



# RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS::ONGOLE

(Approved by AICTE-NEW DELHI, Affiliated to JNTUK KAKINADA)

NH-16, Valluru,-523272, Ongole, Prakasam District, A.P

## Department of Electronics and Communication Engineering

A Y: 2021-2022

### I Year I Semester

CO No.	Subject: COMMUNICATIVE ENGLISH	BTL
<b>After going through this course the student will be able to</b>		
C111.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information.	Understanding
C111.2	Recall the familiar topics and general questions to the students	Remembering
C111.3	Rephrase suitable strategies for note-making to locate specific information.	Understanding
C111.4	Identify the paragraph structure and able to match beginning/sending/heading with paragraph.	Applying
C111.5	Make use of grammatical structure and correct word forms.	Applying

CO No.	Subject: MATHEMATICS-I	BTL
<b>After going through this course the student will be able to</b>		
C112.1	Test the convergence of an infinite series, utilize mean value theorems to real life problems and express a function in terms of power series.	Applying
C112.2	Solve first order and first degree differential equations arising in various Engineering fields.	Applying
C112.3	Solve linear differential equations of higher order and use the knowledge to study LCR Circuits and SHM.	Applying
C112.4	Apply the techniques of multivariable differential calculus to determine extrema and series Expansions of a function of several variables.	Applying
C112.5	Using multiple integrals to find areas, surface areas and volumes.	Applying

CO.No	Subject: APPLIED CHEMISTRY	BTL
<b>After going through this course the student will be able to</b>		
C113.1	Analyze different types of composite materials and the preparation, properties and applications of the polymers.	Analysing
C113.2	Apply the knowledge of using redox chemistry in storage devices and techniques used for preventing corrosion.	Applying
C113.3	Summarize the importance of materials like nanomaterials, superconductors, liquid crystals and semiconductors.	Understanding
C113.4	Analyze the principles and applications of analytical techniques and differently conventional energy sources	Analysing
C113.5	Demonstrate the importance of molecular machines and computational chemistry.	Understanding



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: Programming for Problem Solving Using C	BTL
<b>After going through this course the student will be able to</b>		
C114.1	To use different operators, data types and write programs that use two-way/ multiday selection	Applying
C114.2	To select the best loop construct for a given problem.	Applying
C114.3	To design and implement programs to analyze the different pointer applications	Analyzing
C114.4	To decompose a problem into functions and to develop modular reusable code	Analyzing
C114.5	To apply file, I/O operations	Applying

CO No.	Subject: Engineering Drawing	BTL
<b>After going through this course the student will be able to</b>		
C115.1	Draw different regular polygons, engineering curves and scales to match with relevant applications.	Applying
C115.2	Draw orthographic projections of points and lines inclined to both the planes and apply them in related problems.	Applying
C115.3	Draw orthographic projections of various planes inclined both the reference planes.	Understanding
C115.4	Draw projections of different solids like prisms, pyramids, cylinders and cones with axis inclined to both the reference planes	Understanding
C115.5	Convert isometric views in to orthographic views and vice versa and generate 2D/3D objects in AutoCAD.	Applying

CO No.	Subject: ENGLISH COMMUNICATION LAB	BTL
<b>After going through this course the student will be able to</b>		
C116.1	Develop phonetic sounds and uses	Applying
C116.2	Recall words stress and syllabic words	Remembering
C116.3	Classify Rhythm and intonation.	Understanding
C116.4	Utilize the knowledge of contrastive word stress	Applying
C116.5	Compose weak and strong forms	Creating



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: APPLIED CHEMISTRY LAB	BTL
<b>After going through this course the student will be able to</b>		
C117.1	Describe the experimental skills to design new experiments in engineering.	Understanding
C117.2	Explain the different types of titrations and acquire skills in instrumentation. Recall words stress and syllabic words	Understanding
C117.3	Determine hardness of various water samples.	Evaluating
C117.4	Determine the number of free ions and charges in a mixture of acids using conductivity meter.	Evaluating
C117.5	Calculate the potential between reference electrode and unknown solution by using potentiometer.	Evaluating

CO No.	Subject: Programming for Problem Solving Using C lab	BTL
<b>After going through this course the student will be able to</b>		
C118.1	Gains knowledge on various concepts of a C Language.	Understanding
C118.2	Able to draw flow charts and write algorithms.	Applying
C118.3	Able to design and development for C problem solving skills.	Applying
C118.4	Able to design and develop modular programming skills.	Applying
C118.5	Able to trace and debug a program.	Applying

