



R.T.E. SOCIETY'S
RURAL ENGINEERING COLLEGE,
HULKOTI-582 205.

(Approved by A.I.C.T.E.(New Delhi) Affiliated to V. T. U. Belagavi)

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Dist. Gadag

State: Karnataka

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG

COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017

Course: Engineering Mathematics-1(17MAT11) Year: 2017-18

CO1	Student will be able to find how to calculate the nth order derivatives of a given function and apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
CO2	Student will be able to evaluate limits with indeterminate forms using l'hospital's rule and express function of one variable as infinite series, also use partial derivatives to calculate rates of change of multivariate functions.
CO3	Student will be able to apply the vector differential operator to determine the gradient, divergence and curl. also illustrate the applications of multivariate calculus to understand the solenoidal and irrotational vectors
CO4	Student will be able to apply the reduction formula to evaluate definite integral. apply various methods of the differential equation to solve first-order linear ode and its applications to various fields.
CO5	Student will be able to apply the matrix techniques to reduce the quadratic forms to canonical forms,

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017

Course: ENGINEERING PHYSICS - THEORY(17PHY12) Year: 2017-18

CO1	Student will be able to learn and understand more about the basic principles and to develop problem solving skills and implementation in technology
CO2	Student will be able to gain knowledge about modern physics and quantum mechanics
CO3	Student will be able to study material properties and their application as it is the prime role to implement in engineering studies and applications and basic concepts of nano science and technology.
CO4	Student will be able to study lasers and optical fibers to assimilate knowledge and to develop skills on its applications in communication
CO5	Student will be able to understand crystal structure , shock wave concepts and application.



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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG

COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 1 Scheme :2017
Course: Elements of Civil Engineering & Meechanics(17CIV3) Year: 2017-18

CO1	Student will be able to mention the applications of various fields of civil engineering, and computation of resultant of coplanar concurrent and non-concurrent forces also moment of force system.
CO2	Student will be able to compute the different forces acting on the concurrent force systems by applying equilibrium conditions and lami's theorem. computing the friction acting on the different bodies.
CO3	Student will be able to comprehend the action of forces, moment and other loads on beams and compute the relative reactions developed due to external loads.
CO4	Student will be able to locate the centroid, compute moment of inertia of regular and built up sections.
CO5	Student will be able to express the relationship between the motions of bodies and analyze the motion of body.

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017
Course: Elements of Mechanical Engineering(17EME14) Year: 2017-18

CO1	Student will be able to identify different sources of energy and their conversion process.
CO2	Student will be able to explain the working principle of hydraulic turbines, pumps, ic engines and refrigeration's.
CO3	Student will be able to recognize various metals joining processes and power transmission elements
CO4	Student will be able to understand the properties of common engineering materials and their applications in engineering industry
CO5	Student will be able to discuss the working of conventional machine tools, machining processes, tools and accessories



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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017

Course: BASIC ELECTRICAL ENGG(17ELE15) Year: 2017-18

CO1	Student will be able to interpret and apply the concepts of ac and dc
CO2	Student will be able to understand the facts of single phase circuits and principle, operation and construction of single phase transformers.
CO3	Student will be able to understand and apply the principle of operation and construction of dc machines and synchronous machines
CO4	Student will be able to understand and apply the principle of operation and construction of three phase induction motors.
CO5	Student will be able to illustrate and identify the concepts

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017

Course: WORK SHOP PRACTICE(17WSL16) Year: 2017-18

CO1	Student will be able to demonstrate and produce different types of fitting models
CO2	Student will be able to get knowledge of development of sheet models with an understanding of their application
CO3	Student will be able to perform soldering and welding of different sheet metal and welded joint..
CO4	Student will be able to understand the basics of workshop practice

Branch : Electronics & Communication Engineering Semester : 1 Scheme : 2017

Course: ENGINEERING PHYSICS LAB(17PHYL17) Year: 2017-18

CO1	Student will be able to develop skills to impart practical knowledge in real-time solutions
CO2	Student will be able to understand principle concepts working and application of new technology and comparison of results with theoretical calculation
CO3	Student will be able to design new instrument with practical knowledge
CO4	Student will be able to gain knowledge of new concepts in the solution of practical oriented problems and to understand its solutions theoretical problems.
CO5	Student will be able to understand and use new instrument in engg studies



