Department of Electronic & Communication Engineering

Course outcomes of all courses

COURSE NAME	COMMUNICATIVE ENGLISH			COURSE CODE	C101
UNIVERSITY CODE	R201106	YEAR/SEM	I/I	REGULATION	R20
CO.NO	Course Outcomes				
C101.1	The student will be able Facilitate effective listening skills for better comprehension of academic lectures and English spoken by native speakers				
C101.2	Focus on appropriate reading strategies for comprehension of various academic texts and authentic materials				
C101.3	Help improve speaking skills through participation in activities such as role plays, discussions and structured talks/oral presentations				
C101.4	Impart effective strategies for good writing and demonstrate the same in summarizing, writing well organized essays, record and report useful information				
C101.5	Provide knowledge of grammatical structures and vocabulary and encourage their appropriate use in speech and writing				

COURSE NAME	Mathematics-1			COURSE CODE	C102
UNIVERSITY CODE	R201101	YEAR/SEM	I/I	REGULATION	R20
CO.NO	Course Outcomes				
C102.1	To Utilize mean value theorems to real life problems				
C102.2	To solve the differential equations related to various engineering fields				
C102.3	To solve higher order DE's and apply them for solving some real world problems				
C102.4	To Find the extreme values of functions of two variables with/ without constraints				
C102.5	To Apply double integration techniques in evaluating areas bounded by region				

COURSE NAME	APPLIED CHEMISTRY			COURSE CODE	C103
UNIVERSITY CODE	R201115	YEAR/SEM	I/I	REGULATION	R20
CO.NO	Course Outcomes				
C103.1	The students will be able to Analyze the different types of composite plastic materials and interpret the mechanism of conduction in conducting polymers.				
C103.2	The students will be able to utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering products and categorize the reasons for corrosion and study methods to control corrosion.				
C103.3	The students will be able to synthesize nanomaterials for modern advances of engineering technology.Summarize the preparation of semiconductors; analyze the applications of liquid crystals and superconductors.				
C103.4	The students will be able to Analyze the principles of different analytical instruments and their applicationsDesign models for energy by different natural sources.				
C103.5	The students will be able to Obtain the knowledge of computational chemistry and molecular machines				

COURSE NAME	PROGRAMMING FOR PROBLEM SOLVING USING C			COURSE CODE	C104
UNIVERSITY CODE	R201110	YEAR/SEM	I/I	REGULATION	R20
CO.NO	Course Outcomes				
C104.1	To learn about the computer systems, computing environments, developing of a computer program and Structure of a C Program				
C104.2	To gain knowledge of the operators, selection, control statements and repetition in C				
C104.3	To learn about the design concepts of arrays, strings, enumerated structure and union types. To learn about their usage.				

C104.4	To assimilate about pointers, dynamic memory allocation and know the significance of Preprocessor						
C104.5	To assimilate about File I/O and significance of functions						
COURSE NAME		ED			COURSE CODE	C105	
UNIVERSITY CODE		R201104	YEAR/SEM	I/I	REGULATION		R20
CO.NO	Course Outcomes						
C105.1	Ability to gain the basic knowledge in Engineering drawing and to get more knowledge in polygons, scales and curves.						
C105.2	Able to draw orthographic projection of points, lines						
C105.3	To get knowledge about planes and how to draft planes inclined to both the planes (2D Views).						
C105.4	Ability to get knowledge about different types of solids and their Projections (2D Views).						
C105.5	The student will be able to represent and convert the isometric view to orthographic view and vice versa (2D & 3D views).						
COURSE NAME		ENGLISH COMMUNICATION SKILLS LAB			COURSE CODE	C106	
UNIVERSITY CODE		R201102	YEAR/SEM	I/I	REGULATION		R20
CO.NO	Course Outcomes						
C106.1	The student shall learn about the one minute speaking activity.						
C106.2	The student shall gain the knowledge hypothetical situations in different ways.						
C106.3	The student shall understand the rudiments of telephone etiquette.						
C106.4	The student will comprehend the need for oral presentations.						
C106.5	The student shall understand the rules of group discussion.						
COURSE NAME		Applied Chemistry Lab			COURSE CODE	C107	
UNIVERSITY CODE		R201116	YEAR/SEM	I/I	REGULATION		R20
CO.NO	Course Outcomes						
C107.1	Gain the knowledge of volumetric analysis to determine the strength of given sample solution						
C107.2	Able to know the redox titrations with different indicators.						
C107.3	Gain the knowledge, how to determine the strength of Metal ions like Ca, Zn, Mg, etc by EDTA titrations.						
C107.4	Gain the knowledge of acidic and basic properties and it useful to determine the nature and strength of the sample by PH metric method.						
C107.5	Gain the knowledge of ionization& potential which apply to determine the strength of strong and weak acids & bases.						
COURSE NAME		PPSC LAB			COURSE CODE	C108	
UNIVERSITY CODE		R201113	YEAR/SEM	I/I	REGULATION		R20
CO.NO	Course Outcomes						
C108.1	Acquires skills to write, compile and debug programs in C language						
C108.2	Be able to use different operators, data types and write programs that use two-way/ multi-way selection.						
C108.3	Acquire knowledge to select the best loop construct for a given problem.						
C108.4	Design and implements programs to analyze the different pointer applications						
C108.5	Design and implements C programs with functions, File I/O operations						
COURSE NAME		M-II			COURSE CODE	C109	
UNIVERSITY CODE		R201201	YEAR/SEM	I/II	REGULATION		R20
CO.NO	Course Outcomes						
C109.1	To Solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel						