*Lave*  
Coordinator

*P.S*  
IQAC

**IQAC Co-ordinator**  
**RISE Krishna Sai Gandhi Group**  
**of Institutions Valluru -523**

*Sandeep*  
HOD

HEAD OF THE DEPARTMENT  
Dept Of S & H  
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of Institutions, VALLURU, A.P

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**Department of Electronics and Communication Engineering**

A Y: 2021-2022

**I Year II Semester**

CO No.	Subject: Mathematics-II	BTL
<b>After going through this course the student will be able to</b>		
C121.1	Solve system of linear algebraic equations using matrix techniques and find Eigen values and Eigen vectors.	Applying
C121.2	Use Cayley-Hamilton theorem or Cayley-Hamilton theorem to find inverse and higher powers of matrices And study the nature of Quadratic forms.	Applying
C121.3	Evaluate a root of algebraic and transcendental equations and a solution for system of equations using numerical methods.	Evaluating
C121.4	Apply Newton's interpolation and Lagrange's interpolation formula to find interpolating polynomial.	Applying
C121.5	Evaluate the solutions of ordinary differential equations to its analytical computation using different methods.	Evaluating

CO No.	Subject: Applied Physics	BTL
<b>After going through this course the student will be able to</b>		
C122.1	Analyze the differences between interference and diffraction with applications	Analyzing
C122.2	Explain the fundamental concepts of quantum mechanics.	Understanding
C122.3	Explain the various electron theories.	Understanding
C122.4	Classify the energy bands of semiconductors.	Understanding
C122.5	Explain the applications of dielectric and magnetic materials.	Understanding

CO No.	Subject: OBJECTORIENTEDPROGRAMMINGTHROUGHJAVA	BTL
<b>After going through this course the student will be able to</b>		
C123.1	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.	Analyzing
C123.2	Illustrate the basic principles of the object-oriented programming	Applying
C123.3	Demonstrate an introductory understanding of graphical user interfaces ,multi threaded programming, and event-driven programming.	Analyzing



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: NetworkAnalysis	BTL
<b>After going through this course the student will be able to</b>		
C124.1	Student able to explain the basic network elements and analyze the performance of periodic waveforms	Analyzing
C124.2	Student will analyze the filtered sign concepts in real world applications.	Analyzing
C124.3	Student able to analyze the coupled circuit and resonance	Analyzing
C124.4	Student will apply the or ems for electrical circuits both ac and dc	Applying
C124.5	Student Gain the knowledge in characteristics of two port network parameterst(Z,Y,ABCD,h&g).	Evaluating

CO No.	Subject: Basic ElectricalEngineering	BTL
<b>After going through this course the student will be able to</b>		
125.1	Explain the operation of DC generator and DC motor analyze the characteristics of DC generator and speed control methods of DC motors.	Understanding
125.2	Understand the constructional details, principle of operation and performance of transformers.	Understanding
125.3	Explaintheprincipleofoperation,constructionanddetails ofsynchrousmachines	Understanding
125.4	Explain the principle of operation, constructional details,performance,torque–slipcharacteristicsandstartingmethodsof3-phaseinduction motors	Understanding

CO No.	Subject: ElectronicWorkshop	BTL
<b>After going through this course the student will be able to</b>		
C126.1	Identification of various electronic components and equipment	Remembering
C126.2	Implementing Soldering practice using toolkit	Analyzing
C126.3	Design and implement PCB layout	Applying
C126.4	Test various active and passive components	Analyzing
C126.5	Understand equitence and measurement son CRO	Understanding



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: Basic Electrical Engineering Lab	BTL
<b>After going through this course the student will be able to</b>		
C127.1	Determine and predetermine the performance of DC machines and transformers.	Evaluating
C127.2	Control the DC shunt machines.	Evaluating
C127.3	Computetheperformanceof1-phasetransformer.	Evaluating
C127.4	Perform tests on 3-phase induction motor and alternator to determine their performance characteristics.	Evaluating

CO No.	Subject: Applied Physics Lab	BTL
<b>After going through this course the student will be able to</b>		
C128.1	Apply the basic concepts of mechanics to determine rigidity modulus of a material by using Torsional pendulum.	Applying
C128.2	Apply the basic concepts of laser and techniques for the Diffraction Grating.	Applying
C128.3	Apply the basic concepts of magnetism to study the variation of B versus H.	Applying
C128.4	Applythebasicconceptsofdielectricstodeterminedielectricconstantby charging and discharging method.	Applying
C128.5	Apply the mathematical concepts/equations to obtain quantitative results	Evaluating

*Leel*  
Coordinator

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## Department of Electronics and Communication Engineering

