Choose appropriate measuring instruments for given application 	1	✓	1	1	1	1					1	√
	17152S25 B	Circuit Analysis	 Develop the capacity to analyze electrical circuits, apply the circuit theorems in real time Design and understand and evaluate the AC and DC circuits. 	1	V	1	1	√	~					1	1
	17152 526	Electronic Devices partment	 Explain the V-I characteristic of diode, UJT and SCR Describe the equivalence circuits of transistors Operate the basic electronic devices such as 	1	~	✓	1	1	1	2	luc	ujl	,	✓	1

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Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1	PO 11	P(
			PN junction diode, Bipolar and Field effect Transistors, Power control devices, LED, LCD and other Opto-electronic devices						0		0		0	11	1
	17154L27	Engineering Practices Laboratory	 Fabricate carpentry components and pipe connections including plumbing works. Use welding equipments to join the structures. Carry out the basic machining operations Make the models using sheet metal works Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings Carry out basic home electrical works and appliances Measure the electrical quantities Elaborate on the components, gates, soldering practices. 	√	✓	√	√	√						1	1
	17152L28 B	Circuits and Devices Laboratory	 Analyze the characteristics of basic electronic devices Design RL and RC circuits Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems 	1	1	√	√	√						~	1
	171 lGA29	Fundamentals of Indian Constitution and Economy To Licentonics and	 Understand the emergence and evolution of Indian Constitution. Understand the structure and composition of Indian Constitution 			1			1	1	1	N.	1	,	

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			 Understand and analyse federalism in the Indian context. Understand and analyse the three organs of the state in the contemporary scenario. Understand and Evaluate the Indian Political scenario amidst the emerging challenges. 												
Ш	17148S31 B	Linear Algebra and Partial Differential Equations	 Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts. Demonstrate accurate and efficient use of advanced algebraic techniques. Demonstrate their mastery by solving non-trivial problems related to the concepts and by proving simple theorems about the statements proven by the text. Able to solve various types of partial differential equations. Able to solve engineering problems using Fourier series. 	√		√	✓	4						√	√
dia	17152632	Control Systems Engineering	 Identify the various control system components and their representations. Analyze the various time domain parameters. Analysis the various frequency response plots and its system. Apply the concepts of various system stability criterions. 	√	✓	~	√	✓	1		Hu	un	L	✓ -	~

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Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			Design various transfer functions of digital control system using state variable models.												
	17152C33	Fundamentals of Data Structures In C	 Implement linear and non-linear data structure operations using C Suggest appropriate linear / non-linear data structure for any given data set. Apply hashing concepts for a given problem Modify or suggest new data structure for an application Appropriately choose the sorting algorithm for an application 	*		1	1	1	1					√	✓
	17152C34	Digital Electronics	Use digital electronics in the present contemporary world Design various combinational digital circuits using logic gates Do the analysis and design procedures for synchronous and asynchronous sequential circuits Use the semiconductor memories and related technology Use electronic circuits involved in the design of logic gates	1	·	✓	1	1	1					✓	✓
DO Jak	ad Of the Dep	art Signals and	 To be able to determine if a given system is linear/causal/stable Capable of determining the frequency components present in a deterministic signal 	1	1	~	1	1	/	M	Jun	usl	•	1	√

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			 Capable of characterizing LTI systems in the time domain and frequency domain To be able to compute the output of an LTI system in the time and frequency domains 		-										
	17152C36	Electronic Circuits- I	 Acquire knowledge of o Working principles, characteristics and applications of BJT and FET o Frequency response characteristics of BJT and FET amplifiers Analyze the performance of small signal BJT and FET amplifiers - single stage and multi stage amplifiers Apply the knowledge gained in the design of Electronic circuits 	√	√	√	1	√	√					✓	✓
	17152L37	Fundamentals of Data Structures In C Laboratory	To understand and implement basic data structures using C To apply linear and non-linear data structures in problem solving. To learn to implement functions and recursive functions by means of data structures To implement searching and sorting algorithms	1	4	1	1	√	√					✓	1
	d Of the Depe ment Of Elect nu/7452L3&n	Analog and Digital Circuits Laboratory	 Design and Test rectifiers, filters and regulated power supplies. Design and Test BJT/JFET amplifiers. 	V	V	V	1	1	1	4	lu	ufl		1	1

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			 Differentiate cascode and cascade amplifiers. Analyze the limitation in bandwidth of single stage and multi stage amplifier Measure CMRR in differential amplifier Simulate and analyze amplifier circuits using PSpice. Design and Test the digital logic circuits. 												
	17152L39	Interpersonal Skills / Listening & Speaking	Equip students with the English language skills required for the successful undertaking of academic studies with primary emphasis on academic speaking and listening skills. Provide guidance and practice in basic general and classroom conversation and to engage in specific academic speaking activities. improve general and academic listening skills Make effective presentations.												
IV tra	01148541	Probability and	 Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon. Understand the basic concepts of one and two dimensional random variables and apply 	~	√ ·	√	√	1		D				√	1

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			 Apply the concept random processes in engineering disciplines. Understand and apply the concept of correlation and spectral densities. The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems. 												
	17152C42	Electronic Circuits II	Analyze different types of amplifier, oscillator and multivibrator circuits Design BJT amplifier and oscillator circuits Analyze transistorized amplifier and oscillator circuits Design and analyze feedback amplifiers Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors.	√	· ·	√	√	√	√					1	✓
		Communication	 Design AM communication systems Design Angle modulated communication systems Apply the concepts of Random Process to the design of Communication systems Analyze the noise performance of AM and 	1	· ✓	1	1	1	√	X	lun	uf		1	V

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			FM systems • Gain knowledge in sampling and quantization												
	17152C44	Electromagneti c Fields	Display an understanding of fundamental electromagnetic laws and concepts Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning Explain electromagnetic wave propagation in lossy and in lossless media Solve simple problems requiring estimation of electric and magnetic field quantities based on these concepts and laws	1	✓	✓	1	✓	✓					1	√
	17152C45	Linear Integrated Circuits	 Design linear and non linear applications of OP – AMPS Design applications using analog multiplier and PLL Design ADC and DAC using OP – AMPS Generate waveforms using OP – AMP Circuits Analyze special function Ics 	1	1	1	1	1	√					~	√
Depa Cor	ed Of the Dor tmem Of Elec 17149846	Environmental Science and Engineering	One will obtain knowledge on the following after completing the course. • Public awareness of environmental is at infant stage. • Ignorance and incomplete knowledge has	1	1		1		✓	1	sle	, uu	M _	1	1

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			lead to misconceptions			-	-	S S	U	/	0	9	U	11	12
			Development and improvement in standard of living has lead to serious environmental disasters												
	17152L47	Circuits Design and Simulation Laboratory	 Analyze various types of feedback amplifiers Design oscillators, tuned amplifiers, waveshaping circuits and multivibrators Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool. 	√	· ·	1	1	1	√					√	1
MOC.	17152L48	Linear Integrated Circuits Laboratory	 Design amplifiers, oscillators, D-A converters using operational amplifiers. Design filters using op-amp and performs an experiment on frequency response. Analyze the working of PLL and describe its application as a frequency multiplier. DesignDC power supply using ICs. Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE. 	1	· ·	1	1	√	✓					✓	1
	17152CRS	Research Led Seminar	 Exposure to various research domains Acquaintance with languages of research Development for research aptitude 	✓	1	1	1	1	~						
erd Or immen	Committee of the commit	Digital Communication	Design PCM systems Design and implement base band	1	1	1	1	1	1	SE	1111	/		√	1

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			transmission schemes												
	17152C52	Discrete-Time Signal Processing	 Apply DFT for the analysis of digital signals and systems Design IIR and FIR filters Characterize the effects of finite precision representation on digital filters Design multirate filters Apply adaptive filters appropriately in communication systems 	√	1	~	~	✓	~					~	√
thas Hend	Of the Deput	Computer Acchitecture and	Describe data representation, instruction formats and the operation of a digital computer Illustrate the fixed point and floating-point arithmetic for ALU operation Discuss about implementation schemes of control unit and pipeline performance Explain the concept of various memories, interfacing and organization of multiple processors Discuss parallel processing technique and	✓		√	√	1	~	lu	uy,	2		1	✓

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			unconventional architectures												
	171FE5	Free Elective - I													
	17150FE5 4A	Database Management Systems	 Understand relational data model, evolve conceptual model of a given problem, its mapping to relational model and Normalization Query the relational database and write programs with database connectivity Understand the concepts of database security and information retrieval systems 	1	✓	~	✓	1	~	~	✓	~	√	~	1
Head C	f the Departs	ient	 Articulate the main concepts, key technologies, strengths and limitations of cloud computing. Learn the key and enabling technologies that help in the development of cloud. Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models. Explain the core issues of cloud computing such as resource management and security. Be able to install and use current cloud technologies. 	√		✓	✓	√	√	V/	~	√	~	√	~
aparimo	TO Specion	cs and eeringoud Computing	Choose the appropriate technologies							Ne	uu	nyl			

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			implementation and use of cloud.												
	17153FE5 4A	Industrial Nano Technology	 To possess knowledge on nanotechnology based applications in each industry To provide details of contemporary industrial applications of nanotechnology To provide an overview of future technological advancements and increasing role of nanotechnology in each industry 	√	✓ .	1	✓	~	1	1	~		✓	1	✓
	17153FE5 4B	Energy Conservation and Management	Can carry out energy accounting and balancing • Can suggest methodologies for energy savings	1	1	1	1	1	1	1	1	1	√		1
va.	17154FE5 4A	Renewable Energy Sources	 Understanding the physics of solar radiation. Ability to classify the solar energy collectors and methodologies of storing solar energy. Knowledge in applying solar energy in a useful way. Knowledge in wind energy and biomass with its economic aspects. Knowledge in capturing and applying other forms of energy sources like wind, biogas and geothermal energies. 	1	· ·	✓	1	√	1	1	1	1	1		1
Dep	er/194FE5D annogio	Autoniotive Systems and	 Identify the different components in automobile engineering. Have clear understanding on different 	1	1	1	✓	1	1	~ M)×	1	1	1	

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			auxiliary and transmission systems usual.											00000	
	17155FE5 4A	Air Pollution and Control Engineering	 An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management Ability to identify, formulate and solve air and noise pollution problems Ability to design stacks and particulate air pollution control devices to meet applicable standards. Ability to select control equipments. Ability to ensure quality, control and preventive measures. 	✓	· ·	✓	✓	✓	√	✓	√	√	~	✓	~
	17155FE5 4B	Geographic Information System	 Have basic idea about the fundamentals of GIS. Understand the types of data models. Get knowledge about data input and topology. Gain knowledge on data quality and standards. Understand data management functions and data output 	✓	√	1	✓	1	1	1	✓	1	✓	0	√
Departn	Of the Depm ent Of Electr p17152C55ng	tment onic condnunication	 Identify the components required to build different types of networks Choose the required functionality at each layer for given application 	1	~	√	√	√	√	Sk	luu	ud		1	~

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			 Identify solution for each functionality at each layer Trace the flow of information from one node to another node in the network 												
	17152E56	Elective - I													
	17152E56 A	Object Oriented Programming	 Develop Java programs using OOP principles Develop Java programs with the concepts inheritance and interfaces Build Java applications using exceptions and I/O streams Develop Java applications with threads and generics classes Develop interactive Java programs using swings 	4	· /	✓	✓	4	1				1	✓	√
	3 47152E56	Medical Electronics	Know the human body electrophysiological parameters and recording of bio-potentials Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc. Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators,	√	✓				1	A	lu	my		✓	√

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

0	Course	Title of the							F	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			dialyzers and ventilators Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies, and bio-telemetry principles and methods Know about recent trends in medical instrumentation												
	17152E56 C	Operating Systems	 Analyze various scheduling algorithms. Understand deadlock, prevention and avoidance algorithms. Compare and contrast various memory management schemes. Understand the functionality of file systems. Perform administrative tasks on Linux Servers and compare iOS and Android Operating Systems. 	√	·	V	/	1	4				~	√	√
No.	417152E56n	Robotics and	 Explain the concepts of industrial robots in terms of classification, specifications and coordinate systems, along with the need and application of robots & automation Examine different sensors and actuators for applications like maze solving and self driving cars. Design a 2R robot & an end-effector and solve the kinematics and dynamics of 	1	7	~	/	V	4	V	Ru	ujk	1	1	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