C109.2	To Develop the use of matrix algebra techniques that is needed by engineers for practical applications
C109.3	To Evaluate approximating the roots of polynomial and transcendental equations by different algorithms
C109.4	To Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals
C109.5	To Apply different algorithms for approximating the solutions of ordinary differential equations to its analytical computations

COURSE NAME	ADVANCED PHYSICS				COURSE CODE	C110	
UNIVERSITY CODE	R201207	YEAR/SEM	I/II		REGULATION		R20

CO.NO	Course Outcomes
C110.1	Understand the Properties and Applications of Interference, Diffraction and Polarization
C110.2	Learn the principles and production of LASER beams and transfer of information by optical fibre communication systems.
C110.3	Understand the basic principles of Quantum mechanics and free electron theory apply these to the complex phenomena of matter radiation interaction
C110.4	Learn dielectric, magnetic properties of the materials and apply them in material technology.
C110.5	Describe the properties of materials and application of semiconductor electronics and superconductors.

COURSE NAME	OOP JAVA				COURSE CODE	C111	
UNIVERSITY CODE	R201212	YEAR/SEM	I/II		REGULATION		R20

CO.NO	Course Outcomes
C111.1	Show competence in the use of the Java programming language in the development of small to medium-sized application programs that demonstrate professionally acceptable coding and performance standard
C111.2	Illustrate the basic principles of the object-oriented programming
C111.3	Demonstrate an introductory understanding of graphical user interfaces, multithreaded programming, and event-driven programming.
C111.4	Demonstrate professionally acceptable coding and performance standard
C111.5	Illustratemultithreaded programming

COURSE NAME	NETWORK ANALYSIS				COURSE CODE	C112	
UNIVERSITY CODE	R201213	YEAR/SEM	I/II		REGULATION		R20

CO.NO	Course Outcomes
C112.1	At Completion of this topic students should be able to understand how to simplify the D.C and A.C circuits and will be able to analyze the fundamental of network topology
C112.2	At Completion of this topic students should be able to know the behavior of the steady states and transients states in RLC circuits
C112.3	At Completion of this topic students should be able to understand concept of resonance and will be able to analyze the coupled circuits
C112.4	At Completion of this topic students should be able to know the application of theorems in electrical circuits and its basics
C112.5	At Completion of this topic students should be able to understand the two port network parameters basics and its application.

COURSE NAME	BEEE				COURSE CODE	C113	
UNIVERSITY CODE	R201214	YEAR/SEM	I/II		REGULATION		R20

CO.NO	Course Outcomes
C113.1	After completion of this unit the students will gain the knowledge on able to explain the operation of DC generator and analyze the characteristics of DC generator. And explain the principle of operation of DC motor and analyze their characteristics. Acquire the skills to analyze the starting and speed control methods of DC motors.
C113.2	After completion of this unit the students will gain the knowledge able to explain the operation of single phase transformers and testing of trans formers.
C113.3	After completion of this topic the students will gain the knowledge able to explain the operation of Synchronous Machines

C113.4	After completion of this unit the students will gain knowledge ability to analyze the performance and speed–torque characteristics of a 3-phase induction motor and understand starting methods of 3-phase induction motor						
C113.5	After completion of this unit the students will gain the knowledge in Capability to understand the operation of various special machines						
COURSE NAME	Electronic workshop Lab				COURSE CODE	C114	
UNIVERSITY CODE	R201237	YEAR/SEM	I/II		REGULATION		R20
CO.NO	Course Outcomes						
C114.1	Identify the different types of Active and Passive components						
C114.2	Test the given Active and Passive components (Diode,Transistor, FET, SCR, Resistor,Capacitor etc) and find the values for the given components theatrically and Practically.						
C114.3	To Study the types of power supply and the block diagram of Regulated Power supplies, Function Generator, CRO						
C114.4	Identify the given circuit and Soldering the given Circuit using Tools kit including soldering iron, Insulated nose player ,Insulated cutting player ,Screw driver kit Electrical tester , Soldering iron, Lead, Flex						
C114.5	Identify the given circuit and Soldering the given Circuit using Tools kit including soldering iron, Insulated nose player ,Insulated cutting player ,Screw driver kit Electrical tester , Soldering iron, Lead, Flex						
COURSE NAME	BEEE LAB				COURSE CODE	C115	
UNIVERSITY CODE	R201238	YEAR/SEM	I/II		REGULATION		R20
CO.NO	Course Outcomes						
C115.1	After completion of this unit the students will gain the knowledge on able to explain the operation of DC generator and analyze the characteristics of DC generator. And explain the principle of operation of DC motor and analyze their characteristics. Acquire the skills to analyze the starting and speed control methods of DC motors.						
C115.2	After completion of this unit the students will gain the knowledge able to explain the operation of single phase transformers and testing of trans formers.						
C115.3	After completion of this topic the students will gain the knowledge able to explain the operation of Synchronous Machines						
C115.4	After completion of this unit the students will gain knowledge ability to analyze the performance and speed–torque characteristics of a 3-phase induction motor and understand starting methods of 3-phase induction motor						
C115.5	After completion of this unit the students will gain the knowledge in Capability to understand the operation of various special machines						
COURSE NAME	A.P LAB				COURSE CODE	C116	
UNIVERSITY CODE	R201233	YEAR/SEM	I/II		REGULATION		R20
CO.NO	Course Outcomes						
C116.1	Gain the knowledge about phenomenon of interference and diffraction to determine the wavelength of monochromatic light source, thickness of the thin objects and radius of curvature. (Newton's rings, Wedge method, Planck's Constant)						
C116.2	Gain the knowledge about Dispersion power of diffraction rating.(Dispersion power of diffractiong rating)						
C116.3	Able to determine the physical quantities like frequency, velocity of sound in air and to verify the transverse laws of stretched string using the phenomenon of resonance. (Melde's experiment.)						
C116.4	Able to study the variation of magnetic field . (Stewart and Gee'sapparatus, B-Hcurve)						
C116.5	Able to understand the Dielectric constant of materials.(Charging&Discharging)						
COURSE NAME	ENVIRONMENTAL STUDIES				COURSE CODE	C117	
UNIVERSITY CODE	R201230	YEAR/SEM	I/II		REGULATION		R20

