DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CO – PO Mapping

YEAR: 2017 **SEM: I**

S. NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO 1	PO 2
					1	2	3	4	5	6	7	8	9	10	11	12		
1	HS8151 / COMMUNICATIVE ENGLISH	4	HS8151	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.						√	√	√	√	√	√			
2	MA8151 / ENGINEERING MATHEMATICS – I	4	MA8151	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 fractions and integration by parts.	√	√	√						√					
				Determine convergence/divergence of improper integrals and evaluate convergent improper integrals	√	√	√						√					
				Apply various techniques in solving differential equations.	√	√	√						√					
3	PH8151 / ENGINEERING PHYSICS	3	PH8151	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.	√	√	√	√							√	√		
4	CY8151 / ENGINEERING CHEMISTRY	3	CY8151	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.	√	√	√	√							√	√		

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					1	2	3	4	5	6	7	8	9	10	11	12		
5	GE8151 / PROBLEM SOLVING AND PYTHON PROGRAMMING	3	GE8151	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.	√	√	√	√	√						√	√		
6	GE8152 / ENGINEERING GRAPHICS	4	GE8152	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.	√									√	√	√		
7	GE8161 / PROBLEM SOLVING ANDPYTHON PROGRAMMING LABORATORY	2	GE8161	Write, test, and debug simple Python programs.	√	√	√	√	√						√	√		
				Implement Python programs with 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.	√	√	√	√	√						√	√		
8	BS8161 / PHYSICS AND CHEMISTRY LABORATORY	2	BS8161	apply principles of elasticity, optics and thermal properties for engineering applications.	√	√	√	√							√	√		

YEAR: 2017 **SEM: II**

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					1	2	3	4	5	6	7	8	9	10	11	12		
1	HS8251 / TECHNICAL ENGLISH	4	HS8251	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.					√	√	√	√	√	√	√	√		
2	MA8251 / ENGINEERING MATHEMATICS – II	4	MA8251	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.	√	√	√	√							√	√		
3	PH8253 / PHYSICS FOR ELECTRONICS ENGINEERING	3	PH8253	Gain knowledge on classical and quantum electron theories, and energy band structuues,	√	√	√	√							√	√		
				Acquire knowledge on basics of 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..	√	√	√	√							√	√		
4	BE8254 / BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING	3	BE8254	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	√	√	√	√	√	√					√	√		
5	EC8251 / CIRCUIT ANALYSIS	4	EC8251	Develop the capacity to analyze electrical circuits, apply the circuit theorems in real time	√	√	√	√	√	√					√	√		
				Design and understand and evaluate the AC and DC circuits.	√	√	√	√	√	√					√	√		

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					1	2	3	4	5	6	7	8	9	10	11	12		
6	EC8252 / ELECTRONIC DEVICES	3	EC8252	Explain the V-I characteristic of diode, UJT and SCR	√	√	√	√	√	√					√	√		
				Describe the equivalence circuits of transistors	√	√	√	√	√	√					√	√		
				Operate the basic electronic devices such as PN junction diode, Bipolar and Field effect Transistors, Power control devices, LED, LCD and other Opto-electronic devices	√	√	√	√	√	√					√	√		
7	EC8261/ CIRCUITS AND DEVICES LABORATORY	2	EC8261	Analyze the characteristics of basic electronic devices	√	√	√	√	√						√	√		
				Design RL and RC circuits	√	√	√	√	√						√	√		
				Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems	√	√	√	√	√						√	√		
8	GE8261 / ENGINEERING PRACTICES LABORATORY	2	GE8261	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.	√	√	√	√	√						√	√		

YEAR: 2017 **SEM: III**

S.NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO1	PO2
					1	2	3	4	5	6	7	8	9	10	11	12		
1	MA8352 / LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS	4	MA8352	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.	√	√	√	√	√						√	√		
2	EC8393 / FUNDAMENTALS OF DATA STRUCTURES IN C	3	EC8393	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	√	√	√	√	√	√					√	√		
3	EC8351 / ELECTRONIC CIRCUITS I	3	EC8351	Acquire knowledge of Working principles, characteristics and applications of BJT and FET 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	√	√	√	√	√	√					√	√		
4	EC8352 / SIGNALS AND SYSTEMS	4	EC8352	To be able to determine if a given system is linear/causal/stable	√	√	√	√	√	√					√	√		
				Capable of determining the frequency components present in a deterministic signal	√	√	√	√	√	√					√	√		
				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	√	√	√	√	√	√					√	√		
5	EC8392 / DIGITAL ELECTRONICS	3	EC8392	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	√	√	√	√	√	√					√	√		