6	Course	Title of the							F	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
			motion for robots. • Explain navigation and path planning techniques along with the control architectures adopted for robot motion planning. • Describe the impact and progress in AI and other research trends in the field of robotics												
	17152E56 E	Nano Technology and Applications	 Describe the basic science behind the properties of materials. Interpret the creation, characterization, and manipulation of nanoscale materials. Comprehend the exciting applications of nanotechnology at the leading edge of scientific research Apply their knowledge of nanotechnology to identify how they can be exploited for new applications. 	✓		✓	V	√	4	√	√		1	√	✓
	17152E56 F	Human Rights	Engineering students will acquire the basic knowledge of human rights.						1	1	1				1
sha	17152E56 G	Total Quality Management	• The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.						1	1	1				1
)epartm	Of the Department Of Electrical 17152L574	Signal Processing	Carryout basic signal processing operations Demonstrate their abilities towards	1	1	1	/	1	1	>	Peu	usl	_	1	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

0	Course	Title of the							P	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			MATLAB based implementation of various DSP systems • Analyze the architecture of a DSP Processor • Design and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals • Design a DSP system for various applications of DSP												
	17152L58	Communication Systems Laboratory	Simulate & validate the various functional modules of a communication system Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system Simulate end-to-end communication Link	✓	√	✓	√	√	4					√	√
lend Of partment	170 Determine t O1 E sections		Communicate between two desktop computers Implement the different protocols Program using sockets. Implement and compare the various routing algorithms Use the simulation tool.	√	·	✓	✓	~	√	ski	uu	yl		√	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos.

0	Course	Title of the]	POS					
Sem	Code	Course	COs	PO 1	PO 2	P() PO	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
	17152CR M	Research Methodology	 Understand the approaches towards and constraints in good research. Use the statistical tools used in research methodology Compose the manuscript for publication Obtain computational and excel-skills for research in engineering 	✓	·/	✓	1	*	1	1	1				
VI	17152C61	Microprocessors and Microcontrollers	 Understand and execute programs based on 8086 microprocessor. Design Memory Interfacing circuits. Design and interface I/O circuits. Design and implement 8051 microcontroller based systems. 	1	✓	1	✓ .	1	1					1	1
dra	17152C62	VLSI Design	 Realize the concepts of digital building blocks using MOS transistor. Design combinational MOS circuits and power strategies. Design and construct Sequential Circuits and Timing systems. Design arithmetic building blocks and memory subsystems. Apply and implement FPGA design flow and testing. 	1	✓	✓	✓	1	✓					√	✓
Wast (17152C63	Wireless Communication	Characterize a wireless channel and evolve the system design specifications Design a cellular system based on resource	1	1	1	1	1	1	X	luu	yl		1	1

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Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			 availability and traffic demands Identify suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration. 								0		U	***	1.
	17152C64	Principles of Management	 Upon completion of the course, students will be able to have clear understanding Managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management 						1	1	1		1	1	~
ha	17152C65	Transmission Lines and RF Systems	Explain the characteristics of transmission lines and its losses Write about the standing wave ratio and input impedance in high frequency transmission lines Analyze impedance matching by stubs using smith charts Analyze the characteristics of TE and TM waves Design a RF transceiver system for wireless communication	✓	✓	✓ ,	/	√	✓					1	~
Headaparts	17152E66	Elective - II Cryptography and Network	Understand the fundamentals of networks security, security architecture, threats and	1	✓	/ V	,	✓	✓ 						1

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Dept: ECE- BTech (FT)

Mapping of COs and Pos

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Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			Apply the different cryptographic operations of symmetric cryptographic algorithms Apply the different cryptographic operations of public key cryptography Apply the various Authentication schemes to simulate different applications. Understand various Security practices and System security standards								*				
	17152E66 B	Advanced Digital Signal Processing	Articulate and apply the concepts of special random processes in practical applications Choose appropriate spectrum estimation techniques for a given random process Apply optimum filters appropriately for a given communication application Apply appropriate adaptive algorithm for processing non-stationary signals Apply and analyse wavelet transforms for signal and image processing based applications	√		✓	✓	✓	✓	✓	✓	√	~	4	✓
b Wapid	17152E66	MEMS and	Interpret the basics of micro/nano electromechanical systems including their applications and advantages Recognize the use of materials in micro fabrication and describe the fabrication	1	· /	1	1	1	1	Mu	V EA		✓	1	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

7	Course	Title of the							F	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			processes including surface micromachining, bulk micromachining and LIGA. • Analyze the key performance aspects of electromechanical transducers including sensors and actuators • Comprehend the theoretical foundations of quantum mechanics and Nano systems		•										
	17152E66 D	Multimedia Compression and Communication	Design audio compression techniques Configure Text, image and video compression techniques Select suitable service model for specific application Configure multimedia communication network	1		1	✓	1	1	1	1	√	1	~	1
Heart Comm	17152E66 E	CMOS Analog IC Design	 Realize the concepts of Analog MOS devices and current mirror circuits. Design different configuration of Amplifiers and feedback circuits. Analyze the characteristics of frequency response of the amplifier and its noise. Analyze the performance of the stability and frequency compensation techniques of Op-Amp Circuits. Construct switched capacitor circuits and PLLs 	1		✓	V	✓	chool (of Engli	DEA	uny N	Image: Control of the control of	1	1

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2	Course	Title of the							F	os					
Sem	Code	Course	COs	PO	PO	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		PO	PO	PO	PO	PO	PO1	PO	PC
	17152E66 F	Wireless Networks	Conversant with the latest 3G/4G networks and its architecture Design and implement wireless network environment for any application using latest wireless protocols and standards Ability to select the suitable network depending on the availability and requirement Implement different type of applications for smart phones and mobile devices with latest network strategies	√	✓	✓	✓	5	6 ✓	<i>7</i> ✓	8	9	0	11 ✓	12
	17152E66 G	Intellectual Property Rights	Ability to manage Intellectual Property portfolio to enhance the value of the firm.	1	1	1	1	1	1	1	1	1	1	1	1
	17152L61	Microprocessors and Microcontrollers Laboratory	Write ALP Programmes for fixed and Floating Point and Arithmetic operations Interface different I/Os with processor Generate waveforms using Microprocessors Execute Programs in 8051 Explain the difference between simulator and Emulator	4		√	1	1	1					1	√
Der Co	Head Of the Prairment Or E	VLSI Design	 Write HDL code for basic as well as advanced digital integrated circuit Import the logic modules into FPGA Boards Synthesize Place and Route the digital IPs 	√	√	✓	1	1	1	sli	ш	yL		1	1

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~	Course	Title of the							F	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
			Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools												
	17152L63	Professional Communication	 Make effective presentations Participate confidently in Group Discussions. Attend job interviews and be successful in them. Develop adequate Soft Skills required for the workplace 		•				1				√		√
	17152L64	Technical Seminar	To study research papers for understanding of a new field, in the absence of a textbook, to summarise 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				/	✓	✓		✓	1	~	4	1
	0117152CB	Participation in Bounded Research	 Hands on exposure to problem solving tools in contemporary research Evolve research intuitiveness and orientation Familiarize with cutting edge research 	✓	1	1	/	1	1	1	1	lu	up		

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Sem	Code	Course	COs	PO 1	PO 2	P(PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
			trends												
VII	17152C71	Antennas and Microwave Engineering	 Apply the basic principles and evaluate antenna parameters and link power budgets Design and assess the performance of various antennas Design a microwave system given the application specifications 	1	✓	1	1	1	1					1	1
	17152C72	Optical Communication	 Realize basic elements in optical fibers, different modes and configurations. Analyze the transmission characteristics associated with dispersion and polarization techniques. Design optical sources and detectors with their use in optical communication system. Construct fiber optic receiver systems, measurements and coupling techniques. Design optical communication systems and its networks. 	√		✓	✓	1	1					√	1
NO.	17.1 Cc 73.1	Embedded and Real Time Systems	Describe the architecture and programming of ARM processor Outline the concepts of embedded systems Explain the basic concepts of real time operating system design Model real-time applications using embedded-system concepts	1	~	V	1	1	1	×	luu	unj		~	~

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

Sem	Course	Title of the	60						F	POS					
Sem	Code	Course	COs	PO	PO 2	PC 3	PO 4	PO	PO	PO	PO	PO	PO1	PO	PO
	171_FE7	Free Elective - II		1		3	4	5	6	7	8	9	0	11	12
	17150FE7 4A	Introduction to C Programming	 Develop simple applications using basic constructs Develop applications using arrays and strings Develop applications using functions and structures 	√		✓	√	1	1	1	1	1	1	1	~
	17150FE7 4B	Data Structures and Algorithms	 Implement linear data structures and solve problems using them. Implement and apply trees and graphs to solve problems. Implement the various searching and sorting algorithms. 	√	✓	~	1	1	1	✓	1	✓	1	1	~
	17153FE7 4A	Basic Circuit Theory	 introduce electric circuits and its analysis impart knowledge on solving circuit equations using network theorems introduce the phenomenon of resonance in coupled circuits. introduce Phasor diagrams and analysis of three phase circuits 	1	· ·	1	✓	√	✓	~	1	~	1		~
Mead leparts	(17153FE7 : 4B : 00.1	Introduction to Renewable Energy Systems	 understand and analyze power system operation, stability, control and protection. handle the engineering aspects of electrical energy generation and utilization. understand the stand alone and grid 	1	7	1	✓	1	1	· 0	lu	un	<		1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

	Course	Title of the							F	os					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
			connected renewable energy systems. • design of power converters for renewable energy applications. • acquire knowledge on wind electrical generators and solar energy systems. • design power converters used for hybrid renewable energy systems.		41										
	17154FE7 4A	Industrial Safety	identify and prevent chemical, environmental mechanical, fire hazard through analysis and apply proper safety techniques on safety engineering and management.	~		1	/	1	1	1	1	1	1		1
	17154FE7 4B	Testing of Materials	 Identify suitable testing technique to inspect industrial component Use the different technique and know its applications and limitations 	1		1	/	1	✓	~	1	~	1		1
et es	17155FE7	Green Building Design	Identify existing energy codes, green building codes and green rating systems. Identify and compare cost and performance of building materials with recycled components, non-petroleum based materials, materials with low volatile organic compounds, materials with low embodied energy and salvaged materials and incorporate them into design. Identify and use construction materials	√		√	/	1	√	~ ()	du	, un	Y		~

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Dept: ECE- BTech (FT) Mapping of COs and Pos

Sem	Course	Title of the	60-						I	POS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
			 and methods that more easily allow for salvage and re-use of building materials. Understand the techniques and benefits of building performance testing, monitoring and metering. Identify and make use of techniques for weatherization and sustainable remodeling of existing structures 								0	7	U		12
	17155FE7 4B	Waste Water Treatment	 Will have knowledge about adsorption and oxidation process. Will gain idea about various methods available for water treatment. Will appreciate the necessity of water and acquire knowledge of preliminary treatment. 	1	-	1	/	~	√	~	~	~	1		1
na		A 31	Know the basics of Ad hoc networks and Wireless Sensor Networks Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement Apply the knowledge to identify appropriate physical and MAC layer protocols	√	· .	✓ ·	/	✓	✓	A	N		/	1	1
lead O arbne	17152C75	Adhoc and Wireless Sensor Networks	 Understand the transport layer and security issues possible in Ad hoc and sensor networks. 							Я	MU DEAL	un			