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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: Engineering Mathematics-2(17MAT21) Year: 2017-18

CO1	Student will be able to apply ordinary differential equations to model engineering phenomena such as electrical circuits, forced oscillation of mass spring and elementary heat transfer
CO2	Student will be able to identify the non-linear d. e. to find solution of different non-linear systems.
CO3	Student will be able to apply partial differential equations to model problems in fluid mechanics, electromagnetic theory and heat transfer
CO4	Student will be able to apply multiple integrals to find area, volume, mass and moment of inertia of plane and solid region.
CO5	Student will be able to use laplace transforms to determine general or complete solutions to linear ode

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: Engineering Chemistry(17CHE22) Year: 2017-18

CO1	Student will be able to understand the concept of different electrodes, and standard electrode and giving knowledge abc batteries and fuel cell
CO2	Student will be able to apply the concept of corrosion and giving awareness and providing solution for corrosion control.
CO3	Student will be able to utilize of non renewable energy and giving importance to solar energy source than non renewable energy source
CO4	Student will be able to give solution to environmental impurities like hardness of water, sewage treatment, identifying the problems in boiler and value of nano technology
CO5	Student will be able to study of various instruments used in analysis and application of nanotechnology in various fields.




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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: PROGRAMMING IN C AND DATA STRUCTURES(17PCD23) Year: 2017-18

CO1	Student will be able to apply knowledge of problem solving skills to solve various problems.
CO2	Student will be able to apply basic principles of programming in c language.
CO3	Student will be able to design and develop solutions to various problems using modular programming approach.
CO4	Student will be able to apply basic concepts of arrays, pointers, files, and data structures to solve various problems.
CO5	Student will be able to understand, analyse, and apply static and dynamic memory allocation techniques.

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: COMPUTER AIDED ENGINEERING DRAWING(17CED24) Year: 2017-18

CO1	Student will be able to demonstrate the usage of cad software
CO2	Student will be able to visualize and draw orthographic projections, sections of solids and isometric views of solid
CO3	Student will be able to apply various concepts to solve practical problems related to engineering drawing

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: BELN(17ELN25) Year: 2017-18

CO1	Student will be able to classify the signals as ct/dt ,periodic/a periodic , eve/odd , /power and deterministic/random signals
CO2	Student will be able to determine the linearity and causality, time invariance and stability properties of ct and dt systems
CO3	Student will be able to compute the response of ct and dt lti systems using convolution integral and convolution sum.
CO4	Student will be able to compute of ft & dtft of signals
CO5	Student will be able to compute zt ,izt and transfer functions of complete systems.

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: COMPUTER PROGRAMMING LAB(17CPL26) Year: 2017-18

CO1	Student will be able to gain knowledge on various parts of a computer
CO2	Student will be able to draw flowcharts and write algorithms
CO3	Student will be able to design and development of c problem solving skills.
CO4	Student will be able to design and develop modular programming skills.
CO5	Student will be able to trace and debug a program



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Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: Engineering Chemistry Lab(17CHEL27) Year: 2017-18

CO1	Student will be able to estimate, analyze and create awareness of water impurities by testing of water sample like hardness, alkalinity, cod, the technology involved in estimating and awareness fe in hematite ore, and cu in brass, lime in cement
CO2	Student will be able to apply the instrumental technology in order to analyses cu in calorimeter and fe in potentiometer, determine the pka, viscosity coefficient and estimate the acid in acid mixture conductometry for various applications.