A Y: 2021-2022

### II Year I Semester

CO No	Subject: Electronic Devices and Circuits	Taxonomy level
<b>Student should be able to</b>		
C211.1	Describe the basic concepts of Semiconductor Physics	Understanding
C211.2	Analyze the operation & V-I characteristics of diodes.	Understanding
C211.3	Design Half Wave & Full Wave Rectifiers with & without filters.	Applying
C211.4	Sketch the characteristics of Transistors.	Understanding
C211.5	Analyze biasing methods, Stabilization and Compensation techniques of Transistors.	Applying
C211.6	Analyze the Small Signal Low Frequency Transistor Amplifier models.	Analyzing
CO No	Subject: Switching Theory & Logic Design	Taxonomy level
<b>Student should be able to</b>		
C212.1	Explain the basics of different number systems, logic operations and codes	Understanding
C212.2	Simplify the Boolean functions using Minimization techniques	Analyzing
C212.3	Design different combinational circuits	Evaluating
C212.4	Develop a PLD for the given Boolean functions	Applying
C212.5	Design different sequential circuits	Evaluating
C212.6	Design FSM's by using sequential circuits	Analyzing
CO No	Subject: Signals & Systems	Taxonomy level
<b>Student should be able to</b>		
C213.1	Differentiate the various classifications of signals and systems	Understanding
C213.2	Analyze the frequency domain representation of signals using Fourier concepts	Analyzing
C213.3	Classify the systems based on their properties and determine the response of LTI Systems	Applying
C213.4	Know the sampling process and various types of sampling techniques	Understanding
C213.5	Comprehend correlation functions, sampling theorem, and aliasing effects.	Understanding
C213.6	Master Laplace and Z-transforms, applying them to signal analysis and inverse transformations.	Applying



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: M-III	Taxonomy level
<b>Student should be able to</b>		
C214.1	Interpret the physical meaning of different operators such as gradient, curl and divergence, estimate the work done against a field, circulation and flux and discuss the relation between line,surface,volume integrals using integral theorems	Applying
C214.2	Apply the Laplace transform for solving differential equations	Applying
C214.3	Find or compute the Fourier series of periodic signals and be able to apply integral expressions for the Fourier and inverse Fourier transform to a range of non-periodic waveforms	Applying
C214.4	Formation of partial differential equation and Identify solution methods for first order partial differential equations	Applying
C214.5	Classify higher order partial differential equations and solve heat flow and wave problems	Applying
CO No	Subject: Random variables & Stochastic Process	Taxonomy level
<b>Student should be able to</b>		
C215.1	Analyze the performance of a Digital Communication System using pulse digital modulation techniques	Understanding
C215.2	Analyze digital transmission methods and detection techniques for baseband transmission	Analyzing
C215.3	Evaluate the Error performance of Digital Modulation schemes	Applying
C215.4	Analyze the Information theory in communication systems	Applying
C215.5	Apply the source coding techniques on transmission medium in digital communication system	Analyzing
C215.6	Apply the channel coding techniques in digital communication system in order to provide error detection and correction capabilities to the receiver.	
CO No	Subject: oops through java LAB	Taxonomy level
C216.1	Identify classes, objects, members of a class and the relationship amongthemneeded for aspecific problem	Remember
C216.2	Implement programs to distinguish differentforms of inheritance	Understanding
C216.3	Create packages and toreuse them	Applying
C216.4	Develop programs using ExceptionHandling mechanism	Understanding
C216.5	Develop multithreaded application using synchronization concept.	Understanding
C216.6	Design GUIbased applications using Swings andAWT.	Applying





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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: EDC Lab	Taxonomy level
<b>Student should be able to</b>		
C217.1	Identifying of electronic components and electronic equipment	Remember
C217.2	Analyzing characteristics of different diodes and transistors	Understanding
C217.3	Describe application of diode	Applying
C217.4	Analyze the different transmitters and receivers techniques	Understanding
C217.5	Understanding the use of RPS and CRT	Understanding
C217.6	Analyzing experimental data and preparing a lab record	Applying
CO No	Subject: STLD Lab	Taxonomy level
<b>Student should be able to</b>		
C218.1	Verify the truth tables of Logic gates	Understanding
C218.2	Verify the truth table of Combinational logic Function and Full Adder	Understanding
C218.3	Verify the Combinational Logic Circuits Decoder and Multiplexer	Understanding
C218.4	Verify the Sequential Logic Circuits	Understanding
CO No	Subject: PYTHON PROGRAMMING	Taxonomy level
<b>Student should be able to</b>		
C219.1	Write, Test and Debug Python Programs	Understanding
C219.2	Able to draw flow charts and write algorithms.	Applying
C219.3	Use Conditionals and Loops for Python Programs	Applying
C219.4	Use functions and represent Compound data using Lists, Tuples and Dictionaries	Applying
C219.5	Use various applications using python	Applying