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

Sem	Course	Title of the	60-)	POS					
	Code	Course	COs	PO 1	PC 2	P(PO 5	PO 6	PO 7	PO 8	PO 9	PO1	PO	PO
			Be familiar with the OS used in Wireless Sensor Networks and build basic modules				3	0	/	0	9	0	11	12
	17152E76	Elective - III												
	17152E76 A	Advanced Wireless Communication	Comprehend and appreciate the significance and role of this course in the present contemporary world Apply the knowledge about the importance of MIMO in today's communication Appreciate the various methods for improving the data rate of wireless communication system	1	· ·	1	✓	1	1	√	√	√		✓
9	17152E76	Cognitive Radio	 Gain knowledge on the design principles on software defined radio and cognitive radio Develop the ability to design and implement algorithms for cognitive radio spectrum sensing and dynamic spectrum access Build experiments and projects with real time wireless applications Apply the knowledge of advanced features of cognitive radio for real world applications 	4	· ·	√	1	√	✓	✓	L. Wille	up		✓
Dep	17152E76	Foundation Skills	Define, formulate and analyze a problem	1		/	1	1	/	./	-/	1		1

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	Course	Title of the							P	OS					
Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	P(
	С	in Integrated Product Development	 Solve specific problems independently or as part of a team Gain knowledge of the Innovation & Product Development process in the Business Context Work independently as well as in teams Manage a project from start to finish 												
	17152E76 D	Machine Learning Techniques	 Differentiate between supervised, unsupervised, semi-supervised machine learning approaches Apply specific supervised or unsupervised machine learning algorithm for a particular problem Analyse and suggest the appropriate machine learning approach for the various types of problem Design and make modifications to existing machine learning algorithms to suit an individual application Provide useful case studies on the advanced machine learning algorithms 	1		✓		✓	1	✓	1	1	✓		~
Mead O	6 17152E76	Electronics Packaging and	Give a comprehensive introduction to the various packaging types used along with the associated thermal, speed, signal and integrity power issues Enable design of packages which can	1		√		~	1	1	Al	, v	wh		1

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Sem	Code	Course	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
	Y		withstand higher temperature, vibrations and shock • Design of PCBs which minimize the EMI and operate at higher frequency • Analyze the concepts of Testing and testing methods												
	17152E76 F	Mixed Signal IC Design	• Apply the concepts for mixed signal MOS circuit.• Analyze the characteristics of IC based CMOS filters.• Design of various data converter architecture circuits.• Analyze the signal to noise ratio and modeling of mixed signals.• Design of oscillators and phase lock loop circuit.	~		1		1	~	1	1	✓	√		✓
taa	17152E76	Disaster Management	 Differentiate the types of disasters, causes and their impact on environment and society Assess vulnerability and various methods of risk reduction measures as well as mitigation. Draw the hazard and vulnerability profile of India, Scenarios in the Indian context, Disaster damage assessment and management. 	~		1		~	1	1	1	~	✓		√
Depar	ed Of the Det	artment tro:Embedded	Write programs in ARM for a specific Application Interface memory, A/D and D/A convertors with ARM system	~	1	1	/	~	~	×	lew	my	1	1	1

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6	Course	Title of the							1	POS					
Sem	Code	Course	COs	PO 1	PO 2	P0	500	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	P(
			 Analyze the performance of interrupt Write program for interfacing keyboard, display, motor and sensor. Formulate a mini project using embedded system 												
	17152L78	Advanced Communication Laboratory	 Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER Estimate the Wireless Channel Characteristics and Analyze the performance of Wireless Communication System Understand the intricacies in Microwave System design 	1	✓	✓	~	√	√					1	1
tha	17152CSR	Design/Socio Technical Project	 Sensitive to social needs for innovation Develop teams and work towards interdisciplinary synchronous research strategy Develop critical thinking and synergistic research approach. 	√	✓	1	~	1	1	1	1	✓	1	7	1
VIII	17152CSR 17152E81	Elective – IV	research approach.												
Of the I tent Of 6	17152E81	Electro Magnetic Interference and	• Identify the various types and mechanisms of Electromagnetic Interference	1	1	1	1	1	1	1	1	111	1		1

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G	Course	Title of the							I	POS					
Sem	Code	Course	COs	PO 1	PO 2	PC 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PC 12
		Compatibility	 Propose a suitable EMI mitigation technique Describe the various EMC Standards and methods to measure them 												
	17152E81 B	Low Power SoC Design	 Analyze and design low-power VLSI circuits using different circuit technologies for system on chip design 	1	1	1	1	1	1	1	1	1	1		1
	17152E81 C	Photonic Networks	 Use the backbone infrastructure for our present and future communication needs Analyze the architectures and the protocol stack Compare the differences in the design of data plane, control plane, routing, switching, resource allocation methods, network management and protection methods in vogue 	1		1	✓	1	1	√	1	4	~		1
tha	17152E81 D	Compressive Sensing	 Appreciate the motivation and the necessity for compressed sensing technology. Design a new algorithm or modify an existing algorithm for different application areas in wireless sensor network. 	1		1	√	1	1	1	1	✓	1		~
He Depar	17152E81 E	Digital Image Processing	 Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms. 	1	1	1	√	1	1	1	Lu	v Wu	1/		1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

1	Course	Title of the	CO						I	POS					
	Code	Course	COs	PO 1	PO 2	PC 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	P(
			 Operate on images using the techniques of smoothing, sharpening and enhancement. Understand the restoration concepts and filtering techniques. Learn the basics of segmentation, features extraction, compression and recognition methods for color models. 										0		1
	17152E81 F	Professional Ethics in Engineering	 to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society. 					1	1	1	1	1	~		1
1	17152E82	Elective - V													
	17152E82 A	Video Analytics	 Design video analytic algorithms for security applications Design video analytic algorithms for business intelligence Design custom made video analytics system for the given target application 	✓	~	✓	✓	√	√	✓	✓	√	✓		1
-	17152E82	riment on DSPharchitecture and Programming n institute of	 Analyze the concepts of Digital Signal Processors Demonstrate their ability to program the DSP processor for signal processing applications Discuss, compare and select the suitable Advanced DSP Processors for real-time 	1	Y	✓	√	✓	✓	V	Den	unk	×		1

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Dept: ECE- BTech (FT)

Mapping of COs and Pos

	Course	Title of the							F	POS					
Sem	Code	Course	COs	PO 1	PO 2	P(PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO 11	PO 12
			signal processing applications												
	17152E82 C	Satellite Communication	 Analyze the satellite orbits Analyze the earth segment and space segment Analyze the satellite Link design Design various satellite applications 	✓		1	✓	1	1	1	1	1	1		1
	17152E82 D	Soft Computing	 Apply suitable soft computing techniques for various applications. Integrate various soft computing techniques for complex problems. 	1	1	1	1	1	1	1	1	1	1		1
	17152E82 E	Principles of Speech Processing	 Design speech compression techniques Configure speech recognition techniques Design speaker recognition systems Design text to speech synthesis systems 	1	1	1	1	1	1	1	1	1	1		1
	17152E82 F	Fundamentals of Nano Science	Will familiarize about the science of nanomaterials Will demonstrate the preparation of nanomaterials Will develop knowledge in characteristic nanomaterial	1	✓	1	1	1	1	~	1	~	1		1
	he Department		 apply fundamental and disciplinary concepts and methods in ways appropriate to their principal area of study. demonstrate skill and knowledge of current information and technological tools and techniques specific to the professional 	✓	1	1	1	1	1	1	1	se se	, un	~	V

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

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Sem	Course Code	Title of the Course	COs						P	OS					
				PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PC 12
I	17148S11BP	Transforms and Partial Differential Equations	Be capable of mathematically formulating certain practical problems in terms of partial differential equations, solve them and physically interpret the results. Have gained a well founded knowledge of Fourier series, their different possible forms and	✓	✓	1	✓.	✓						4	4
Read Of	17152H12P the Department Cr Electronics and	Electromagnetic Theory	 analyze fields a potentials due to static changes evaluate static magnetic fields 	1	1	/	√	4	1			Du	uun	<i>*</i>	~

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

Sem	Course Code	Title of the Course	COs						P	os					
				PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
I	17148S11BP	Transforms and Partial Differential Equations	Be capable of mathematically formulating certain practical problems in terms of partial differential equations, solve them and physically interpret the results. Have gained a well founded knowledge of Fourier series, their different possible forms and	1	1	~		1						1	~
lead Of	17152H12P	Electromagnetic Theory	 analyze fields a potentials due to static changes evaluate static magnetic fields understand how materials 	7	1	1	4.	1	✓	0		Du	Lary	\ \ \	1

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

			affect electric and magnetic fields • understand the relation between the fields under time varying situations • understand principles of prop											
the	17152H13P	Digital Electronics	• introduce number systems and codes • introduce basic postulates of Boolean algebra and shows the correlation between Boolean expressions • introduce the methods for	1	1	1	4	√	1				1	1
Head Departe	Of the Department Of Electronic	ent c and	simplifying Boolean expressions outline the							×	llu	my		

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			formal procedures for the analysis and des											
Jan 2	17152H14P	Electronic Circuits - I	The methods of biasing transistors Design of simple amplifier circuits Mid – band analysis of amplifier circuits using small – signal equivalent circuits to determine gain input impedance and output impedance Method of calculating cutoff fre	~	~	~	✓	~	~				✓	~
Bead Off	be 17152H15P be 19 partment of Electronics and uon Engineering	Signals and Systems	 To study the properties and representation of discrete and 	~	1	1	√.	1	1		My	ung	Ĺ	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			continuous signals. • To study the sampling process and analysis of discrete systems using z-transforms. • To study the analysis and synthesis of discrete time systems.• To study the properties											
Hoad Of Benerican	17148S21P	Numerical Methods	• The roots of nonlinear (algebraic or transcendental) equations, solutions of large system of linear equations and eigenvalue problem of a matrix can be obtained numerically where	✓	1	1	-	~	0	90	- luu	JA TIEA	V	~

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			analytical methods fail to give solution. • When huge amounts of experimen										
	17152S22P	Electrical Engineering and Control Systems	• To understand the operation of Electrical machines and transformers • To understand the open loop and closed loop (feedback) systems • To understand time domain and frequency domain analysis of control systems required for stability analysis. • To unde	4	4		✓	~	1			✓	~
the	17152H23P	Linear Integrated Circuits	• To introduce the basic building blocks of linear	4	1	1	1	1	1	de	1	1	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			integrated circuits. • To teach the linear and non- linear applications of operational amplifiers. • To introduce the theory and applications of analog multipliers and PLL. • To teach the theory of ADC and										
tha	17152H24P	Electronic Circuits - II	 The advantages and method of analysis of feed back amplifiers Analysis and design of RC and LC oscillators, tuned amplifiers, wave shaping circuits. 	1	1	√	~	1		luu	uf	*	✓

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

	multivibrators, blocking oscillators and time based generators. • The advantages and method of analysi											
Transmission Lines and Waveguides Head Of the Department Department Or Electronics and Communication Engineering	• To become familiar with propagation of signals through lines • Understand signal propagation at Radio frequencies • Understand radio propagation in guided systems • To become familiar with resonators • To become familiar with propagation of sig	~	~	~	✓	✓	~	A	Veu	unf		~

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

III	17148S31BP	Probability and Random Processes	Have a fundamental knowledge of the basic probability concepts. Have a well – founded knowledge of standard distributions which can describe real life phenomena. Acquire skills in handling situations involving more than one random variable and funct	~	1	✓		✓					~	✓
Head O	17152H32P Ethe Department of Cleatronics a	Microprocessor Interfacing and Applications	• To introduce the architecture and programming of 8085 microprocessor. • To introduce the interfacing	~	√	~	4	*	✓		Ke	lun	<i>'</i>	1

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

			of peripheral devices with 8085 microprocessor. • To introduce the architecture and programming of 8086 microprocessor. • To introduce the applications,										
Wend Of the D	52H33P	Digital Signal Processing	To study DFT and its computation To study the design techniques for digital filters To study the finite word length effects in signal processing To study the non-parametric methods of power spectrum	1	1	1	~	✓		M	- Uu	1	4