CO.NO	Course Outcomes
C117.1	Gain knowledge about environment and ecosystem.
C117.2	Students will learn about natural resource, its importance and environmental impacts of human activities on natural resource.
C117.3	Gain knowledge about the conservation of biodiversity and its importance.
C117.4	Aware students about problems of environmental pollution, its impact on human and ecosystem and control measures.
C117.5	Students will learn about increase in population growth and its impact on environment

COURSE NAME	Electronic Devices and Circuits			COURSE CODE	C201		
UNIVERSITY CODE	R2021041	YEAR/SEM	II/I	REGULATION		R20	

CO.NO	Course Outcomes
C201.1	Ability to analyze PN junctions in semiconductor devices under various conditions.
C201.2	Ability to design and analyze simple rectifiers and voltage regulators using diodes.
C201.3	Ability to develop the behavior of special purpose diodes.
C201.4	Ability to Create simple BJT and MOSFET circuits.
C201.5	Evaluate the operation of FET, other transistors and their applications.

COURSE NAME	Switching Theory and Logic Design			COURSE CODE	C202		
UNIVERSITY CODE	R2021042	YEAR/SEM	II/I	REGULATION		R20	

CO.NO	Course Outcomes
C202.1	Apply the numeric information in different forms and interpret different logic gates.
C202.2	Analyze and Simplify" the given switching functions, we will minimize them into SoP and PoS forms using K-Map and Tabular Method.
C202.3	Analyze and Design various combinational circuits like Encoders, Decoders, Multiplexers, De-multiplexers, and Arithmetic Circuits.
C202.4	Design combinational logic circuits using different types of Programmable Logic Designs.
C202.5	Design and Implement various sequential circuits like flip flops, registers.

COURSE NAME	SIGNAL AND SYSTEM			COURSE CODE	C203		
UNIVERSITY CODE	R2021043	YEAR/SEM	II/I	REGULATION		R20	

CO.NO	Course Outcomes
C203.1	To classify the signals systems and principles of vector spaces, Concept of orthogonality
C203.2	Analyze the Continuous timing signals using Fourier Series, Fourier Transform
C203.3	Justify the relationship among the various representations of LTI Systems
C203.4	Apply Sampling theorem to convert continuous signals to discrete signals and correlations and convolution
C203.5	Analyze the contimuous time signals by using Laplace transform, Descrete time signals by Z transform

COURSE NAME	Mathematics-III (Transforms and Vector Calculus)			COURSE CODE	C204		
UNIVERSITY CODE	R2021011	YEAR/SEM	II/I	REGULATION		R20	

CO.NO	Course Outcomes
C204.1	Interpret the physical meaning of different operators such as gradient, curland divergence
C204.2	Estimate the work done against a field, circulation and fluxusing vector calculus
C204.3	Apply the Laplace transform for solving differential equations
C204.4	Find or compute the Fourier series of periodic signals
C204.5	Knowledgeable to apply integral expressions for the forwards and inverse Fourier transform to arrange of non-periodic wave forms