  
Coordinator

  
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**IQAC Co-ordinator**  
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**HEAD OF THE DEPARTMENT**  
Department of E.C.E.  
RISE Krishna Sai Gandhi Group  
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## Department of Electronics and Communication Engineering

A Y: 2021-2022

### II Year II Semester

CO No	Subject: Electronic Circuit analysis	Taxonomy level
<b>Student should be able to</b>		
C221.1	Design small signal high frequency amplifier circuits by using BJT and FET.	Understanding
C221.2	Design of multi stage amplifiers using BJT & FET.	Understanding
C221.3	Apply the concept of feedback to various types of amplifier circuits.	Applying
C221.4	Apply the principle of oscillations to different types of oscillator circuits.	Understanding
C221.5	Analyze different power amplifiers based on their performance.	Applying
C221.6	Analyze different tuned amplifiers based on their performance.	Analyzing
CO No	Subject: DICD	Taxonomy level
<b>Student should be able to</b>		
C222.1	Understand the concept of logic families used in Integrated Circuits.	Understanding
C222.2	Develop digital logic with VHDL, simulation and synthesis	Understanding
C222.3	Develop the VHDL applications by using different process statements	Applying
C222.4	Design the combinational Circuits using VHDL for real time applications	Understanding
C222.5	Design the sequential Circuits using VHDL for real time applications.	Applying
C222.6	Design state diagrams, state tables, state reduction with the help of Melay&Moore circuits	Analyzing
CO No	Linear control systems	Taxonomy level
<b>Student should be able to</b>		
C224.1	This course introduces the concepts of feedback and its advantages to various control systems and able to determine Transfer functions.	Understanding
C224.2	Capability to determine time response specifications of second order systems and to determine error constants	Analyzing
C224.3	The performance metrics to design the control system in time-domain and frequency domain are introduced	Evaluating
C224.4	Acquires the skill to analyze absolute and relative stability of LTI systems using Routh's stability criterion and the root locus method	Applying
C224.5	Acquires sills to analyse the stability of the system using bode plot, nyquist and polar plots	Evaluating
C224.6	6. Ability to represent physical systems as state models and determine the response. Understanding the concepts of controllability and observability	Analyzing



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: Analog communications	Taxonomy level
<b>Student should be able to</b>		
C223.1	Familiarize with the fundamentals of analog communication systems, Amplitude modulation and demodulation	Understanding
C223.2	Familiarize with various techniques for Frequency modulation and demodulation	Analyzing
C223.3	Familiarize with various techniques for analog modulation and demodulation of signals	Applying
C223.4	Develop the ability to classify and understand various functional blocks of radio transmitters and receivers	Applying
C223.5	Distinguish the figure of merits of various analog modulation methods	Analyzing
C223.6	Familiarize with basic techniques for generating and demodulating various pulse modulated signals	Analyzing
CO No	Subject: Management and Organizational Behavior	Taxonomy level
<b>Student should be able to</b>		
C225.1	To understand the introduction of management and its importance.	Remembering
C225.2	To understand the Functional Management, like human resource management and marketing management.	Applying
C225.3	To understand the Strategic Management, like vision, mission, objectives, contemporary concepts.	Understanding
C225.4	To understand the Individual Behavior and its importance of corporate world.	Applying
C225.5	To understand the motivation concept and personality development.	Understanding
C225.6	To understand the Group Dynamics and its Types of Groups etc.	Understanding
CO No	Subject: ECA Lab	Taxonomy level
<b>Student should be able to</b>		
C226.1	Design small signal single stage amplifiers and then observe it's frequency response.	Remember
C226.2	Design multi stage amplifiers and then observe it's frequency response.	Applying
C226.3	Design an oscillator circuit and calculate it's output frequency.	Understanding
C226.4	Design feedback amplifiers and then observe it's frequency response.	Understanding
C226.5	Design an oscillator circuit and calculate it's output frequency.	Understanding
C226.6	Design tuned amplifiers and then observe it's frequency response.	Applying