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

			• To study the fundamentals of digit											
	17152H34P	Communication Theory	To provide various Amplitude modulation and demodulation systems. To provide various Angle modulation and demodulation and demodulation systems. To provide some depth analysis in noise performance of various receiver. To study some basic information theory with so		✓	✓	✓	✓	*				✓	✓
Head Department	Of tild 152635Rent ent Of Electronics pication Engineeri	Digital Signal Processing and Microprocessor Lab	 Carryout basic signal processing operations Design and 	√ ·	~	1	1	1	1		٥	leu	1	1

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Mapping of COs and Pos

			Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals Interface different I/Os with processor Generate waveforms using Microprocessor s •										
IV Head	17152H41P Of the Department of Electronics	Digital Communication	• To study pulse modulation and discuss the process of sampling, quantization and coding that are fundamental to the digital transmission of analog signals.• To learn	4	1	1	4	1	d	luu	urfi	1	✓

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

	baseband pulse transmission, which deals with the transmission of pulse- amplitude, modu									
lead Of the Depart artment Of Electron municalion Engin yan Ramajayam	• To study radiation from a current element. • To study antenna arrays • To study aperture antennas • To learn special antennas such as frequency independent and broad band antennas. • To study radio wave propagation. • To study radiation from a current e	4	1	*	1	✓	Ale	My	✓	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

	17152Н43Р	Computer Networks	To introduce the students the functions of different layers. To introduce IEEE standard employed in computer networking. To make students to get familiarized with different protocols and network components. To introduce the students the functions o	1	4	✓	✓	✓	1			~	1
	171E44_P	Elective-I											
Depart	17152E44AP 3 Of the Department Of Electronic national Engine	10111454	 Students will get an introduction about ATM and Frame relay. Students will be provided with an up-to- 	1	1	1	1	1	1	oll	- Muz	✓ -	1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			date survey of developments in High Speed Networks. • Enable the students to know techniques involved to support real-time traffic and congestion cont									
Countring	17152E44BP Department (Electronics and lich Engineering regingering regingering regingering regingering regingering regingering regingering	Advanced Digital Signal Processing	To study the parametric methods for power spectrum estimation. To study adaptive filtering techniques using LMS algorithm and to study the applications of adaptive filtering. To study multirate signal processing	4	✓	√	✓	~	~	Shi	unf	~

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

			fundamentals. • To study the analysis											
a stara	17152E44CP	Speech Processing	• To introduce the models for speech production • To develop time and frequency domain techniques for estimating speech parameters • To introduce a predictive technique for speech compression • To understand speech recognition, synthesis and speaker ident		1	✓	✓	✓	✓				~	
Department	17152E44DP g	Fuzzy Logic and Neural Networks	• To introduce the ideas of fuzzy sets, fuzzy logic and use of	1	1	1	1	1	1	Slu	ung	_	1	

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

			heuristics based on human experience • To become familiar with neural networks that can learn from available examples and generalize to form appropriate rules for inferencing systems • To prov									
Departme	17152E44EP The Bearings of Creationics at icetion Engineerin (amajayam Institu	0	 To study RF component such as resonator, filter, transmission lines, etc To learn design of RF amplifiers using transistors. To study modern Power Supplies using SCR and SMPS 	¥	1	1	1	V	Yuu	luy		1

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

		technology • To learn about signal shielding & grounding techniques and s				5					
Head Of the Department Department Or Electronics a	Communication Lab	Communicate between two desktop computers Implement the different protocols Implement and compare the various routing algorithms Use the simulation tool. Simulate & validate the various functional modules of a communication system Apply variou	1	4	4	✓	4	Alu Alu	Muy	1	~

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

V	17152H51P	Optical Communication and Networks	To learn the basic elements of optical fiber transmission link, fiber modes configurations and structures. To understand the different kind of losses, signal distortion in optical wave guides and other signal degradation factors. Design optimization o	~	✓	✓	· ✓	*	~		4	~
Department	17152H52P The Department: Of Electronics and alten Engineering		 To study passive microwave components and their S-Parameters. To study Microwave semiconductor devices & applications. To study 	4	1	1	1	1	4	Almyl	1	✓

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Dept: ECE- BTech (PT)

Mapping of COs and Pos

	Microwave sources and amplifiers. To study passive microwave components and their S-Parameters. T										
17152H53P VLSI Design West Of the Department Department Of Electronics and Communication Engineering Ponnary an Annalty am institute of Science of Communication Communic	To learn the basic CMOS circuits. To learn the CMOS process technology. To learn techniques of chip design using programmable devices. To learn the concepts of designing VLSI subsystems. To learn the concepts of modeling a digital system	~	4	~	✓.	4	✓	Mu	unf	✓	

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School: ENGINEERINGAND TECHNOLOGY Dept: ECE- BTech (FT)

Mapping of COs and Pos

			using H				•							
	171_E54_P	Elective II												
Head	Of the Department on the Control Electronics	Environmental Science and Engineering	• Public awareness of environmental is at infant stage. • Ignorance and incomplete knowledge has lead to misconceptions • Development and improvement in standard of living has lead to serious environmental disasters• Public awareness of environmental is a	✓	4		✓.		~	~	M		√	✓
Comm	17152E54BP	Optoelectronic Devices	• To know the basics of solid	1	1	1	1	1	1		Xu	und	1	1

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Dept: ECE- BTech (FT)

Mapping of COs and Pos

			state physics and understand the nature and characteristics of light. • To understand different methods of luminescence, display devices and laser types and their applications. • To learn the principle of optical detection me										
Depres	17152E54CP ead Of the Depart atment Of Electron amunication Engir	Radar and Navigational Aids ment	 To derive and discuss the Range equation and the nature of detection. To apply doppler principle to radars and hence detect moving targets, cluster, also to understand 	4	4	~	1	✓	d	lluu	and Tack	1	✓

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

	tracking radars • To refresh principles of antennas and propagation as related to r												3)
17152E54DP	To study the image fundamentals and mathematical transforms necessary for image processing. To study the image enhancement techniques To study image restoration procedures. To study the image compression procedures. To study the image compression procedures.	~	1	~	✓	~	✓	✓	School &	of Engin	CAN cering a amajaya	Ind Tech	√ vte of

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Dept: ECE-BTech (PT)

Mapping of COs and Pos

	17152E54EP	Engineering Acoustics	 To provide mathematical basis for acoustics waves To introduce the concept of radiation reception absorption and attenuation of acoustic waves. To present the characteristic behaviour of sound in pipes, resonators and filters. To introduce the pro 	4	✓	✓	✓	✓	✓			*	✓
Bead Departme	Of the Department: on Of Electronics an include Engineering is brigging institu	Optical Communication and Microwave Lab	 Analyze the performance of simple optical link. Test microwave and optical components. Analyse the mode characteristics 	1	1	1	✓	1	1	Umy	EAN	Tech	√

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

• It deals with the fundamental cellular radio concepts such as frequency reuse and handoff. This also demonstrates the principle of trunking efficiency and how trunking and interference issues between Department Of Electronics and Communication Pomaly at Romajay and Institute of together the Department of School of Engineering and Test.			of fiber • Analyse the radiation of pattern of antenna.• Analyze the performance of simple optical link. • Test microwave and op									
Day explicit	l Of the Department	Communication	cellular radio concepts such as frequency reuse and handoff. This also demonstrates the principle of trunking efficiency and how trunking and interference issues between mobile and	1	4	4	√.	4	4		1	~

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

			affect the overal												
Atro-	17152Н62Р	Medical Electronics	• To study the methods of recording various biopotentials • To study how to measure biochemical and various physiological information • To understand the working of units which will help to restore normal functioning • To understand the use of radiation f		4	1		1						✓	✓
Hea Departi Comn Ponnalya	d Of that 52H63Pen ment Of Electronics a numication Engineer th Ramsjayam Instit	Micro Controller and Embedded systems and 19 Ute of	• To study 8051 architecture • To write assembly language programming • To study the	✓	1	V	✓	1	√	A	Peru	en,	N and Tor	✓	✓

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Dept: ECE-BTech (FT)

Mapping of COs and Pos

1'	71E64_P	Elective III	embedded architecture and real time applications. • To study 8051 architecture • To write assembly language programming • To study the embedded architecture and real time							
Tead Of E	7160E64AP he Departmen Of Electronics ation Engineer majayam Inc.	and ing	• Upon completion of the course, students will be able to have clear understanding • Managerial functions like planning, organizing, staffing, leading &		√	hool of I	DEAN Engineering a ah Ramajaya	Muy/	✓ e of	~

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Mapping of COs and Pos

		controlling and have same basic knowledge on international aspect of management • Upon completion of t												
17152E64BP Lead Of the Department of Electronics and American Engineering in Eng	Satellite Communication	Overview of satellite systems in relation to other terrestrial systems. Study of satellite orbits and launching. Study of earth segment and space segment components Study of satellite access by various users. Study of DTH and compression standar	✓	1	✓	· ·	~	~	1	Sch	Alu pol of Er	LN g and Telegram In	ech.	of '

(Intelligion of the USO Act. 1920)

The USO Act. 1920 of the USO Act. 19

School of Engineering and Technology (PRIST)
Science and Technology (PRIST)
Deemed to be University
Vallam, Thanjavur-613,403,



Dept: ECE-BTech (PT)

Mapping of COs and Pos

	17152E64CP	Robotics	• The course has been so designed to give the students an overall view of the mechanical components and mathematics associated with the same. • Actuators and sensors necessary for the functioning of the robot. • The course has been so designed to give the	~	✓	✓	·	✓	✓	✓	~	*	✓	✓
Department (17152E64DP no Department Of Electronice and non Engineering not your Institute		 Principles of Remote Sensing and GIS Analysis of RS and GIS data and interpreting the data for 	1	✓	✓	√.	1	1	y	llu	emyl	1	√

Manufacture December to be University of the UGC Act 1989)
The Wildow - 618 403, TAMIL MADU.

School of Engineering and Teck.

Ponnaiyah Ramajayam Institute of
Science and Technology (PRIST)

Deemed to be University

Vallam, Thanjayur - 613,403.



Dept: ECE-BTech (FT)

Mapping of COs and Pos

	modeling applications* Principles of Remote Sensing and GIS Analysis of RS and GIS data and interpreting the data for modeling applications										
Head Of the Department Department Of Electronics and Communication Engineering Ponnaivan Famajayam institute of	 To know the methods of conventional encryption. To understand the concepts of public key encryption and number theory To understand authentication and Hash functions To know the network security tools and 	4	1	1	1	1	✓	M.	lung	\ C	~

(Inalthuler, Desmes to be University,
Cot the UGC Act 1458)
To Abbiavance 618 888, Desme March

School of Engineering and Teck.

Pennaiyah Ramajayam Institute of Science and Technology (PRIST)

Deemed to be University Vallam, Thanjavur-613 403.



Dept: ECE-BTech (FT)

Mapping of COs and Pos

	applications. • To understand the system 1											
17152L65P VLSI and Embedded systems Lab Read Of the Department Department Of Electronics and	Write HDL code for basic as well as advanced digital integrated circuit Import the logic modules into FPGA Boards Synthesize Place and Route the digital IPs Write programs in ARM for a specific Application Interface memory, A/D and D/A convertor	~	✓	4	~	~					~	~
Ponnaiyah 17160S71P In Total Quality Management	The student would be able to apply the					1	1	1	XIII	up	1	1

The AMEANUR - 618 400, FARM, NAME

School of Engineering and fect.

Ponnaiyah Ramajayam Institute of Science and Technology (PRIST)

Deemed to be University

Venam, Thanjayur - 613 403:



Dept: ECE-BTech (FT)

Mapping of COs and Pos

			tools and techniques of quality management to manufacturing and services processes.									
andra	17152Н72Р	Wireless Networks	• To understand physical as wireless MAC layer alternatives techniques. • To learn planning and operation of wireless networks. • To study various wireless LAN and WAN concepts. • To understand WPAN and geo-location systems.	~	✓	✓	· ·	~			1	✓
Communication Ray	be Department 17152H73Pano 17152H73Pano Hering Institute	of	• To introduce the concepts of Frequency and Time division	1	1	1	1	1	Muu	y/	1	1

(Ineffection Deemed to be University of the UGC Act.1958)

School of Engineering and Tech.