COURSE NAME	**Random Variables and Stochastic Processes**			**COURSE CODE**	**C205**		
UNIVERSITY CODE	**R2021044**	**YEAR/SEM**	**II/I**	**REGULATION**		**R20**	
CO.NO	**Course Outcomes**						
C205.1	**Mathematically model the random phenomena and solve simple probabilistic problems.**						
C205.2	**Identify different types of random variables and compute statistical averages of single random variable.**						
C205.3	**Compute statistical averages of multiple random variables.**						
C205.4	**Characterize the random processes in the time domain,Frequency domain**						
C205.5	**Analyze the LTI systems with random inputs and apply these techniques to analyze the systems in the presence of different types of noise.**						
COURSE NAME	**Object Oriented Programming Through JAVAlab**			**COURSE CODE**	**C206**		
UNIVERSITY CODE	**R2021045**	**YEAR/SEM**	**II/I**	**REGULATION**		**R20**	
CO.NO	**Course Outcomes**						
C206.1	**Understand the basics of object-oriented programming using C++ and JAVA.**						
C206.2	**Apply the concept of classes, Java, JDK Components and develop Simple Java Programs.**						
C206.3	**Develop Simple Java Programs using inheritance and Exception handling.**						
C206.4	**Develop Multi-threading Programming and Interfaces.**						
C206.5	**Develop GUI applications using Applet classes, Swing components and Event handling programs.**						
COURSE NAME	**Electronic Devices and Circuits -Lab**			**COURSE CODE**	**C207**		
UNIVERSITY CODE	**R2021046**	**YEAR/SEM**	**II/I**	**REGULATION**		**R20**	
CO.NO	**Course Outcomes**						
C207.1	**Understand the diode and transistor characteristics**						
C207.2	**Analyze the rectifier circuits using diodes and implement them using hardware.**						
C207.3	**Design the biasing circuits like self-biasing**						
C207.4	**Design various amplifiers like CE, CC, common source amplifiers and implement**						
C207.5	**Analyze the concepts of SCR and observe its characteristics.**						
COURSE NAME	**Switching Theory and Logic Design–Lab**			**COURSE CODE**	**C208**		
UNIVERSITY CODE	**R2021047**	**YEAR/SEM**	**II/I**	**REGULATION**		**R20**	
CO.NO	**Course Outcomes**						
C208.1	**To verify about basic of gate**						
C208.2	**TO UNDERSTAND ANALYZE AND DESIGN THE BASIC DIGITAL CIRCUITS AND ANY DIGITAL DESIGN IN REAL TIME APPLICATIONS**						
C208.3	**CONSTRUCT BASIC COMBINATIONAL CIRCUITS AND VERIFY THEIR FUNCTIONALITIES**						
C208.4	**APPLY THE DESIGN PROCEDURES TO DESIGN BASIC SEQUENTIAL CIRCUITS**						
C208.5	**ABILITY TO MEASURE AND RECORD THE EXPERIMENTAL DATA,ANALYZE THE RESULTS ,AND PREPARE A LABORATORY REPORT**						
COURSE NAME	**Python Programming**			**COURSE CODE**	**C209**		

UNIVERSITY CODE	R2021048	YEAR/SEM	II/I	REGULATION		R20
CO.NO	Course Outcomes					
C209.1	Develop essential programming skills in computer programming concepts like data types, containers					
C209.2	Apply the basics of programming in the Python language					
C209.3	Solve coding tasks related conditional execution, loops					
C209.4	Solve coding tasks related to the fundamental notions and techniques used in object-oriented programming					
C209.5	Develop GUI based applications and program interactive stories and games with scratch					
COURSE NAME	Community Service Project			COURSE CODE	C210	
UNIVERSITY CODE	R2031019	YEAR/SEM	II/I	REGULATION		R20
CO.NO	Course Outcomes					
C210.1	Analyze the issues that confront the vulnerable/marginalized section of society (village/community/habitation) and identify problem (s), objectives, requirements, and scope with proper planning in compilation of community service project.					
C210.2	Apply the engineering knowledge in project design and use methods to carry out the project work by justifying ethical principles.					
C210.3	Create an economic ecosystem using modern tools to meet societal needs and examine the results obtained to derive conclusions.					
C210.4	Evaluate the performance of the project task as an individual and / or team members based on their effective communication, presentation, and report to manage the task in time.					
C210.5	lifelong learning in the broadest context of technological change.					
COURSE NAME	Electronic Circuit Analysis			COURSE CODE	C211	
UNIVERSITY CODE	R2022041	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes					
C211.1	Analyze small signal high frequency transistor amplifier using BJT and FET.					
C211.2	Design and analysis of multistage amplifiers using BJT and FET and Differential amplifier using BJT.					
C211.3	Analyze and compare the negative feedback amplifiers using BJT					
C211.4	Design the RC and LC oscillators to the desired frequency with amplitude and frequency stability concept.					
C211.5	Analyze and compare the power and tuned amplifiers.					
COURSE NAME	Digital IC Design			COURSE CODE	C212	
UNIVERSITY CODE	R2011048	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes					
C212.1	Model complex digital systems at several levels of abstractions, behavioural, structural, simulation, synthesis and rapid system prototyping.					
C212.2	Analyze and design basic digital circuits with combinatorial logic circuits using VHDL.					
C212.3	Analyze and design basic digital circuits with sequential logic circuits and with Finite State Machines using VHDL.					
C212.4	Examine the static and dynamic characteristics of various combinational MOS logic circuits.					
C212.5	Examine the electrical behaviour of the simple bi-stable element, and its applications.					
COURSE NAME	Analog Communication			COURSE CODE	C213	
UNIVERSITY CODE	R2022043	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes					
C213.1	Differentiate various Analog modulation and demodulation schemes and their spectral characteristics					
C213.2	Analyze noise characteristics of various analog modulation methods					
C213.3	Analyze various functional blocks of radio transmitters and receivers					
C213.4	Design simple analog systems for various modulation techniques					