Branch : Electronics & Communication Engineering Semester : 2 Scheme : 2017

Course: ENVIRONMENTAL STUDIES(17CIV28) Year: 2020-21

CO1	Student will be able to understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale.
CO2	Student will be able to develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
CO3	Student will be able to demonstrate ecology knowledge of a complex relationship between biotic and abiotic components.
CO4	Student will be able to apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017

Course: ENGINEERING MATHEMATICS III(17MAT31) Year: 2018-19

CO1	Student will be able to know the use of periodic signals and fourier series to analyze circuits and system communications.
CO2	Student will be able to explain the general linear system theory for continuous-time signals and digital signal processing using the fourier transform and z-transform.
CO3	Student will be able to employ appropriate numerical methods to solve algebraic and transcendental equations.
CO4	Student will be able to apply green's theorem, divergence theorem and stokes' theorem in various applications in the field of electro-magnetic and gravitational fields and fluid flow problems.
CO5	Student will be able to determine the extremals of functionals and solve the simple problems of the calculus of variations.



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Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017

Course: ELECTRONIC INSTRUMENTATION (17EC32) Year: 2018-19

CO1	Student will be able to describe instrument measurement errors and calculate them
CO2	Student will be able to describe the operation of ammeters, voltmeters, multimeters and develop circuits for multirange ammeters and voltmeters.
CO3	Student will be able to describe functional concepts and operation of digital voltmeters and instruments to measure voltage, frequency, and time period, phase difference of signals, rotation speed, capacitance and ph of solutions.
CO4	Student will be able to describe functional concepts and operation of various analog measuring instruments to measure field strength, impedance, stroboscopic speed, in/out of phase, q of coils, insulation resistance.
CO5	Student will be able to describe and discuss functioning and types of oscilloscopes, signal generators and transducers.

Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017

Course: ANALOG ELECTRONICS(17EC33) Year: 2018-19

CO1	Student will be able to describe the working principle and characteristics of bjt,fet,signle stage, cascaded and feedback amplifier
CO2	Student will be able to calculate the ac gain and impedance for bjt using re h parameter model for ce and cc configuration
CO3	Student will be able to determine the performance characteristics and parameters of bjt and fet amplifier using small model
CO4	Student will be able to determine the parameter which affect low frequency and high frequency responses of bjt and fet amplifier and draw the characteristics
CO5	Student will be able to evaluate the efficiency of class a and class b and voltage regulators

Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017

Course: DE(17EC34) Year: 2018-19

CO1	Student will be able to develop simplified swithing equation using karnaugh maps and quine mcclusky techniques
CO2	Student will be able to explain the operation of decoders,encoders, multiplexers, de-multiplexers, adders, subtractors and comparators
CO3	Student will be able to explain the working of latches and flip-flops (sr,d,t & jk)
CO4	Student will be able to design synchronous/asynchronous counters and shift registers using flip flops
CO5	Student will be able to apply the knowledge gained in the design of counters and registers



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Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017
 Course: NETWORK ANALYSIS(17EC35) Year: 2018-19

CO1	Student will be able to apply and analyse basic network concepts emphasizing series and parallel combination of passive components, source transformation and shifting
CO2	Student will be able to apply and analyse use of mesh and nodal techniques for formulating the transfer functions of networks
CO3	Student will be able to apply and analyse various network theorems in solving the problems related to electrical circuits
CO4	Student will be able to analyse two port networks and methods of analysing the electrical networks

Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017
 Course: ELECTROMAGNETICS(17EC36) Year: 2018-19

CO1	Student will be able to evaluate problems on electric field due to point, linear, volume charges by applying conventional methods or by Gauss law.
CO2	Student will be able to determine potential and energy with respect to point charge and capacitance using Laplace equation.
CO3	Student will be able to calculate magnetic field, force, and potential energy with respect to magnetic materials
CO4	Student will be able to apply Maxwell's equation for time varying fields, EM waves in free space and conductors
CO5	Student will be able to evaluate power associated with EM waves using Poynting theorem..

Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017
 Course: Analog Electronic lab(17ECL37) Year: 2018-19

CO1	Student will be able to test circuits of rectifiers, clipping circuits, clamping circuits and voltage regulators.
CO2	Student will be able to determine the characteristics of BJT and FET amplifiers and plot its frequency response.
CO3	Student will be able to compute the performance parameters of amplifiers and voltage regulators
CO4	Student will be able to design and test the basic BJT/FET amplifiers, BJT power amplifier and oscillators



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Branch : Electronics & Communication Engineering Semester : 3 Scheme : 2017

Course: DIGITAL ELECTRONICS LAB(17ECL38) Year: 2018-19

CO1	Student will be able to demonstrate the truth table of various expressions and combinational circuits using logic gates
CO2	Student will be able to design and test various combinational circuits such as adders subtractors comparators multiplexers
CO3	Student will be able to realise boolean expression using decoders
CO4	Student will be able to construct and test flip-flops, counters and shift registers
CO5	Student will be able to simulate full adder and up/down counters

Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: Engineering Mathematics-4(17MAT41) Year: 2018-19

CO1	Student will be able to solve first and second order ordinary differential equation arising in flow problems using single step and multistep numerical methods.
CO2	Student will be able to illustrate problems of potential theory, quantum mechanics and heat conduction by employing notions and properties of Bessel's functions and Legendre's polynomials.
CO3	Student will be able to explain the concepts of analytic functions, residues, poles of complex potentials and describe conformal and bilinear transformation arising in field theory and signal processing.
CO4	Student will be able to develop probability distribution of discrete, continuous random variables and joint probability distribution occurring in digital signal processing, information theory and design engineering.
CO5	Student will be able to demonstrate testing of hypothesis of sampling distributions and illustrate examples of Markov chains related to discrete parameter stochastic process

Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: S&S(17EC42) Year: 2018-19

CO1	Student will be able to classify the signals as ct/dt, periodic/a periodic, eve/odd, /power and deterministic/random signals
CO2	Student will be able to determine the linearity and causality, time invariance and stability properties of ct and dt systems
CO3	Student will be able to compute the response of ct and dt lti systems using convolution integral and convolution sum.
CO4	Student will be able to computation of ft & dtft of signals
CO5	Student will be able to compute zt, jzt and transfer functions of complete systems.



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Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: CS(17EC43) Year: 2018-19

CO1	Student will be able to develop mathematical model of electrical & mechanical systems.
CO2	Student will be able to develop block diagram reduction & signal flow graph
CO3	Student will be able to determine of time domain specification of first & second order system.
CO4	Student will be able to determine of root locus & rouith stability.
CO5	Student will be able to compute of nyquist plot, bode plot, state variable technique

Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: PRINCIPLES OF COMMUNICATION(17EC44) Year: 2018-19

CO1	Student will be able to determine the performance of analog modulation schemes in time and frequency domains.
CO2	Student will be able to determine the performance of systems for generation and detection of modulated analog signals.
CO3	Student will be able to characterize analog signals in time domain as random processes and in frequency domain using fourier transforms.
CO4	Student will be able to characterize the influence of channel on analog modulated signals
CO5	Student will be able to understand the characteristics of pulse amplitude modulation, pulse position modulation and pulse code modulation systems.


Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: LINEAR INTEGRATED CIRCUITS(17EC45) Year: 2018-19

CO1	Student will be able to explain opamp circuit and parameters and design of opamp based inverting and noninverting circuits and its application
CO2	Student will be able to test circuits of opamp based voltage/ current sources and sinks , current instrumentation and precision amplifiers
CO3	Student will be able to test circuits of opamp based linear and non linear circuits
CO4	Student will be able to design first and second order low pass, high pass, band stop,band pass and voltage regulators using opamp.
CO5	Student will be able to explain applications of licsin phase detector,vco,dac,adc & timer.



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Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: LINEAR INTEGRATED CIRCUITS(17EC45) Year: 2018-19

CO1	Student will be able to explain opamp circuit and parameters and design of opamp based inverting and noninverting circuits and its application
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CO3	Student will be able to test circuits of opamp based linear and non linear circuits
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CO5	Student will be able to explain applications of licsin phase detector,vco,dac,adc & timer.

Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: MICROPROCESSOR LAB(17ECL47) Year: 2018-19

CO1	Student will be able to write and execute 8086 alp to perform data transfer, arithmetic and logical operations and understand assembly directives,branch,loop and dos 21h interrupts
CO2	Student will be able to write and execute 8086 alp to sort and search elements in a given array
CO3	Student will be able to perform string transfer, reversing, searching a character with string manipulation instructions of 8086
CO4	Student will be able to utilize procedures and macros in programming 8086
CO5	Student will be able to demonstrate the interfacing of 8086 with 7 segment display, matrix keyboard,logical controller, stepper motor,adc,dac and ldr.

Branch : Electronics & Communication Engineering Semester : 4 Scheme : 2017

Course: Linear Integrated circuits(17ECL48) Year: 2018-19

CO1	Student will be able to illustrate the pulse & flat top sampling techniques using basic circuits.
CO2	Student will be able to demonstrate addition integration using linear ics & 555 timer operations to generate signals.
CO3	Student will be able to demonstrate am & fm operations & frequency synthesis
CO4	Student will be able to design & illustrate the operation of instrumentation amplifier ,lpf,hpf,dac & oscillators using linear ic.



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Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017
Course: MANAGEMENT & ENTREPRENEURSHIP DEVELOPMENT(17ES51) Year: 2019-20

CO1	Student will be able to understand the fundamental concepts of management and entrepreneurship.
CO2	Student will be able to select a best entrepreneurship model for the required domain of establishment.
CO3	Student will be able to describe the functions of managers, entrepreneurs and their social responsibilities.
CO4	Student will be able to compare various types of entrepreneurs.
CO5	Student will be able to analyze the institutional support by various state and central government agencies

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017
Course: DSP(17EC52) Year: 2019-20

CO1	Student will be able to determine the response of lti system using time domain and dft techniques.
CO2	Student will be able to compute dft of real and complex discrete time signals.
CO3	Student will be able to computation of dft using fft algorithms and linear filtering approach.
CO4	Student will be able to solve the problems on iir digital filter design
CO5	Student will be able to solve the problems on fir digital filter design

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017
Course: VERILOG HDL(17EC53) Year: 2019-20

CO1	Student will be able to understand design flow and and verify the functionality of digital circuit/system using test benches.
CO2	Student will be able to learn and write the programs more effectively using verilog tasks and directives
CO3	Student will be able to analyse different verilog gate primitives and write program using gate level modeling and ataflow level modeling and perform timing and delay simulation
CO4	Student will be able to understand various constructs and write program using behavioural modeling
CO5	Student will be able to write and analyse simple programs in vhdl in different styles



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Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017

Course: INFORMATION THEORY CODING(17EC54) Year: 2019-20

CO1	Student will be able to analyze dependent & independent source, measure information, entropy, rate of information and order of a source
CO2	Student will be able to understand the information using Shannon encoding, Shannon-Fano, prefix and Huffman encoding algorithms
CO3	Student will be able to study and understand the continuous and discrete
CO4	Student will be able to analyze and derive the codeword comprising of the check bits computed using linear block codes, cyclic codes & convolutional codes

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017

Course: Operating systems(17EC553) Year: 2019-20

CO1	Student will be able to explain the goals, structure, operation and types of operating systems
CO2	Student will be able to apply scheduling techniques to find performance factors.
CO3	Student will be able to explain organization of file systems and I/Os.
CO4	Student will be able to apply suitable techniques for contiguous and non-contiguous memory allocation.
CO5	Student will be able to describe message passing, deadlock detection and prevention methods.

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017

Course: OBJECT ORIENTED PROGRAMMING IN C++(17EC562) Year: 2018-19

CO1	Student will be able to explain the basics of object-oriented programming concepts.
CO2	Student will be able to apply the object initialization & functions and destroy concept using constructors and destructors.
CO3	Student will be able to apply the concept of polymorphism to implement compile-time polymorphism in programs by using overloading methods and operators.
CO4	Student will be able to use the concept of inheritance to reduce the length of code and evaluate the usefulness.
CO5	Student will be able to apply the concept of run-time polymorphism by using virtual functions, overriding functions and abstract class in programs and use I/O operations and file streams in programs.