Ponnaiyah Ramajayam Institute of Science and Technology (PRIST)

Deemed to be University

Vallam, Thanjavur-613 403.



Dept: ECE-BTech (FT)

Mapping of COs and Pos

			multiplexing. • To introduce digital multiplexing and digital hierarchy namely SONET / SDH • To introduce the concepts of space switching, time switching and combination switching, example of a sw											
	171E74_P	Elective IV												
Head Of the Department Of Communical Ponnaiyan Ram	17152E74AP Department Close one and insering Historical (PRIST)	Power Electronics	 To study about power electronic circuits for voltage and current control and protection. To learn the switching characteristics 	√	1	1	1	1	✓	A	llu		1	√
Prefitution Deem	HIGOSY (PRIST) ad to be university JGC Act, 1966)								S	chool of En	I TAJ	N and Tech		

3 of the UGC Act. 1966) *UAVUR - 613 403, TAM

School of Engineering and Teck. Ponnaiyah Ramajayam Institute of Science and Technology (PRIST) Deemed to be University Vallam, Thanjavur-613,403.



School: ENGINEERINGAND TECHNOLOGY

Dept: ECE-BTech (FT)

Mapping of COs and Pos

		of transistors and SCRs. Series and parallel functions of SCRs, Programmable triggering methods of SCR. • To learn controll									
Head Of the Department Department Of Electronics at Communication Engineerin	Advanced Microprocessors	 To introduce the concepts in internal programming model of Intel family of microprocessor s. To introduce the programming techniques using MASM, DOS and BIOS function calls. To introduce the basic architecture of 	4	1	1	· ·	~	√	Silu	ung	✓

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DEAN
School of Engineering and Teck
Ponnaiyah Ramajayam Institute of
Science and Technology (PRIST)
Deemed to be University
Valuem, Thaniaver -613 40%



Dept: ECE- BTech (PT)

Mapping of COs and Pos

			Pentium family of processors. • To in											
	17152E74CP	Electromagnetic Interference and Compatibility	• To understand EMI Sources, EMI problems and their solution methods in PCB level / Subsystem and system level design. • To measure the emission. immunity level from different systems to couple with the prescribed EMC standards	1	✓	4		✓	~				✓	1
Department C	17152E74DP Department Electronics and ton Engineering	Solid State Electronic Drives	 To learn crystal structures of elements used for fabrication of semiconductor devices. To study 	4	√	√	✓	✓	1	All	Leun	1	✓	✓

Foansayan Remajayam institute of Science & Tachnology (PRIST)
(Institution Deemed to be University of the UGC Act,1956)
THANSAYUR - 613 403, TAMIL NADU.

School of Engineering and Tech
Ponnsiyah Ramajayam Institute of
Science and Technology (PRIST)
Deemed to be University
Vallam, Thanjavur-613,403.



School: ENGINEERINGAND TECHNOLOGY

Dept: ECE-BTech (FT)

Mapping of COs and Pos

		energy band structure of semiconductor devices. • To understand fermi levels, movement of charge carriers, Diffusion current and Drift current. • To study • To introduce									
Of the Department and Of Electronics and Content on Engineering	Interfacing	• To introduce issues related to CPU and memory. • To understand the components on the motherboard • To understand different storage media • To introduce the features of different I/O peripheral	✓	√	✓	~	~	*	DEAN of of Engineering at	√	✓

Head Of the Department
Department Of Electronics and
Orthodoxide on Engineering
Formatival Remajayam institute of
Science & Tecanology (PRIST)
Mastitution December to be University
Print LIGC Act 1964)
Tribulation Care and Take NAOU.

Ponneiyah Ramajayam Institute of Science and Technology (PRIST) Decreed to be University Valiam, Thanjavur-613,403.



School: ENGINEERINGAND TECHNOLOGY

Dept: ECE-BTech (PT)

Mapping of COs and Pos

• apply		
fundamental and disciplinary concepts and methods in ways appropriate to their principal area of study. • demonstrate skill and knowledge of current information and technological tools and technological tools and techniques specific to the professional field of study. • Hend Of the Department Department of Electropics and	Menny	

Communication Engineering analyan Ramajayam Institute of : rence & Technology (PRIST) " whillion Geemed to be Uning relty 1 MUANUM - STE 405; TAME MADE:

DEAN

School of Engineering and Tech. Ponnaiyah Ramajayam Institute of Science and Technology (PRIST) Deemed to be University Yamam, Thanjavur-613,403-



Dept:ECE(M.TECH COMM.SYS REG2017-FT)

School:E&T

Mapping of COs and POs

Sem	Course Code	Title of the Course	COs							POS					
	Couc	Course		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	17248S11B	Applied mathematics for Electronics Engineering	Concepts on vector spaces, linear transformation, inner product spaces, eigen values and generalized eigenvectors. Apply various methods in linear algebra to solve system of linear equations. Could develop a fundamental understanding of linear programming models, able to develop a linear programming model from	PO1	PO2	PO3	PO4	POS	PO6	PO7	POS	PO9	PO10	PO11	PO12
			problem description, apply the simplex method for	✓	✓		/ v	 	/ v		√ ✓	•	✓		



		solving linear programming problems.		.03 - 1.					
17271H12	Statistical Signal Processing	Formulate time domain and frequency domain description of Wide Sense Stationary process in terms of matrix algebra and relate to linear algebra concepts. State Parseval's theorem, W-K theorem, principle of orthogonality, spectral factorization theorem, Widrow-Hoff LMS algorithm and Shannon's sampling theorem, and define linear prediction, linear estimation, sample auto-correlation, periodogram, bias and consistency.	✓				✓ ✓		



1	Ī	Ī	IHA	TATE OF	L -013-	+03 - IA		D U	1	1					i
			• Explain various												
			noise types, Yule-												
			Walker algorithm,												
			parametric and												
			non-parametric												
			methods, Wiener												
			and Kalman												
			filtering, LMS												
			and RMS												
			algorithms,												
			Levinson Durbin												
			algorithm,												
			adaptive noise												
			cancellation and												
			adaptive echo												
			cancellation,												
			speed verses												
			convergence												
			issues, channel												
			equalization,												
			sampling rate												
			change, subband												
			coding and												
			wavelet												
			transform.												
	17271H13	Modern Digital	• Develop the												
	172711113	Communicatio	ability to												
		n Systems	understand the												
		ii bystems	concepts of signal												
			space analysis for												
			coherent and non-												
			coherent												
			receivers.												
			Conceptually												
			appreciate	./	_/	_	/ .	/ /	/ /	,	/ /	./		,	
			different	V	•	٧	• •	v	v		y Y	٧	V		



1	i i	Ī			NJA V UI	C-013-	103 - IA		- DC		1	1		1	1	1
				Equalization												
				techniques												
				 Possess 												
				knowledge on												
				different block												
				codes and												
				convolutional												
				codes.												
				• Comprehend the												
				generation of												
				OFDM signals												
				and the												
				techniques of												
				multiuser												
				detection.												
	-	17271S14	Camananiastia											 		1
		1/2/1514	Communicatio													
			n Protocol	network and user												
			Engineering	requirements and												
				the type of												
				channel over												
				which the												
				network has to												
				operate, the												
				student would be												
				in a position to												
				apply his												
				knowledge for												
				identifying a												
				suitable routing												
				algorithm,												
				implementing it												
				and analyzing its												l
				performance.												
				• The student												
				would also be												l
				able to design a	✓	✓	٧	∕ √	< v	/ v	/ v	∕ √	′ √	✓ ✓		



I			new algorithm or	43214 02	C-013.	105-11					1				
			modify an												
			existing algorithm												
			to satisfy the												
			evolving demands												
			in the network												
			and by the user												
			applications.												
•	17271H15	Advanced	• Ability to												
	1/2/11113	Radiation	understand												
		Systems	antenna concepts												
			• Ability to design antenna for												
			various												
			applications												
			• Knowledge of												
			modern antenna												
			design	✓	./		/ .	· •	/ .	/ .	/	-/	/ /	,	
			design			ELECTI	VF-I	v	<u>, , , , , , , , , , , , , , , , , , , </u>	,	<u> </u>	V			
	150515161		TT 1 . 1 .1			LLLCII	V L-1			I	1	ı			
	17271E16A	Internetworki	• Understand the												
		ng and	state-of-art												
		Multimedia	developments in												
			Internet												
			technologies and												
			applications												
			• Understand the												
			development of												
			next generation												
			Internet												
			• Appreciate the												
			principles used in												
			designing Internet												
			protocols for												
			multimedia	/	,		/		,	l					
			applications, and	✓	✓	1	′√	′v	<u> </u>	/	<u>√</u> _	√	✓		



1	1	1	IHA	NJAVUI	K-0134	+U3 - IA	HVIII N	ADU	1	1	i		į i	i	1
			so understand												
			why standard												
			protocols are												
			designed the way												
			that they are												
			• Be able to solve												
			problems for the												
			design of												
			multimedia												
			applications on												
			Internet.												
	17271E16B	Digital Image	• Explain the												
		Processing	fundamentals												
		Trocessing	digital image												
			processing.												
			Describe image												
			various												
			segmentation and												
			feature extraction												
			techniques for												
			image analysis.												
			• Discuss the												
			concepts of image												
			registration and												
			fusion.	✓	✓		<u> </u>	· •	/ .	/ ,	/ /	•			
	17271E16C	LASER	Recognize and		•		•	<u>`</u>							
	172711100	Communicati	classify the												
			structures of												
		on	Optical fiber and												
			_												
			types.Discuss the												
			• Discuss the channel												
			impairments like												
			losses and												
			dispersion.	_	/		/		/ ,	/ ,	/ /				
			Analyze	v	✓	1	<u>√</u>	<u> </u>	1	<u>/1</u>	/ _ √	<u>√</u>			



1		various coupling			+03- IA							
		losses.										
		• Classify the										
		Optical sources										
		and detectors and										
		to discuss their										
		principle.										
		• Familiar with										
		Design										
		considerations of										
		fiber optic										
		systems.										
		To perform										
		characteristics of										
		optical fiber,										
		sources and										
		detectors, design										
		as well as conduct										
		experiments in										
		software and										
		hardware, analyze										
		the results to										
		provide valid										
		conclusions.										
17271E16D	MEMS and	Ability to										
	NEMS	understand the										
		operation of										
		micro devices,										
		micro systems										
		and their										
		applications										
		Ability to design										
		the micro										
		devices, micro										
		systems using the	✓	✓		/ .	/	/	/	/_√	/ /	
_		systems using the	v		٧	<u> </u>		1	<u>/</u> 1	/∀	 	



1	•	ī	IHA	NJAVU	K-0134	+U3 - IA	WILL NA	ADU					i	1	1	
			MEMS fabrication													
			process.													
			Gain a													
			knowledge of													
			basic approaches													
			for various sensor													
			design													
			Gain a													
			knowledge of													
			basic approaches													
			for various													
			actuator design													
			Develop													
			experience on													
			micro/nano													
			systems for													
			photonics .													
			Gain the technical													
			knowledge													
			required for													
			computer-aided													
			design,													
			fabrication,													
			analysis and													
			characterization													
			of nano-													
			structured													
			materials, micro-													
			and nano-scale													
			devices.													
	17271L17	Communicatio	Measure and													1
		n Systems Lab	analyze various													
		- I	transmission line													
			parameters.	✓	✓		/ /	· .	/ /	√	· •	· •	•			
1	1	I	I Paramotors.	-				•		•					1	- 1



i		-	THA	NJAVUJ	R-613	103 - TA	MILNA	ADU	1 1	i	i	i	i	i	i
			• Design												
			Microstrip patch												
			antennas.												
			• Implement the												
			adaptive filtering												
			algorithms												
			To generate and												
			detect digital												
			communication												
			signals of various												
			modulation												
			techniquesusing												
			MATLAB.												
	17271CRS	Research Led	a. Exposure to												
		Seminar	various research												
		S CITALINA	domains												
			b. Acquaintance												
			with languages of												
			research												
			c. Development												
			of research												
			aptitude									√			
			apirtude			SEMES 7	ED II					•			
					i.	EMES	EK-II								
	17271H21	Mobile	Discuss cellular												
	1/2/10/21	Communicatio													
		n Networks	radio concepts.•												
		II INCLWOTKS	Identify various												
			propagation effects.• To have												
			knowledge of the												
			mobile system												
			specifications.•												
			Classify multiple												
l			access techniques						/						
П			in mobile	✓	✓	1	/√	1	✓ _ ✓	~		✓	′√		