C213.5	Analyze noise characteristics and pulse modulation techniques						
COURSE NAME		Linear Control System			COURSE CODE	C214	
UNIVERSITY CODE		R2022044	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C214.1	Learn & understand the concepts of system, control systems: open loop and closed loop control systems and their differences. Different exampltes of control systems, feed- Back characteristics						
C214.2	Equiped with the concepts of Transfer function of DC servo motor - AC servo motor- synchro-transmitter and Receiver, Block diagram representations of systems considering electrical systems as examples and representation by signal flow graph-Reduction using mason's gain formula						
C214.3	Understand the concept of stability, Routh's stability criterion,qualitive stability and conditional stability and the root locus concept- construction of root locisffects of adding poles and zeros to G(s) H(s) on the root loci						
C214.4	Understand the concept correlation between time and frequency response, polar plots,Bodeplots,Nyquist Stability Criterion						
C214.5	Equip with the concepts of compensation techniques -Lag,lead, lead-lag controllers design in frequency domain,PID Controllers. State Space analysis of continous systems concepts of state, state varaiables and state model, state transition matrix and it's properties and concepts of controllability and observability						
COURSE NAME		Management and Organizational Behavior			COURSE CODE	C215	
UNIVERSITY CODE		R2022045	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C215.1	Theories Of Management Taylor's Theory, Fayols 14 principles of Management						
C215.2	Human Resource Management Recruitment , Selection and Trainining and Development						
C215.3	Strategic Management and corporate planning process						
C215.4	Perception and Theories of Motivation						
C215.5	Types of Groups and Consequences of Coflicts and Types of Organisations						
COURSE NAME		Electronic Circuit Analysis Lab			COURSE CODE	C216	
UNIVERSITY CODE		R2022046	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C216.1	Implement different types of amplifiers circuits and analyze its gain characteristics.						
C216.2	Analyze the frequency response characteristics of Feedback amplifiers						
C216.3	Design different types of Oscillator circuits and obtain the frequency of oscillation for the given circuit.						
C216.4	Design various power amplifier circuits using power transistors and determine the Efficiency with different loads.						
C216.5	Design an amplifier circuit for specific bandwidth based on their tuned circuit characteristics.						
COURSE NAME		Analog Communication Lab			COURSE CODE	C217	
UNIVERSITY CODE		R2022047	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C217.1	Able to differentiate various analog modulation and demodulation schemes and their spectral characteristics						
C217.2	Able to differentiate various DSBSC techniques understand the frequency modulation ,premphasis and De- Emphasis echniques						
C217.3	Able to understand Angle modulation						
C217.4	Analyze various functional blocks of radio transmitters and receivers						

C217.5	Design simple analog systems for various modulation techniques.						
COURSE NAME		Digital IC Design Lab			COURSE CODE	C218	
UNIVERSITY CODE		R2022048	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C218.1	TO LEARN ABOUT BASIC OF GATES						
C218.2	TO UNDERSTAND ANALYZE AND DESIGN THE BASIC DIGITAL CIRCUITS AND ANY DIGITAL DESIGN IN REAL TIME APPLICATIONS						
C218.3	CONSTRUCT BASIC COMBINATIONAL CIRCUITS AND VERIFY THEIR FUNCTIONALITIES						
C218.4	APPLY THE DESIGN PROCEDURES TO DESIGN BASIC SEQUENTIAL CIRCUITS						
C218.5	ABILITY TO MEASURE AND RECORD THE EXPERIMENTAL DATA,ANALYZE THE RESULTS ,AND PREPARE A LABORATORY REPORT						
COURSE NAME		Soft Skills			COURSE CODE	C219	
UNIVERSITY CODE		R2022049	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C219.1	Use language fluently, accurately and appropriately indebates and group discussions						
C219.2	Use their skills of listening comprehension to communicate effectively in incross-cultural						
C219.3	Learn and use new vocabulary						
C219.4	Write resumes, project reports and reviews.						
C219.5	Exhibit interview skills and develop soft skills.						
COURSE NAME		Constitution of India			COURSE CODE	C220	
UNIVERSITY CODE		R202204A	YEAR/SEM	II/II	REGULATION		R20
CO.NO	Course Outcomes						
C220.1	Understand and explain the significance of Indian Constitution as the fundamental law of the land.						
C220.2	Exercise his fundamental rights in proper sense at the same time identifies his responsibilities in national building.						
C220.3	Analyse the Indian political system, the powers and functions of the Union, State and Local Governments in detail						
C220.4	Understand Electoral Process, Emergency provisions and Amendment procedure.						
C220.5	Apply the knowledge in strengthening of the constitutional institutions like CAG,Election Commission and UPSC for sustaining democracy.						
COURSE NAME		Analog ICs and Applications			COURSE CODE	C301	
UNIVERSITY CODE		R2031041	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes						
C301.1	Describe the Op-Amp and internal Circuitry:555 Timer, PLL						
C301.2	To Understand the Concept of different types of modulation techniques						
C301.3	Discuss the Applications of Operational amplifier:555 Timer, PLL						
C301.4	Design the Active filters using Operational amplifier						
C301.5	Use the Op-Amp in A to D and D to A converters						
COURSE NAME		Electromagnetic Waves and Transmission Lines			COURSE CODE	C302	
UNIVERSITY CODE		R2031042	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes						
C302.1	Determine the Transmission line parameters for different lines and estimate their characteristics						
C302.2	Analyze the characteristics of the lines by Short Circuit, Open Circuit lines and different lengths						