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6	EC8391 CONTROL SYSTEMS ENGINEERING	3	EC8391	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.	√	√	√	√	√	√					√	√		
				Design various transfer functions of digital control system using state variable models.	√	√	√	√	√	√					√	√		
7	EC8381 / FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY	2	EC8381	Write basic and advanced programs in C	√	√	√	√	√	√					√	√		
				Implement functions and recursive functions in C	√	√	√	√	√	√					√	√		
				Implement data structures using C	√	√	√	√	√	√					√	√		
				Choose appropriate sorting algorithm for an application and implement it in a modularized way	√	√	√	√	√	√					√	√		
8	EC8361 / ANALOG AND DIGITAL CIRCUITS LABORATORY	2	EC8361	Design and Test rectifiers, filters and regulated power supplies.	√	√	√	√	√	√					√	√		
				Design and Test BJT/JFET amplifiers.	√	√	√	√	√	√					√	√		
				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.	√	√	√	√	√	√					√	√		
9	HS8381 / INTERPERSONAL SKILLS/LISTENING &SPEAKING	1	HS8381	Listen and respond appropriately.						√		√	√	√	√	√		
				Participate in group discussions						√		√	√	√	√	√		
				Make effective presentations						√		√	√	√	√	√		
				Participate confidently and appropriately in conversations both formal and informal						√		√	√	√	√	√		

YEAR: 2017 **SEM: IV**

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					1	2	3	4	5	6	7	8	9	10	11	12		
1	MA8451 / PROBABILITY AND RANDOM PROCESSES	4	MA8451	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 in engineering applications.	√	√	√	√	√						√	√		
				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.	√	√	√	√	√						√	√		
2	EC8452 / ELECTRONIC CIRCUITS II	3	EC8452	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.	√	√	√	√	√	√					√	√		
3	EC8491 / COMMUNICATION THEORY	3	EC8491	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 FM systems	√	√	√	√	√	√					√	√		
				Gain knowledge in sampling and quantization	√	√	√	√	√	√					√	√		
4	EC8451 / ELECTROMAGNETIC FIELDS	4	EC8451	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	√	√	√	√	√	√					√	√		
5	EC8453 / LINEAR INTEGRATED CIRCUITS	3	EC8453	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	√	√	√	√	√	√					√	√		

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6	GE8291 / ENVIRONMENTAL SCIENCE AND ENGINEERING	3	GE8291	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.	√	√		√		√	√	√			√	√		
				Public awareness of environmental is at infant stage.	√	√		√		√	√	√			√	√		
				Ignorance and incomplete knowledge has lead to misconceptions	√	√		√		√	√	√			√	√		
				Development and improvement in std. of living has lead to serious environmental disasters	√	√		√		√	√	√			√	√		
7	EC8461 / CIRCUITS DESIGN AND SIMULATION LABORATORY	2	EC8461	Analyze various types of feedback amplifiers	√	√	√	√	√	√					√	√		
				Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators	√	√	√	√	√	√					√	√		
				Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool.	√	√	√	√	√	√					√	√		
8	EC8462 / LINEAR INTEGRATED CIRCUITS LABORATORY	2	EC8462	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.	√	√	√	√	√	√					√	√		
				Design DC power supply using ICs.	√	√	√	√	√	√					√	√		
				Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.	√	√	√	√	√	√					√	√		

YEAR: 2017 **SEM: V**

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					1	2	3	4	5	6	7	8	9	10	11	12		
1	EC8501 / DIGITAL COMMUNICATION	3	EC8501	Design PCM systems	√	√	√	√	√	√					√	√		
				Design and implement base band transmission schemes	√	√	√	√	√	√					√	√		
				Design and implement band pass signaling schemes	√	√	√	√	√	√					√	√		
				Analyze the spectral characteristics of band pass signaling schemes and their noise performance	√	√	√	√	√	√					√	√		
				Design error control coding schemes	√	√	√	√	√	√					√	√		
2	EC8553 / DISCRETE-TIME SIGNAL PROCESSING	4	EC8553	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	√	√	√	√	√	√					√	√		
3	EC8552 / COMPUTER ARCHITECTURE AND ORGANIZATION	3	EC8552	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 unconventional architectures	√	√	√	√		√					√	√		
4	EC8551 / COMMUNICATION NETWORKS	3	EC8551	Identify the components required to build different types of networks	√	√	√	√	√	√					√	√		
				Choose the required functionality at each layer for given application	√	√	√	√	√	√					√	√		
				Identify solution for each functionality at each layer	√	√	√	√	√	√					√	√		
				Trace the flow of information from one node to another node in the network	√	√	√	√	√	√					√	√		
5	EC8562 / DIGITAL SIGNAL PROCESSING LABORATORY	2	EC8562	Carryout basic signal processing operations	√	√	√	√	√	√					√	√		
				Demonstrate their abilities towards 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	√	√	√	√	√	√					√	√		
6	EC8561 / COMMUNICATION SYSTEMS LABORATORY	2	EC8561	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	√	√	√	√	√	√					√	√		

S. NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO 1	PO 2
					1	2	3	4	5	6	7	8	9	10	11	12		
7	EC8563 COMMUNICATION NETWORKS LABORATORY	2	EC8563	Communicate between two desktop computers	√	√	√	√	√	√					√	√		
				Implement the different protocols	√	√	√	√	√	√					√	√		
				Program using sockets.	√	√	√	√	√	√					√	√		
				Implement and compare the various routing algorithms	√	√	√	√	√	√					√	√		
				Use the simulation tool.	√	√	√	√	√	√					√	√		

YEAR: 2017 **SEM: VI**

S. NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO 1	PO 2
					1	2	3	4	5	6	7	8	9	10	11	12		
1	EC8691 / MICROPROCESSORS AND MICROCONTROLLERS	3	EC8691	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.	√	√	√	√	√	√					√	√		
2	EC8095 / VLSI DESIGN	3	EC8095	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.	√	√	√	√	√	√					√	√		
3	EC8652 / WIRELESS COMMUNICATION	3	EC8652	Characterize a wireless channel and evolve the system design specifications	√	√	√	√	√	√					√	√		
				Design a cellular system based on resource availability and traffic demands	√	√	√	√	√	√					√	√		
				Identify suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration.	√	√	√	√	√	√					√	√		
4	MG8591 / PRINCIPLES OF MANAGEMENT	3	MG8591	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						√	√	√		√	√	√		
5	EC8651 / TRANSMISSION LINES AND RF SYSTEMS	3	EC8651	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	√	√	√	√	√	√					√	√		

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					1	2	3	4	5	6	7	8	9	10	11	12		
6	EC8681 / MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	2	EC8681	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	√	√	√	√	√	√					√	√		
7	EC8661 / VLSI DESIGN LABORATORY	2	EC8661	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	√	√	√	√	√	√					√	√		
				Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools	√	√	√	√	√	√					√	√		
8	HS8581 / PROFESSIONAL COMMUNICATION	1	HS8581	Make effective presentations						√				√		√		
				Participate confidently in Group Discussions.						√				√		√		
				Attend job interviews and be successful in them.						√				√		√		
				Develop adequate Soft Skills required for the workplace						√				√		√		

YEAR: 2017 **SEM: VII**

S. NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO 1	PO 2
					1	2	3	4	5	6	7	8	9	10	11	12		
1	EC8701 / ANTENNAS AND MICROWAVE ENGINEERING	3	EC8701	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	√	√	√	√	√	√					√	√		
2	EC8751 / OPTICAL COMMUNICATION	3	EC8751	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.	√	√	√	√		√					√	√		
3	EC8791 / EMBEDDED AND REAL TIME SYSTEMS	3	EC8791	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	√	√	√	√	√	√					√	√		
4	EC8702 / AD HOC AND WIRELESS SENSOR NETWORKS	3	EC8702	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	√	√	√	√	√	√					√	√		
				Understand the transport layer and security issues possible in Ad hoc and sensor networks.	√	√	√	√	√	√					√	√		
				Be familiar with the OS used in Wireless Sensor Networks and build basic modules	√	√	√	√	√	√					√	√		
5	EC8711 / EMBEDDED LABORATORY	2	EC8711	Write programs in ARM for a specific Application	√	√	√	√	√	√					√	√		
				Interface memory, A/D and D/A convertors with ARM system	√	√	√	√	√	√					√	√		
				Analyze the performance of interrupt	√	√	√	√	√	√					√	√		
				Write program for interfacing keyboard, display, motor and sensor.	√	√	√	√	√	√					√	√		
				Formulate a mini project using embedded system	√	√	√	√	√	√					√	√		
6	EC8761 / ADVANCED COMMUNICATION LABORATORY	2	EC8761	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	√	√	√	√	√	√					√	√		
				Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER	√	√	√	√	√	√					√	√		
				Understand the intricacies in Microwave System design	√	√	√	√	√	√					√	√		

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S. NO	SUBJECT NAME/ CODE	COURSE CREDIT	COURSE CODE	COURSE OUTCOMES	PROGRAMME OUTCOME (PO)												PO 1	PO 2
					1	2	3	4	5	6	7	8	9	10	11	12		
1	EC8811 / PROJECT WORK	10	EC8811	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.	√	√	√	√	√	√		√	√	√	√	√		