1			NJAVUI	K-6134	103 - TA	MILN	ADU	_						_
		communication. • Outline cellular												
		mobile												
		communication												
		standards.Analyze												
		various												
		methodologies to												
		improve the												
		cellular capacity												
17271H22	Advanced	Capability to												٦
	Microwave	design												
	Systems	Microwave												
		circuits.												
		 To be able to 												
		analyze												
		microwave												
		integrated					_							
		circuits.	✓	✓	v	<u> </u>	<u> </u>	<u>/</u>	✓	<u> </u>	<u>′</u> √	<u>√</u>		_
17271H23	Fiber Optic	Design and												
	Networking	Analyze Network												
		Components												
		• Assess and												
		Evaluate optical												
		networks						/ /				/ /	./	
			~		ECO	<u> </u>	•	/ v	•	v	v		V	_
				EI	LECT	IVE II	-							
17271E24A	High Speed	• The student												٦
	Switching	would be able to												
	Architecture	identify suitable												
		switch												
		architectures for a												
		specified												
		networking	_									_		
		scenario and	✓	✓	•	<u>/</u> _/	^ •	/v	∕ v	∕ √		✓		



			demonstrate its blocking performance. • The student would be in a position to apply his knowledge of switching technologies, architectures and buffering strategies for designing high speed communication networks and analyse their performance										
172	Pr A	SP rocessor rchitecture nd rogramming	• Become Digital Signal Processor specialized engineer • DSP based System Developer	√	~	v	∕ _ ✓	· •	· •	· •	<i>/</i>		
172	Sp	rigital peech rocessing	Model speech production system and describe the fundamentals of speech. Extract and compare different speech parameters. Choose an	✓	✓		· ✓			· •	✓ ✓	√	



_	•	THA	NJAVUI	R-6134	403 - TA	MILN	ADU			i	1	
		appropriate statistical speech model for a given										
		application. • Design a speech										
		recognition system.										
		 Use different 										
		text analysis and										
		speech synthesis techniques.										
17271E24D	ASIC and FPGA	Demonstrate										
1/2/1624D	Design	VLSI tool-flow										
		and appreciate										
		FPGA										
		architecture.										
		• Understand the issues involved										
		in ASIC design,										
		including										
		technology										
		choice, design										
		management,										
		tool-flow,										
		verification, debug and test,										
		as well as the										
		impact of										
		technology										
		scaling										
		on ASIC										
		design.	/	./	_	/ /		 -	_			
		• Understand the	_ ✓	✓	1	<u> </u>	1	/ <u>~</u>	 <u> </u>	✓		



			THA	NAAC	3-6134	103 - TA	MIL.N	ADU						
			algorithms used			.05								
			for ASIC											
			construction											
			• Understand the											
			basics of System											
			on Chip, On											
			chip											
			communication											
			architectures											
			like											
			AMBA,AXI											
			and utilizing											
			Platform based											
			design.											
			• Appreciate											
			high											
			performance											
			algorithms											
			available for											
			ASICs											4
1'	7271E25A	Digital	Apply basic											
		Communicati	principles of											
		on Receivers	digital											
			communication											
			techniques.											
			• Discuss on											
			receivers for											
			AWGN & Fading											
			channel											
			• Describe various											
			synchronization											
			techniques.											
			• Design adaptive		/	I	/		/ /	, '	/ /			
			equalization	✓	✓	٧	v	1	/ /	1	v v	•		_



_	•	IHA	NJAVUI	C-0134	+U3 - IA	WILLIA	ADU	i	,	i	i		
		algorithms to satisfy the evolving demands in digital communication.											
17271E25B	Soft Computing	Knowledge on concepts of soft computational techniques. Able to apply soft computational techniques to solve various problems. Motivate to solve research oriented problems.										,	
17271E25C	Communicati on Network Security	 Explain digital signature standards Discuss authentication Explain security at different layers 	✓ ✓	✓	,	<u> </u>						· •	
17271L26	Communicatio n Systems Lab - II	• Apply knowledge to identify a suitable architecture and systematically design an RF system.	√			·		· •		·	·	,	



	_	THAI	NJAVUI	R-6134	403 - TA	MILN	ADU	_					
		Comprehensively											
		record and report											
		the measured											
		data, and would											
		be capable of											
		analyzing,											
		interpreting the											
		experimentally											
		measured data											
		and produce the											
		meaningful											
		conclusions.											
		• Design and											
		develop											
		microstrip filters.											
172TECWR	Technical	Selecting a											
1721LCWR	Writing	subject,											
	/Seminars	narrowing the											
	/Semmars	subject into a											
		topic											
		2 Stating on											
		2. Stating an											
		objective. 3. Collecting the											
		relevant											
		bibliography											
		(atleast 15 journal											
		papers)											
		4. Preparing a											
		working outline.											
		5. Studying the											
		papers and											
		understanding the											
		authors											
		contributions and											
		critically							<u> </u>	/ /		,	
		analysing each						✓	•	✓ ✓	✓		



 		ī	1117	ADAY OF	L -013.	+U3 - IA	300	i i	i i					1
			paper.											
			6. Preparing a											
			working outline											
			7. Linking the											
			papers and											
			preparing a draft											
			of the paper.											
			8. Preparing											
			conclusions based											
			on the reading of											
			all the papers.											
			9. Writing the											
			Final Paper and											
			giving final											
			Presentation											
•	17271CRM	Research	a. Understanding											•
	,,_,	Methodology	research questions											
			and tools											
			b. Experience in											
			scientific writings											
			c. Practice in											
			various aspects of											
			scientific											
			publications											
			d. Inculcation of											
			research ethics					✓	· .	✓ ✓	✓	/		
•	17271CBR	Participation in	a. Hands on								•			١
	1,2,10210	Bounded	exposure to											
		Research	problem solving											
		Research	tools in											
			contemporary											
			researchb.											
			Evolution of											
			research											
			intuitiveness and											
			orientationc.					✓	· .	✓ ✓	✓	^		l



III 17271H31 Wireless Familiar with cutting edge research trends		-		THAI	NJAVUI	R-6134	103 - TA	MILN	ADU		i	i e		i i	i
research trends **Pamiliar with the latest 4G networks and LTE **Understand about the wireless IP architecture and LTE network architecture. **Pamiliar with the adaptive link layer and network layer graphs and protocol. **Understand about the mobility management and cellular network. **Understand about the mobility management and cellular network. **Understand about the wireless sensor network architecture and its concept. **Very Company of the latest 4G network architecture and its concept.															
III 17271H31 Wireless Sensor the latest 4G networks and LTE • Understand about the wireless IP architecture and LTE network architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.				cutting edge											
III 17271H31 Wireless Sensor the latest 4G networks and LTE • Understand about the wireless IP architecture and LTE network architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.				research trends											
Sensor the latest 4G networks and LTE • Understand about the wireless IP architecture and LTE network architecture. • Familiar with the adaptive link layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
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Networks networks and LTE • Understand about the wireless IP architecture and LTE network architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.	"	1/2/11131													
LTE • Understand about the wireless IP architecture and LTE network architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
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and LTE network architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
architecture. • Familiar with the adaptive link layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
Familiar with the adaptive link layer and network layer graphs and protocol. Understand about the mobility management and cellular network. Understand about the wireless sensor network architecture and its concept.				and LTE network											
Familiar with the adaptive link layer and network layer graphs and protocol. Understand about the mobility management and cellular network. Understand about the wireless sensor network architecture and its concept.				architecture.											
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layer and network layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
layer graphs and protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
protocol. • Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
• Understand about the mobility management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
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management and cellular network. • Understand about the wireless sensor network architecture and its concept.															
cellular network. • Understand about the wireless sensor network architecture and its concept.															
• Understand about the wireless sensor network architecture and its concept.															
about the wireless sensor network architecture and its concept.															
sensor network architecture and its concept.															
architecture and its concept.															
its concept.															
				architecture and		_				ا					
				its concept.	✓	✓	•	<u> </u>	<u> </u>	<u>√</u>	✓	<u></u> √	<u>√</u>		
							ELECTIV	/E IV							



1-0-1-00	~ ^	THA	NJAVUI					1		ı			1	
17271E32A	Software	Compare MAC				1								
	Defined	and network layer												
	Radio	design for				[
		software defined												
		radio												
		• Discuss												
		cognitive radio												
		for Internet of												
		Things and		ا			I			١	ا			
		M2Mtechnologies	✓_	✓	1	<u>/</u> v	<u> </u>	✓_✓	✓	✓	✓	✓		
17271E32B	Satellite	 Discuss satellite 												
	Communicati	navigation and												
	on	global positioning												
	011	system												
		Outline deep												
		space networks												
		and inter												
		planetary		l		l _								
		missions	✓	✓	1	/ v	/ ,		✓	✓	✓	✓	✓	
17271E32C	CDMA	Analyze MIMO												
	Systems	system.												
		• Discuss												
		millimeter wave												
		communication.												
		 Demonstrate 												
		software defined												
		radio and												
		cognitive radio.	~	~		/ ,	- ,	/ /	✓	✓	✓	✓		
	Speech	• Identify the												
	Processing	various temporal,												
	and Synthesis	spectral and				[
	and Syndicsis	cepstral features												
		required for												
		identifying speech												
		units – phoneme,				1								
17271E25D		syllable and word	✓	✓	•	/ 、	/ ,	✓ ✓	✓	✓	✓	✓		
1			-	-					•	•	-	-		



		Determine and apply Mel-frequency cepstral coefficients for processing all types of signals Justify the use of formant and concatenative approaches to speech synthesis Identify the apt approach of speech synthesis depending on the language to be processed Determine the various encoding techniques for representing speech.											
		ј вресен.				ELECTI	/E V						
17271E33A	Wavelets and Multi Resolution Processing	• The students will be able to apprehend the detailed knowledge about the Wavelet transforms& its applications.	√	√	,	/ ✓	,	√	✓	,	/ ✓	√	



1	l	THA	NJAVUI	R-61340	03 - TAN	MILNA	DU		1	1	1	1	j	I
17271E33B	High	• Diagnose												
	performance	problems and												
	Communicati	make minor												
	on Networks	repairs to												
		computer												
		networks using												
		appropriate												
		diagnostics												
		software												
		• Demonstrate												
		how to correctly												
		maintain LAN												
		computer systems												
		Maintain the												
		network by												
		performing												
		routine												
		maintenance tasks												
		Apply network												
		management tools	✓	✓	✓	✓		/ /	✓	✓	✓	√		
17271E33C	Advanced	• The student will									<u> </u>			
172712330	Microprocess	be able to work												
	ors and	with suitable												
		microprocessor /												
	Microcontroll	microcontroller												
	ers	for a specific real												
		world application.	~			_	_		_/	1	-/	/	1	
17271E33D	Reconfigurabl	1. Identify the	•	✓	~	•			•	•	Ť	•	•	
1/2/1E33D														
	e computing	need for												
		reconfigurable												
		architectures												
		2. Discuss the												
		architecture of												
		FPGAs												
			√	√	✓	· •	′ .	/ √	√	✓	√	√		
		3. Point out the	✓	✓	✓	✓	· •	✓ ✓	✓	✓	✓	✓		



•	_	THA	NJAVUI	R-6134	03 - TA	MILN	ADU					•	
		salient features of different reconfigurable architectures 4. Build basic modules using any HDL 5. Develop applications using any HDL and appropriate tools 6. Design and build an SoPC for a particular application		-0134	V3 - 1A	WIIL N	200						
						ELECTIV	/E VI						
17271E34A	Simulation of Communicati on Networks	Apply Monte Carlo simulation Discuss Lower Layer and Link Layer Wireless Modeling Compare channel modeling and mobility modeling	√	✓		∕ •		\	· •	· •	<i>(</i> •	✓	