C302.3	Analyze the basic laws that governs the Electrostatic fields					
C302.4	Distinguish between the static & Time varying fields for Electrostatic and Magneto static fields of Maxwell's equations & Boundary conditions.					
C302.5	Evaluate The characteristics of Uniform Plane Waves for different media of interest					
COURSE NAME	Digital Communications			COURSE CODE	C303	
UNIVERSITY CODE	R2031043	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes					
C303.1	Analyze the performance of Digital communication system A nd also able to design Digital communication system					
C303.2	To understand the concept of different types of modulation techniques					
C303.3	To understand the concept of Transmission of Data in DC					
C303.4	Analyze various source coding techniques					
C303.5	Compute and Analyze Block codes, cyclic codes and Convolution codes					
COURSE NAME	Electronic measurement and Instrument			COURSE CODE	C304	
UNIVERSITY CODE	R203104B	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes					
C304.1	Understand the instruments for the measurement of basic electrical active parameters with basic meters.					
C304.2	Analyze different instruments like signal generators, function generators and analyzers for appropriate measurement.					
C304.3	Apply different types of Oscilloscopes for appropriate measurement.					
C304.4	Analyze different types of bridge circuits for measurement of basic electrical passive parameters					
C304.5	Apply different types of transducers for appropriate measurement by understanding its working principle					
COURSE NAME	Computer Organization and architecture			COURSE CODE	C305	
UNIVERSITY CODE	R203105K	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes					
C305.1	They can understand the number system and boolean algebra					
C305.2	Understanding of Logic circuits.					
C305.3	Understand the Basic Structure of computer and microoperations.					
C305.4	They can understand Microprogrammed control and porocessing unit.					
C305.5	Understand the concepts of I/O Organization andMemory systems.					
COURSE NAME	Analog ICs and Applications Lab			COURSE CODE	C306	
UNIVERSITY CODE	R2031044	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes					
C306.1	Verify the OP- AMP functions, parameters & Specifications of IC 741, IC 555, IC 565, IC 566 & IC 1496.					
C306.2	Verify the linear and non- linear applications of an OP-AMP like Adder, Subtractor, Comparator, Integrator, and Differentiator etc. using IC 741.					
C306.3	Understand the working of multivibrators and Oscillators using IC 741 and IC 555.					
C306.4	Understand the Active filter applications like LPF, HPF, BPF and BRF using IC 741.					
C306.5	Understand the application specific ICs such as Voltage Controlled Oscillator, PLL and Voltage Regulators					
COURSE NAME	Digital Communications Lab			COURSE CODE	C307	
UNIVERSITY CODE	R2031045	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes					

C307.1	Understand the basics in digital communication system
C307.2	Design and Implement different modulation and demodulation techniques
C307.3	student will able to analyze the DC techniques by using matlab tools
C307.4	student will able to analyze and describe different techniques in modren DC by using source coding
C307.5	Understand the basics in digital communication system

COURSE NAME	Data Structures using Java Lab			COURSE CODE	C308
UNIVERSITY CODE	R2031046	YEAR/SEM	III/I	REGULATION	R20

CO.NO	Course Outcomes
C308.1	Ability to write the java program for data structure concepts
C308.2	Ability to write the java program for Array,Linked List, Double Linkes List Data structure Concepts
C308.3	Ability to write the java program for Stack and Queue Data structure Concepts
C308.4	Ability to write the java program for Preorder,Inorder,Post order Data structure Concepts
C308.5	Ability to write the java program for Binary Search Tree and Sorting Data structure Concepts

COURSE NAME	Indian Traditional Knowledge			COURSE CODE	C309
UNIVERSITY CODE	R2031047	YEAR/SEM	III/I	REGULATION	R20

CO.NO	Course Outcomes
C309.1	Understand the concept of Traditional knowledge and its importance
C309.2	Know the need and importance of protecting traditional knowledge.
C309.3	Know the various enactments related to the protection of traditional knowledge.
C309.4	Understand the concepts of Intellectual property to protect the traditional knowledge.
C309.5	Understand the traditional knowledge in different sectors

COURSE NAME	SUMMER INTERNSHIP			COURSE CODE	C310
UNIVERSITY CODE	R2031048	YEAR/SEM	III/I	REGULATION	R20

CO.NO	Course Outcomes
C310.1	Infer to ‘real’ working environment and understand the Organizational Structure of a company.
C310.2	Develop technical competence, professional attitude, and organization skills.
C310.3	Develop written and oral communication skills with technical report writing.
C310.4	Develop an awareness for the need and applications of standards in the industry.
C310.5	To identify personal strengths and areas for improvement and develop a career plan based on insights gained during the internship.

COURSE NAME	Microprocessor and Microcontrollers			COURSE CODE	C311
UNIVERSITY CODE	R2032041	YEAR/SEM	III/I	REGULATION	R20

CO.NO	Course Outcomes
C311.1	Understand the basic concepts of microprocessor 8086 and its blocks.
C311.2	Develop programs using addressing modes, assembler directives
C311.3	Perform 8086 interfacing with different peripherals
C311.4	Understand the basic concepts of microprocessor 8051 and its blocks. Develop programs for different applications.
C311.5	Understand ARM Processors basic concepts and small programming of ARM cortext –M3