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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG

COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017

Course: Digital Signal Processing(17ECL57) Year: 2019-20

CO1	Student will be able to understand the concept of analog to digital conversion of signal & frequency domain sampling of signals.
CO2	Student will be able to do the modelling of discrete time signals & systems & verifications of its properties & results.
CO3	Student will be able to do the implementation of discrete computation using dsp processor & verify the results.
CO4	Student will be able to realize digital filters using simulation tool & dsp processor & verify the frequency & phase response.

Branch : Electronics & Communication Engineering Semester : 5 Scheme : 2017

Course: VERILOG HDL LAB(17ec158) Year: 2019-20

CO1	Student will be able to write the verilog/vhdl programs to simulate combinational circuits in dataflow, behavioral and gate level abstractions
CO2	Student will be able to describe sequential circuits like flip flops and counters in behavioral description and obtain simulation waveforms
CO3	Student will be able to synthesize combinational and sequential circuits on programmable ics and test the hardware.
CO4	Student will be able to interface the hardware to the programmable chips and obtain the required output.

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: DIGITAL COMMUNICATION(17EC61) Year: 2019-20

CO1	Student will be able to associate and apply the concepts of bandpass sampling to well specified signals and channels
CO2	Student will be able to analyse and compute performance parameters and transfers rates of low pass and bandpass symbol under ideal and corrupted non band limited channels that implement arithmetic operations.
CO3	Student will be able to test and validate symbol processing and performance parameters at the receiver under ideal and corrupted bandlimited channels
CO4	Student will be able to demonstrate by simulation and emulation that bandpass signals subjected to corrupted and distorted symbols in a bandlimited channels, can be demodulated and estimated at receiver to meet specified performance criteria.



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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: ARM CONTROLLER AND EMBEDDED SYSTEM(17EC62) Year: 2019-20

CO1	Student will be able to describe the architectural features and instructions of 32 bit microcontroller arm cortex m3
CO2	Student will be able to apply the knowledge gained for programming arm cortex m3 for different applications.
CO3	Student will be able to understand the basic hardware components and their selection method based on the characteristics and various attributes of embedded system .
CO4	Student will be able to develop the hardware /software co-design and firmware design approaches
CO5	Student will be able to explain the need of real time operating system for embedded system applications

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: VLSI DESIGN(17EC63) Year: 2019-20

CO1	Student will be able to use vlsi design methodologies to understand and design complex digital system.
CO2	Student will be able to create circuits that realizes specified digital functions.
CO3	Student will be able to identify logic and technology specific parameter to control the functionality, timing, power, and
CO4	Student will be able to apply maxwell's equation for time varying fields, em waves in free space and conductors

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: COMPUTER COMMUNICATION NETWORKS(17EC64) Year: 2019-20

CO1	Student will be able to identify the protocols and services of data link layer
CO2	Student will be able to identify the protocols and functions associated with the transport layer services
CO3	Student will be able to describe the layering architecture of computer networks and distinguish between the osi reference model and tcp/ip protocol suite
CO4	Student will be able to distinguish the basic network configurations and standards associated with each network
CO5	Student will be able to construct a network model and determine the routing of packets using different routing algorithms.



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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: DIGITAL SWITCHING SYTEM(17EC654) Year: 2019-20

CO1	Student will be able to describe the electromechanical switching systems and its comparison with the digital switching.
CO2	Student will be able to determine the telecommunication traffic and its measurements.
CO3	Student will be able to define the technologies associated with the data switching operations.
CO4	Student will be able to describe the software aspects of switching systems and its maintenance.
CO5	Student will be able to understand the technologies associated with the data switching operations.

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: DIGITAL SYSTEM DESIGN USING VERILOG(17EC663) Year: 2019-20

CO1	Student will be able to construct the combinational circuits, using discrete gates and programmable logic devices.
CO2	Student will be able to describe how arithmetic operations can be performed for each kind of code, and also combinational circuits that implement arithmetic operations.
CO3	Student will be able to design a semiconductor memory for specific chip design
CO4	Student will be able to design embedded systems using small microcontrollers, larger cpus/ dsps, or hard or soft prosseser cores
CO5	Student will be able to synthesize different types of i/o controllers that are used in embedded system.

Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: EMBEDDED CONTROLLER LAB(17ECL67) Year: 2019-20

CO1	Student will be able to understand the instruction set of 32 bit microcontroller arm cortex m3, and the software tool required for programming in assembly and c language.
CO2	Student will be able to develop assembly language programs using arm cortex m3 for different applications.
CO3	Student will be able to interface external devices and i/o with arm cortex m3.
CO4	Student will be able to develop c language programs and library functions for embedded system applications



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Branch : Electronics & Communication Engineering Semester : 6 Scheme : 2017

Course: DIGITAL COMMUNICATION LAB(17ECL68) Year: 2019-20

CO1	Student will be able to use the network simulator for learning and practice of networking algorithms.
CO2	Student will be able to illustrate the operations of network protocols and algorithms using c programming.
CO3	Student will be able to simulate the network with different configurations to measure the performance
CO4	Student will be able to implement the data link and routing protocols using c programming.

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: MICROWAVE AND ANTENNAS(17EC71) Year: 2020-21

CO1	Student will be able to describe the use and advantages of microwave transmission.
CO2	Student will be able to analyse various parameters related to microwave transmission line and waveguide.
CO3	Student will be able to identify microwave device for several application.
CO4	Student will be able to analyse various antenna parameters necessary for building an rf system.
CO5	Student will be able to recommend various antenna configurations according to the applications.

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: DIGITAL IMAGE PROCESSING(17EC72) Year: 2020-21

CO1	Student will be able to understand image formation and the role human visual system plays in perception of gray and color image data.
CO2	Student will be able to apply image processing techniques in both the spatial and frequency (fourier) domains.
CO3	Student will be able to design image analysis techniques in the form of image segmentation and to evaluate the methodologies for
CO4	Student will be able to conduct independent study and analysis of image enhancement techniques.



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Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: POWER ELECTRONICS(17EC73) Year: 2020-21

CO1	Student will be able to describe the characteristics of different power devices and identify the various
CO2	Student will be able to illustrate the working of power circuit as dc-dc converter
CO3	Student will be able to illustrate the operation of inverter circuit and static switch
CO4	Student will be able to determine the output response of a thyristor circuit with various triggering options.
CO5	Student will be able to determine the response of controlled rectifier with resistive and inductive loads

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: CRYPTOGRAPHY(17EC744) Year: 2020-21

CO1	Student will be able to enable students to understand the basics of symmetric key and public key cryptography.
CO2	Student will be able to equip students with some basic mathematical concepts and pseudorandom number generators required for cryptography.
CO3	Student will be able to enable students to authenticate and protect the encrypted data.
CO4	Student will be able to enrich knowledge about email, ip and web security.

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: IOT & WSN(17EC752) Year: 2020-21

CO1	Student will be able to describe the osi model for the iot/m2m systems.
CO2	Student will be able to understand the architecture and design principles for iot.
CO3	Student will be able to learn the programming for iot applications.
CO4	Student will be able to identify the communication protocols which best suits the wsns.




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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: ADVANCED COMMUNICATION LAB(17ECL76) Year: 2020-21

CO1	Student will be able to determine the characteristics and response of microwave devices and optical waveguide
CO2	Student will be able to determine the characteristics of microstrip antennas and devices and compute the parameters associated with it.
CO3	Student will be able to simulate the digital modulation schemes with the display of waveforms and computation of performance parameters
CO4	Student will be able to design and test the digital modulation circuits/systems and display the waveforms

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: VLSI LAB(17ECL77) Year: 2020-21

CO1	Student will be able to write test bench to simulate various digital circuits.
CO2	Student will be able to determine the characteristics of microstrip antennas and devices and compute the parameters associated with it.
CO3	Student will be able to simulate the digital modulation schemes with the display of waveforms and computation of performance parameters
CO4	Student will be able to use basic amplifiers and further design higher level circuits like operational amplifier and analog/digital converters to meet desired parameters.
CO5	Student will be able to use transistors to design gates and further using gates realize shift registers and