1,70715045	1 3 6 12 1	THA	NJAVUI	C-6134	103 - 12	MILI	IADU	Î.	1 1	ĺ	ĺ			Î
17271E34E		• Explain												
	Imaging	computer aided												
		tomography												
		• Discuss												
		ultrasonic												
		systems												
		• Outline												
		magnetic												
		resonance				١					l			
		imaging	✓	✓	1	/ 1		√ 1	/ 1	✓ ✓	✓	✓		
17271E340	Mobile	• Identify												
	ADHOC	different issues in												
	networks	wireless ad hoc												
	networks	and sensor												
		networks.												
		• To analyze												
		protocols												
		developed for ad												
		hoc and sensor												
		networks.												
		 To identify and 												
		address the												
		security threats in												
		ad hoc and sensor												
		networks.												
		• Establish a												
		Sensor network												
		environment for												
		different type of												
		applications.	✓	-/		/ .	/	./ .	/ .	/ /	1	_/		
17271E34I	Ultra Wide	radio technology	•	•			1	' '	<u> </u>			•		
1/2/11/541	Band	that can use a												
		very low energy												
	Communicati													
	on	level for short-	/	,					'	,	,	/	/	
		range, high-	✓	✓	1	/ 1	/	✓	✓	✓	✓	✓	✓	



į l	THAN	IJAVUR	-6134	103 - TA	MILNA	ADU	1			1
	bandwidth									
	communications									
	over a large									
	portion of the									
	radio spectrum									
Project Phase –	The student									
I	should be able to:									
	• Apply									
	fundamental and									
	disciplinary									
	concepts and									
	methods in ways									
	appropriate to									
	their principal									
	area of study.									
	• Demonstrate									
	skill and									
	knowledge of									
	current									
	information and									
	technological									
	tools and									
	techniques									
	specific to the									
	professional field									
	of study.									
	• Use effectively									
	oral, written and									
	visual									
	communication.									
	• Identify,									
	analyze, and solve									
	problems									
	creatively through									
	sustained critical						l			
17271P35	investigation.						1			



		1	Integrate	NJAV OI	100						
			information from								
			multiple sources.								
			• Demonstrate an								
			awareness and								
			application of								
			appropriate								
			personal, societal,								
			and professional								
			ethical standards.								
			• Practice the								
			skills, diligence, and commitment								
			to excellence								
			needed to engage								
			in lifelong								
	15051 665		learning.								-
	17271CSR	Participation in	a. Sensitization of								
		Scaffolded	social needs for								
		Research(Desi	innovation								
		gn/Societal	b. Team work								
		Project)	towards								
			interdisciplinary								
			synchronous								
			research strategy								
			c. Development								
			of critical								
			thinking and								
			synergistic								
			research								
			approach.				✓	 			
					SEM	IV	 				
	17271P41	Project Phase –	The student								1
		II	should be able to:								
			• Apply				✓				
•	-										-



fundamental and						
disciplinary						
concepts and						
methods in ways						
appropriate to						
their principal						
area of study.						
Demonstrate						
skill and						
knowledge of						
current						
information and						
technological						
tools and						
techniques						
specific to the						
professional field						
of study.						
Use effectively						
oral, written and						
visual						
communication.						
• Identify,						
analyze, and solve						
problems						
creatively through						
sustained critical						
investigation.						
Integrate						
information from						
multiple sources.						
• Demonstrate an						
awareness and						
application of						
appropriate						
personal, societal,						



and professional						
ethical standards.						
• Practice the						
skills, diligence,						
and commitment						
to excellence						
needed to engage						
in lifelong						
learning.						



Dept:ECE(M.TECH COMM.SYS-PT REG2017)

Mapping of COs and POs

Sem	Course	Title of	COs						POS	S					
	Code	the Course		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	P O 11	PO12
						SEM-	[
I	17248S11 BP	Applied mathematic s for Electronics Engineerin g	 Concepts on vector spaces, linear transformation, inner product spaces, eigen values and generalized eigenvectors. Apply various methods in linear algebra to solve system of linear equations. Could develop a fundamental understanding of linear programming models, able to develop a linear programming model from problem description, apply the simplex method for solving linear programming problems. 							~			,		



	ı	THANJA		613403-		1 1		i		1 1	1	1	į į
17271C12	Statistical	• Formulate time domain	~	~	/ /	√	· •	· •	~		/ -	-	
P	Signal	and frequency domain											
	Processing	description of Wide											
		Sense Stationary process											
		in terms of matrix											
		algebra and relate to											
		linear algebra concepts.											
		• State Parseval's											
		theorem, W-K theorem,											
		principle of											
		orthogonality, spectral											
		factorization theorem,											
		Widrow-Hoff LMS											
		algorithm and Shannon's											
		sampling theorem, and											
		define linear prediction,											
		linear estimation, sample											
		auto-correlation,											
		periodogram, bias and											
		consistency.											
		• Explain various noise											
		types, Yule-Walker											
		• •											
		and non-parametric methods, Wiener and											
		Kalman filtering, LMS											
		and RMS algorithms, Levinson Durbin											
		algorithm, adaptive											
		noise cancellation and											
		adaptive echo											
		cancellation, speed											
		verses convergence											
		issues, channel											
		equalization, sampling											
		rate change, subband											



			coding and transform.	wavelet									
	17271C13 P	Modern Digital Communic ation Systems	• Con	concepts analysis and non- receivers. ceptually different echniques dedge on a codes al codes.	~	~		~	`	*			



		generation of OFDM signals and the techniques of multiuser detection.										
17271L14 P	Communic ation Systems Lab - I	• Measure and analyze various transmission line parameters.• Design Microstrip patch antennas.• Implement the adaptive filtering algorithms• To generate and detect digital communication signals of various modulation techniquesusing MATLAB.	~	~		\ \	, · · · · · · · · · · · · · · · · · · ·	*	•	· ·		
17271CRS P	Research Led Seminar	a. Exposure to various research domains b. Acquaintance with languages of research c. Development of research aptitude					✓			~		
					SEM-II							



	1		THANJA	VUR-	613403-	TAMIL	NADU		I	1 1	1	ı	1	1	
		Mobile	Discuss cellular radio												
		Communic	concepts.												
		ation	 Identify various 												
		Networks	propagation effects.												
			• To have knowledge of												
			the mobile system												
			specifications.												
			• Classify multiple												
			access techniques in												
			mobile communication.												
			Outline cellular mobile												
			communication												
			standards.												
			Analyze various												
			methodologies to												
			improve the cellular												
			capacity										.		
172	71C22	Advanced	Capability to design	~	~	,	<u> </u>	•		•	~	~		✓	
		Microwave	Microwave circuits.												
		Systems	• To be able to analyze												
		Systems													
			microwave integrated circuits.		_									_	
172	71L24	Cammunia		~	~	•	~	~ ✓	~		~	·			
		Communic	• Apply knowledge to												
		ation	identify a suitable												
		Systems	architecture and												
		Lab - II	systematically design an												
			RF system.												
			Comprehensively												
			record and report the												
			measured data, and												
			would be capable of												
			analyzing, interpreting												
			the experimentally												
			measured data and												
			produce the meaningful												
			conclusions.	~	~	,	· •		· •	· •	~		/		



	,	•	THANJA	VUR-	613403-	TAMIL	NADU			•		
			 Design and develop 									
			microstrip filters.									
			microstrip micro.									
			~									
	17271TEC	Technical	Selecting a subject,									
	WRP	Writing	narrowing the subject									
		/Seminars	into a topic									
		, , , , , , , , , , , , , , , , , , , ,	2. Stating an objective.									
			3. Collecting the									
			relevant bibliography									
			(atleast 15 journal									
			papers)									
			4. Preparing a working									
			4. Freparing a working									
			outline.									
			5. Studying the papers									
			and understanding the									
			authors contributions									
			and critically analysing									
			each									
			paper.									
			6. Preparing a working									
			outline									
					1							
			7. Linking the papers									
			and preparing a draft of									
			the paper.		1							
			8. Preparing conclusions									
			based on the reading of									
								ļ	_			
			all the papers.					✓	-			



			9. Writing the Final Paper and giving final Presentation						
	17271CR MP	Research Methodolo gy	a. Understanding research questions and tools b. Experience in scientific writings c. Practice in various aspects of scientific publications d. Inculcation of research ethics			~			
	17271CB RP	Participatio n in Bounded Research	a. Hands on exposure to problem solving tools in contemporary researchb. Evolution of research intuitiveness and orientationc. Familiarity			✓ ✓			



	_		THANJA		613403-									
			with cutting edge											
			research trends											
					SEM	-III								
	17271C31	Communic	Given the network and											
	P	ation	user requirements and											
	Г													
		Protocol	the type of channel over											
		Engineerin	which the network has to											
		g	operate, the student											
			would be in a position to											
			apply his knowledge for											
			identifying a suitable											
			routing algorithm,											
			implementing it and											
			analyzing its											
			performance.											
			• The student would also											
			be able to design a new											
			algorithm or modify an											
			existing algorithm to											
			satisfy the evolving											
			demands in the network											
			and by the user											
			applications.	~	~	,	✓	✓	~	~	•	✓	✓	
	17271C32	Advanced	Ability to understand											
	P	Radiation	antenna concepts											
		Systems	Ability to design											
			antenna for various											
			applications											
			• Knowledge of modern											
			antenna design		~			√		~	_		/	
I	<u> </u>			~					~	•		•		



 _			VUR-	613403-	TAMIL	NADU					i		1
17271CSR	Design/Soc	Sensitization of social											
P	io technical	needs for innovation											
	Project	b. Team work towards											
		interdisciplinary											
		synchronous research											
		strategy											
		c. Development of											
		critical thinking and											
		synergistic research											
		approach.						~			~		
					SEM-IV	7							
17271C41	Wireless	• Familiar with the latest											
P	Sensor	4G networks and LTE											
	Networks	 Understand about the 											
		wireless IP architecture											
		and LTE network											
		architecture.											
		 Familiar with the 											
		adaptive link layer and											
		network layer graphs											
		and protocol.											
		 Understand about the 											
		mobility management											
		and cellular network.											
		 Understand about the 											
		wireless sensor network											
		architecture and its											
		concept.	✓	✓	,	< <	✓	✓	· •	~	~	· •	
17271C42	Fiber Optic	 Design and Analyze 											
P	Networkin	Network Components											
	g	 Assess and Evaluate 											
		optical networks											
			~	~	,	/ /	~	· •	· •	~	~	/ .	