COURSE NAME	VLSI Design	COURSE CODE	C312

UNIVERSITY CODE	**R2032042**	**YEAR/SEM**	**III/I**	**REGULATION**		**R20**
CO.NO	**Course Outcomes**					
C312.1	**Demonstrate a clear understanding of CMOS fabrication flow and technology scaling**					
C312.2	**Apply the design Rules and draw layout of a given logic circuit.**					
C312.3	**Design MOSFET based logic circuit and Design basic building blocks in Analog IC design**					
C312.4	**Analyze the behaviour of amplifier circuits with various loads and Design various CMOS logic circuits for design of Combinational logic circuits.**					
C312.5	**Design amplifier circuits using MOS transistors and Design MOSFET based logic circuits using various logic styles like static and dynamic CMOS**					
COURSE NAME	**Digital Signal Processing**			**COURSE CODE**		**C313**
UNIVERSITY CODE	**R2032043**	**YEAR/SEM**	**III/I**	**REGULATION**		**R20**
CO.NO	**Course Outcomes**					
C313.1	**Apply the difference equations concept in the analysis of Discrete time systems.**					
C313.2	**Apply the FFT algorithm for solving the DFT of a given signal.**					
C313.3	**Design a Digital filter (FIR&IIR) from the given specifications.**					
C313.4	**Realize the FIR and IIR structures from the designed digital filter**					
C313.5	**Apply the signal processing concepts on DSP Processor.**					
COURSE NAME	**Microwave Engineering**			**COURSE CODE**		**C314**
UNIVERSITY CODE	**R203204A**	**YEAR/SEM**	**III/I**	**REGULATION**		**R20**
CO.NO	**Course Outcomes**					
C314.1	**Design different modes in waveguide structures**					
C314.2	**Distinguish between Microwave tubes for Amplifiers and Oscillators**					
C314.3	**Calculate S-matrix for various waveguide components and splitting the microwave energy in a desired direction**					
C314.4	**Distinguish between Microwave tubes and Solid State Devices, calculation of efficiency of devices.**					
C314.5	**Measure various microwave parameters using a Microwave test bench**					
COURSE NAME	**Computer Networks**			**COURSE CODE**		**C315**
UNIVERSITY CODE	**R203205K**	**YEAR/SEM**	**III/I**	**REGULATION**		**R20**
CO.NO	**Course Outcomes**					
C315.1	**Demonstrate different network models &get knowledge about various communication techniques, methods and protocol standards.**					
C315.2	**Analyze data link layer services, functions and Protocols like HDLC and PPP.**					
C315.3	**Compare and classify medium access control protocols like ALOHA,CSMA,CSMA/CD,CSMA/CA,polling,tokenpassing,FDMA,TDMA,CDMA**					
C315.4	**Analyze the network layer design issues and working of internet.**					
C315.5	**Determine application layer services and client server protocols working with client server paradigms like WWW,HTTP,FTP,email&SNMP etc.**					
COURSE NAME	**Microprocessor and Microcontrollers Lab**			**COURSE CODE**		**C316**
UNIVERSITY CODE	**R2032044**	**YEAR/SEM**	**III/I**	**REGULATION**		**R20**
CO.NO	**Course Outcomes**					
C316.1	**Will be able to develop assembly language program using 8086 microprocessor based on arithmetic, logical, and Branch operations.**					
C316.2	**Will be able to interface 8086 with I/O and other devices.**					
C316.3	**Will be able to develop assembly language program using 8051 microcontroller based on arithmetic, logical, and timer/Counter operations.**					

C316.4	Will be able to interface 8051 with I/O and other devices.						
C316.5	Will be able to develop assembly language program using ARM Cortex3 processors based on arithmetic and logical operations.						
COURSE NAME		VLSI Design Lab			COURSE CODE	C317	
UNIVERSITY CODE		R2032045	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes						
C317.1	Describe Verilog hardware description languages (HDL).						
C317.2	Design Digital Circuits in Verilog HDL.						
C317.3	Analyse the design of basic gates inverter using CMOS 130 nm Technology.						
C317.4	Analyse the design and verification of adder and subtractor CMOS 130 nm Technology.						
C317.5	Understand the design and verification of decoder RS-Latch, D- Latch by using CMOS 130 nm Technology.						
COURSE NAME		Digital Signal Processing Lab			COURSE CODE	C318	
UNIVERSITY CODE		R2032046	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes						
C318.1	Demonstrate their abilities towards DSP processor based implementation of DSP systems						
C318.2	Analyze Finite word length effect on DSP systems.						
C318.3	Demonstrate the applications of FFT to DSP.						
C318.4	Implement adaptive filters for various applications of DSP.						
C318.5	Implement different windowing techniques of DSP systems.						
COURSE NAME		ARM based/ Aurdino basedProgramming			COURSE CODE	C319	
UNIVERSITY CODE		R2032047	YEAR/SEM	III/I	REGULATION		R20
CO.NO	Course Outcomes						
C319.1	Comprehend Microcontroller-Transducers Interface techniques						
C319.2	Establish Serial Communication link with Arduino						
C319.3	Analyze basics of SPI interface						
C319.4	Interface Stepper Motor with Arduino						
C319.5	Analyze Accelerometer interface techniques						
COURSE NAME		Research Methodology			COURSE CODE	C320	
UNIVERSITY CODE		R2032048	YEAR/SEM	IV/I	REGULATION		R20
CO.NO	Course Outcomes						
C320.1	Summarize and define the problem statements after going through relevant research literature and need analysis.						
C320.2	Analyze a given problem with its constraints and complexities.						
C320.3	Apply appropriate simulation/methods and tools to solve the problem.						
C320.4	Prepare a well written project report and oral presentation.						
C320.5	Plan and perform in a team and contribute individually.						
COURSE NAME		Optical Communication			COURSE CODE	C401	
UNIVERSITY CODE		R204104A	YEAR/SEM	IV/I	REGULATION		R20
CO.NO	Course Outcomes						
C401.1	To Understand and analyze the constructional parameters and mode calculations of optical fibers.						