Branch : Electronics & Communication Engineering Semester : 7 Scheme : 2017

Course: Project Work Phase-I + Project work Seminar(17ECP78) Year: 2020-21

CO1	Student will be able to identify an engineering problem, devise a means of solving and exhibit the ability to execute the solution
CO2	Student will be able to demonstrate knowledge of professional and ethical responsibilities.
CO3	Student will be able to show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues
CO4	Student will be able to communicate effectively in both verbal and written form
CO5	Student will be able to develop confidence for self-education and ability for lifelong learning



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Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017

Course: WIRELESS COMMUNICATION AND 4G BB(17EC81) Year: 2020-21

CO1	Student will be able to understand the system architecture and the functional standard specified in lte 4g.
CO2	Student will be able to analyze the role of lte radio interface protocols and eps data convergence protocols to set up, reconfigure and release data and voice from users.
CO3	Student will be able to demonstrate the utran and eps handling processes from set up to release including mobility management for a variety of data call scenarios.
CO4	Student will be able to test and evaluate the performance of resource management and packet data processing and transport algorithms.

Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017

Course: FIBER OPTICS AND NETWORKS(17EC82) Year: 2020-21

CO1	Student will be able to classify and working of optical fiber with different modes of signal propagation.
CO2	Student will be able to describe the transmission characteristics and losses in optical fiber communication.
CO3	Student will be able to describe the construction and working principles of optical connector,multiplexer,amplifier.
CO4	Student will be able to describe the construction features and the characteristics of optical source and detector.
CO5	Student will be able to illustrate the networking aspects of optical fiber and describe various standards associated with it.

Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017

Course: MACHINE LEARNING(17EC834) Year: 2020-21

CO1	Student will be able to understand the core concepts of machine learning.
CO2	Student will be able to appreciate the underlying mathematical relationships within and across machine learning algorithms.
CO3	Student will be able to explain paradigms of supervised and un-supervised learning
CO4	Student will be able to recognize a real world problem and apply the learned techniques of machine learning to solve the problem



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CO1	Student will be able to understand the core concepts of machine learning.
CO2	Student will be able to appreciate the underlying mathematical relationships within and across machine learning algorithms.
CO3	Student will be able to explain paradigms of supervised and un-supervised learning
CO4	Student will be able to recognize a real world problem and apply the learned techniques of machine learning to solve the problem

Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017

Course: Internship/Professional Practice(17EC84) Year: 2020-21

CO1	Student will be able to gain hands-on professional work experience prior to their graduation.
CO2	Student will be able to learn, understand and sharpen the real-time technical, managerial and life skills required at the job.
CO3	Student will be able to contextualise the value of industry and professional networks and their importance to independent practice, lifelong learning and career progression
CO4	Student will be able to demonstrate employability skills and attributes, linking them to industry expectations.
CO5	Student will be able to expose engineer's responsibilities and ethics.

Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017

Course: Project Work(17ECP85) Year: 2020-21

CO1	Student will be able to identify an engineering problem, devise a means of solving and exhibit the ability to execute the solution
CO2	Student will be able to demonstrate knowledge of professional and ethical responsibilities.
CO3	Student will be able to show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues
CO4	Student will be able to communicate effectively in both verbal and written form
CO5	Student will be able to develop confidence for self-education and ability for lifelong learning



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COURSE OUTCOMES

Branch : Electronics & Communication Engineering Semester : 8 Scheme : 2017
Course: SEMINAR(17ECS86) Year: 2020-21

CO1	Student will be able to develop interest towards research oriented field with ability to search the literature and brief report preparation. (literature work & report)
CO2	Student will be able to develop the skills, competencies and points of view needed by professionals in the field most closely related to the course (topic coverage)
CO3	Student will be able to discuss and critical thinking about topics of current intellectual practice (topic selection)
CO4	Student will be able to improve the technical skills and awareness about the industrial environment (questionnaire)
CO5	Student will be able to develop of presentation skills (body language and presentation skill)



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