1	1	THANJA	VUR-	613403-	TAMIL	NADU	1 1		İ	i	i	i i	 1
17271P44	Project	The student should be											
P	Phase – I	able to: • Apply											
		fundamental and											
		disciplinary concepts											
		and methods in ways											
		appropriate to their											
		principal area of study.•											
		Demonstrate skill and											
		knowledge of current											
		information and											
		technological tools and											
		techniques specific to											
		the professional field of											
		study.• Use effectively											
		oral, written and visual											
		communication.•											
		Identify, analyze, and											
		solve problems											
		creatively through											
		sustained critical											
		investigation.• Integrate											
		information from											
		multiple sources.•											
		Demonstrate an											
		awareness and											
		application of											
		appropriate personal,											
		societal, and											
		professional ethical											
		standards.• Practice the											
		skills, diligence, and											
		commitment to											
		excellence needed to											
		engage in lifelong											
		learning.						~					
				EL	ECTIV	E-I							



-		1		VUR-	613403-	TAMIL	NADU			i i	Ī	i	1	
	17271E2	High	• The student would be											
	3AP	Speed	able to identify suitable											
		Switching	switch architectures for											
		Architectu	a specified networking											
			scenario and											
		re	demonstrate its blocking											
			performance.											
			• The student would be											
			in a position to apply his											
			knowledge of switching											
			technologies,											
			architectures and											
			buffering strategies for											
			designing high speed											
			communication											
			networks and analyse											
			their performance	✓	✓	,	/ /	✓	· •	· •	✓	•	/ ,	
	17271E2	DSP	Become Digital Signal											
	3BP	Processor	Processor specialized											
		Architectu	engineer											
		re and	DSP based System											
			Developer											
		Programm ing												
		i ing	I									_	/	



 	İ		VUR-	613403-	TAMIL	NADU		İ	1	İ	ı	i i	ı	i
17271E2	Digital	Model speech												
3CP	Speech	production system and												
	Processing	describe the												
	Trocessing	fundamentals of speech.												
		Extract and compare												
		different speech												
		parameters.												
		• Choose an appropriate												
		statistical speech model												
		for a given application.												
		• Design a speech												
		recognition system.												
		• Use different text												
		analysis and speech												
		synthesis techniques.												
		", " " " " " " " " " " " " " " " " " "			_		ļ .	/			اِ			



 _	•	THANJA	VUR-	613403-	TAMIL	NADU					
17271E2	ASIC and	• Demonstrate VLSI									
3DP	FPGA	tool-flow and									
	Design	appreciate FPGA									
		architecture.•									
		Understand the issues									
		involved in ASIC									
		design, including									
		technology choice,									
		design management,									
		tool-flow, verification,									
		debug and test, as well									
		as the impact of									
		technology scaling									
		on ASIC design.•									
		Understand the									
		algorithms used for									
		ASIC construction•									
		Understand the basics									
		of System on Chip, On									
		chip communication									
		architectures like									
		AMBA,AXI and									
		utilizing Platform									
		based design.•									
		Appreciate high									
		performance									
		algorithms available									
		for ASICs		✓		/ _/	✓	✓	 	 <u> </u>	
				ELI	ECTIV	E-II					



			THANJA	VUR-	613403-	TAMIL	NADU		i					
172	271E3	Internetwo	• Understand the state-											
3	3AP	rking and	of-art developments in											
		Multimedi	Internet technologies											
		a	and applications											
			• Understand the											
			development of next											
			generation Internet											
			• Appreciate the											
			principles used in											
			designing Internet											
			protocols for multimedia											
			applications, and so											
			understand why standard											
			protocols are designed											
			the way that they are											
			• Be able to solve											
			problems for the design											
			of multimedia											
			applications on Internet.	~	~	•	/ /	✓	~	~	•	/ ~	· •	
172	271E3	Digital	• Explain the											
3	3BP	Image	fundamentals digital											
		Processing	image processing.											
		J	Describe image various											
			segmentation and feature											
			extraction techniques for											
			image analysis.											
			• Discuss the concepts of											
			image registration and											
			fusion.	~	✓	•	/ /	✓	~	~	•	/ •	· •	



-	•	THANJA	VUR-	613403-	TAMIL	NADU	•			•			
17271E3	LASER	Recognize and classify											
3CP	Communi	the structures of Optical											
	cation	fiber and types.											
		• Discuss the channel											
		impairments like losses											
		and dispersion.											
		 Analyze various 											
		coupling losses.											
		Classify the Optical											
		sources and detectors											
		and to discuss their											
		principle.											
		 Familiar with Design 											
		considerations of fiber											
		optic systems.											
		• To perform											
		characteristics of optical											
		fiber, sources and											
		detectors, design as well											
		as conduct experiments											
		in software and											
		hardware, analyze the											
		results to provide valid											
		conclusions.	~	~	,	/ /	~	/ /	~	,	· •	· •	



 	1	THANJA	VUR-	613403-	TAMIL	NADU	1 1	i	ı		i	 1	1
17271E3	MEMS	Ability to understand											
3DP	and	the operation of micro											
	NEMS	devices, micro systems											
		and their applications											
		Ability to design the											
		micro devices, micro											
		systems using the											
		MEMS fabrication											
		process. Gain a											
		knowledge of basic											
		approaches for various											
		sensor design Gain a											
		knowledge of basic											
		approaches for various											
		actuator design											
		Develop experience on											
		micro/nano systems for											
		photonics . Gain the											
		technical knowledge											
		required for computer-											
		aided design,											
		fabrication, analysis and											
		characterization of											
		nano-structured											
		materials, micro- and											
		nano-scale devices.	~		~	/ /		~	_	,			
	ı			EEL	ECTIV	EIII						 1	



17271E4	Digital	Apply basic principles	TVOR—	013403-	174IVIII	NADO							ĺ
3AP	Communi	of digital											
0111	cation	communication											
	Receivers	techniques.											
	Receivers	• Discuss on receivers											
		for AWGN & Fading											
		channel											
		Describe various											
		synchronization											
		techniques.											
		Design adaptive											
		equalization algorithms											
		to satisfy the evolving											
		demands in digital											
		communication.	~	✓	•	/_/	~	· •	· •	~		/ -	
17271E4	Soft	Knowledge on											
3BP	Computin	concepts of soft											
	g	computational											
	8	techniques.											
		 Able to apply soft 											
		computational											
		techniques to solve											
		various problems.											
		 Motivate to solve 											
		research oriented											
		problems.											
			~	✓	,	/ /	✓	✓ ✓	<u> </u>	~	•	✓ •	
17271E4	Communi	• Explain digital											
3CP	cation	signature standards											
	Network	• Discuss authentication											
	Security	• Explain security at											
		different layers	~	✓	•	/ /	✓	✓	/	~	•	∕ •	



		THANIA	VUR-613	3403 - TA	MILNA	DU							
17271E4	Radar	 Know how a radar is 											
3DP	Signal	built and understand	İ										
	Processing	the principles of	İ										
		behavior.	1										
		Have a basic	İ										
		understanding of how	1										
		radar signals propagate	1										
		through a medium, and	1										
		the mechanisms for	1										
		signal reflection from	1										
		the target and	_										
		unwanted reflections	~		~	~	~			~	~	~	
		("clutter").	1					✓					
		 Understand the basic 	1										
		principles of signal	1										
		processing done in a	1										
		radar.	1										
		Be able to estimate	1										
		the performance of a	1										
		radar based on	1										
		parameters provided,	1										
		for example at what	1										
		distance the radar will	1										
		be able to detect targets	1										
		of a given size.	1										
		Be able to assess what	1										
		type of radar is suitable	1										
		for which task (choice of	1										
		waveforms, frequency	1										
		bands, etc).]										
		Be able to use	İ										
		numerical tools to	,		,					,			
		calculate radar		_√				_	√	_√ _		_•	
		performance and to	~	~	~	✓	√ _	_•	~	~	~	✓	



	1	THANJA	VUR-	613403-	TAMIL	NADU						1
ı	'	simulate the signal	ſ									1
,	1	processing in a radar.	ſ									1
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			·	ELECT'	IVE IV S	EM-V						
17271E5	Software	Compare MAC and	,	ļ								1
1AP	Defined	network layer design for	,	ļ								1
!	Radio	software defined radio• Discuss cognitive radio	.	Ţ	ı							1
!	1	for Internet of Things	.	Ţ	ı							1
	1	and M2Mtechnologies	.	J	ı							1
17271E5	Satellite	• Discuss satellite	, — — —		i						+-+	
1BP	Communi	navigation and global	.	Ţ	ı							1
- !	cation	positioning system	.	Ţ	ı							1
		Outline deep space	.	J	ı							1
	1	networks and inter	.	J								1
	<u> </u>	planetary missions	✓	~	✓	✓	✓	~	✓	~	✓	



17271E5	CDMA	Analyze MIMO		013403		NADO							
1CP	Systems	system.											
ICF	Systems	• Discuss millimeter											
		wave communication.											
		• Demonstrate software											
		defined radio and											
												1	
1505155	G 1	cognitive radio.	~	✓	•	✓	√		~	✓	~	<u> </u>	
17271E5	Speech	• Identify the various											
1DP	Processing	temporal, spectral and											
	and	cepstral features											
	Synthesis	required for identifying											
	~ J	speech units – phoneme,											
		syllable and word											
		 Determine and apply 											
		Mel-frequency cepstral											
		coefficients for											
		processing all types of											
		signals											
		• Justify the use of											
		formant and											
		concatenative											
		approaches to speech											
		synthesis											
		• Identify the apt											
		approach of speech											
		synthesis depending on											
		the language to be											
		processed											
		• Determine the various											
		encoding techniques for											
		representing speech.	~	✓	•	✓	✓	<u> </u>	✓	~	✓		
					ELI	ECTIVE V							
17271E5	Wavelets	• The students will be											
2AP	and Multi	able to apprehend the											
	Resolution	detailed knowledge											
		about the Wavelet	~	~	•	/ _/	~		~	~	~	· •	



i	۱	THANJA	VUR-	613403-	TAMIL	NADU	1 1	i	1	I	1	ı	1 1	1
	Processing	transforms& its												
		applications.												
1505175		5												
17271E5	High	• Diagnose problems and												
2BP	performan	make minor repairs to												
	ce	computer networks												
	Communi	using appropriate												
	cation	diagnostics software												
	Networks	 Demonstrate how to 												
	Networks	correctly maintain LAN												
		computer systems												
		Maintain the network												
		by performing routine												
		maintenance tasks												
		Apply network												
		management tools	~	~			_		~	~				
17271E5	Advanced	• The student will be												
2CP	Microproc	able to work with												
201	essors and	suitable microprocessor /												
		microcontroller for a												
	Microcont	specific real world												
	rollers	application.						-						
17271E5	Reconfigu	1. Identify the need	~	~	•		•		~	~	•	<u> </u>		
2DP	rable .	for reconfigurable												
	computing	architectures												
		2. Discuss the												
		architecture of												
		FPGAs												
		3. Point out the												
		salient features of												
		different												
		reconfigurable												
		architectures												
		4. Build basic	~	~	,	/ /	✓		~	~	•	/ ,	/	



		modules using any HDL 5. Develop applications using any HDL and appropriate tools 6. Design and build an SoPC for a particular application		613403-								
				E	LECTIVE	/I						
17271E5 3AP	Simulatio n of Communi cation Networks	• Apply Monte Carlo simulation• Discuss Lower Layer and Link Layer Wireless Modeling• Compare channel modeling and mobility modeling	>	~			✓		√	,		
17271E5 3BP	Medical Imaging	 Explain computer aided tomography Discuss ultrasonic systems Outline magnetic resonance imaging 	\	~			~	· •	~	•		



17271E5	Mobile	Identify different	VOR-	613403-	TAIVIL	NADO							
3CP	ADHOC	issues in wireless ad hoc											
	networks	and sensor networks.											
		 To analyze protocols 											
		developed for ad hoc											
		and sensor networks.											
		• To identify and address											
		the security threats in ad											
		hoc and sensor											
		networks.											
		 Establish a Sensor 											
		network environment for											
		different type of											
		applications.	~	✓	~	✓	✓	~	~	~	<u> </u>		
17271E5	Ultra	radio technology that											
3DP	Wide	can use a very low											
	Band	energy level for short-											
	Communi	range, high-bandwidth											
	cation	communications over a											
		large portion of the											
		radio spectrum	~	~	~	· •	✓		~	~	~	~	
					SEM VI				- 				



I	17271P61	Project	The student should be	015 105						l
	P	Phase – II	able to:							
			 Apply fundamental and 							
			disciplinary concepts							
			and methods in ways							
			appropriate to their							
			principal area of study.							
			• Demonstrate skill and							
			knowledge of current							
			information and							
			technological tools and							
			techniques specific to							
			the professional field of							
			study.							
			• Use effectively oral,							
			written and visual							
			communication.							
			• Identify, analyze, and							
			solve problems							
			creatively through							
			sustained critical							
			investigation.							
			• Integrate information							
			from multiple sources.							
			• Demonstrate an							
			awareness and							
			application of							
			appropriate personal,							
			societal, and							
			professional ethical							
			standards.							
			• Practice the skills,							
			diligence, and							
			commitment to							
			excellence needed to							
			engage in lifelong			~		~		



learning.						