C401.2	To Evaluate the losses and analyze the propagation characteristics of an optical signal in different types of fibers.
C401.3	To Understand the constructional features of connectors, splices and analyze the losses for single mode and multimode fibers.
C401.4	To describe the principles of optical Sources, detectors and optical amplifiers and analyze their characteristics.
C401.5	To analyze the power coupling characteristics of the fiber optic receivers, and designing of the optical system.

COURSE NAME	Digital IC Design Using CMOS			COURSE CODE	C402
UNIVERSITY CODE	R204104F	YEAR/SEM	IV/I	REGULATION	R20

CO.NO	Course Outcomes
C402.1	Understand the concepts of MOS Design
C402.2	Design and Analysis of Combinational MOS Circuits
C402.3	Design and Analysis of sequential MOS Circuits
C402.4	Extend the Digital IC Design to Dynamic MoS Applications
C402.5	Understand the concepts of Semiconductor Memories, Flash Memory, RAM array organization

COURSE NAME	Embedded System Design (ESD)			COURSE CODE	C403
UNIVERSITY CODE	R204149E	YEAR/SEM	IV/I	REGULATION	R20

CO.NO	Course Outcomes
C403.1	After going through this course the student will be able to functional blocks of an embedded system and its software development process.
C403.2	Theorcial background and practical experience in the design and development of sophisticated emebedded system.
C403.3	Importance of safety and reliabilty in contemporary embedded system design
C403.4	Describe the embedded system design rechniques for performances of optimization
C403.5	Enumerate the knowledege of embedded system in the areas of distributed embedded system.

COURSE NAME	Internet of Things (IoT)			COURSE CODE	C404
UNIVERSITY CODE	R204104I	YEAR/SEM	IV/I	REGULATION	R20

CO.NO	Course Outcomes
C404.1	Articulate the components of the IoT value chain structure
C404.2	Apply network protocols for effective IoT system management
C404.3	Implement Python programs on Raspberry Pi , Arduino to interface external gadgets
C404.4	Analyze data acquisition and hardware control techniques
C404.5	Develop python based web application using flask or Django for IoT and cloud

COURSE NAME	Cryptography & Network Security (C NS)			COURSE CODE	C405
UNIVERSITY CODE	R204105Y	YEAR/SEM	IV/I	REGULATION	R20

CO.NO	Course Outcomes
C405.1	Explain the different security threats and countermeasures and foundation course of cryptography mathematics.
C405.2	Classify the basic principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography
C405.3	Revise the basic principles of Public key algorithms and Working operations of some Asymmetric key algorithms such as RSA, ECC and some more
C405.4	Design applications of hash algorithms, digital signatures and key management techniques
C405.5	Determine the knowledge of Application layer, Transport layer and Network layer security Protocols such as PGP, S/MIME, SSL,TSL, and IPsec .

COURSE NAME	Humanities and Social Science			COURSE CODE	C406
UNIVERSITY CODE	R2041011	YEAR/SEM	IV/I	REGULATION	R20
CO.NO	Course Outcomes				
C406.1	To train the student for development of a holistic perspective based on self-exploration about themselves, family, society and nature/ existence.				
C406.2	To understand the harmony in the humanbeing, family. Society and nature/ existence				
C406.3	To strengthen self-reflection				
C406.4	To infuse a sence of commitment and courage to act				
C406.5	To understand the society and environment				
COURSE NAME	Designer tools			COURSE CODE	C407
UNIVERSITY CODE	R204104Z	YEAR/SEM	IV/I	REGULATION	R20
CO.NO	Course Outcomes				
C407.1	The student should be able to introduction and Fundamentals of Cadences and Tanner				
C407.2	The student should be able to design the Desktop Design Environment of a given Circuit				
C407.3	The student should be able to know about the defining variables in cadences and tannner				
C407.4	The student should be able to know about the analysis in cadences and tanner				
C407.5	The student should be able to design different logical circuits in cadences and tanner				
COURSE NAME	SUMMER INTERNSHIP			COURSE CODE	C408
UNIVERSITY CODE	R2041041	YEAR/SEM	IV/I	REGULATION	R20
CO.NO	Course Outcomes				
C408.1	Infer to 'real' working environment and understand the Organizational Structure of a company.				
C408.2	Develop technical competence, professional attitude, and organization skills.				
C408.3	Develop written and oral communication skills with technical report writing.				
C408.4	Develop an awareness for the need and applications of standards in the industry.				
C408.5	To identify personal strengths and areas for improvement and develop a career plan based on insights gained during the internship.				
COURSE NAME	PROJECT			COURSE CODE	C409
UNIVERSITY CODE	R204204P	YEAR/SEM	IV/II	REGULATION	R20
CO.NO	Course Outcomes				
C409.1	Define and Summarize and define the problem statements after going through relevant research literature and need analysis.				
C409.2	Analyze a given problem with its constraints and complexities.				
C409.3	Apply appropriate simulation/methods and tools to solve the problem.				
C409.4	Prepare a well written project report and oral presentation.				
C409.5	Plan and perform in a team and contribute individually.				