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: ANALOG COMMUNICATIONS Lab	Taxonomy level
<b>Student should be able to</b>		
C227.1	Analyze the modulation and demodulation techniques of conventional AM scheme.	Understanding
C227.2	Analyze the modulation and demodulation techniques of conventional DSB & SSB scheme.	Understanding
C227.3	Analyze the modulation and demodulation techniques of conventional angle modulation scheme.	Understanding
C227.4	Analyze the different transmitters & receivers techniques.	Understanding
C227.5	Analyze the circuit diagrams of PLL&AGC.	Understanding
C227.6	Analyze the different digital modulation and de-modulation techniques.	Understanding
CO No	Subject: DICD Lab	Taxonomy level
<b>Student should be able to</b>		
C228.1	Implement&design logic gates by using vhdl or hardware	Understanding
C228.2	Implement&design 3 to 8 Decoder -74138 by using vhdl or hardware	Applying
C228.3	Implement&design 8 x 1 Multiplexer by using vhdl or hardware	Understanding
C228.4	Implement&design D-flipflop by using vhdl or hardware	Understanding
C228.5	Implement&design shift register by using vhdl or hardware	Understanding
C228.6	Implement&design ALU by using vhdl or hardware	Applying
CO No	Subject: SOFT SKILLS	Taxonomy level
<b>Student should be able to</b>		
C229.1	Use language fluently, accurately and appropriately in debates and group discussions	Applying
C229.2	Use their skills of listening comprehension to communicate effectively in cross-cultural contexts.	Applying
C229.3	Learn and use new vocabulary.	Applying
C229.4	Write resumes, project reports and reviews	Applying
C229.5	Exhibit interview skills and develop soft skills.	Understanding

  
Coordinator

  
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**IQAC Co-ordinator**  
**RISE Krishna Sai Gandhi Group**  
**of Institutions, Valluru 523 272**

  
HoD

**HEAD OF THE DEPARTMENT**  
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## Department of Electronics and Communication Engineering

A Y: 2021-2022

### III Year I Semester

CO No.	Subject: Linear IC APPLICATIONS	BTL
<b>After going through this course the student will be able to</b>		
C311.1	Describe the op-amp and internal circuitry of op-amps	Understanding
C311.2	Discuss the applications of operational amplifier and design of various applications of op-amp	Analyzing
C311.3	Understanding the active filters using operational Amplifier	Evaluating
C311.4	Operation and design of active filters using operational Amplifier	Applying
C311.5	Design and applications of 555 timer and Phase locked loop	Evaluating
C311.6	Use the Op-Amp in A to D & D to A Converters	Analyzing
CO No.	Subject: MP&MC	BTL
<b>After going through this course the student will be able to</b>		
C312.1	1. Acquire knowledge about the processors, Understand the basic concepts of Microprocessors and addressing modes	Evaluating
C312.2	2. Develop program for different addressing modes.	Evaluating
C312.3	3. Understand the different types of interrupts that are functional at the work Place.	Applying
C312.4	4. Understand and capable or interfacing the microprocessor to the I/O devices.	Analyzing
C312.5	5. Develop simple applications on microcontroller based systems.	Applying
C312.6	6. Understand the development and improvement in Microprocessors and controllers.	Analyzing
CO No.	Subject: Digital Communications	BTL
<b>After going through this course the student will be able to</b>		
C313.1	Analyze the performance of a Digital Communication System using pulse digital modulation techniques	Analyzing
C313.2	Analyze digital transmission methods and detection techniques for baseband transmission	Analyzing
C313.3	Evaluate the Error performance of Digital Modulation schemes	Applying
C313.4	Analyze the Information theory in communication systems	Analyzing
C313.5	Apply the source coding techniques on transmission medium in digital communication system	Applying
C313.6	Apply the channel coding techniques in digital communication system in order to provide error detection and correction capabilities to the receiver.	



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: Electronic Measurements and Instrumentation	BTL
<b>After going through this course the student will be able to</b>		
C314.1	Understand a system, Component or process to meet desired needs in electrical engineering.	Understanding
C314.2	Analyze different signal generators and analyzers	Analyzing
C314.3	Understand the design of oscilloscopes for different applications	Understanding
C314.4	Ability to balance Bridges to find unknown values.	Analyzing
C314.5	Design different transducers for measurement of different parameters.	Understanding
C314.6	Design and measure strain, displacement, Velocity, Angular Velocity, temperature, Pressure, Vacuum, and Flow.	Understanding
CO No.	Subject: ITC	BTL
<b>After going through this course the student will be able to</b>		
C315.1	Understand and apply information theory concepts, including entropy, to analyze source coding efficiency.	Understanding
C315.2	Calculate channel capacity and apply channel coding theorems to practical communication scenarios.	Analyzing
C315.3	Design and evaluate linear block codes, including systematic codes and Hamming codes.	Understanding
C315.4	Analyze cyclic codes and their encoding/decoding circuits, along with error detection and correction.	Analyzing
C315.5	Grasp convolutional codes and their maximum likelihood decoding using the Viterbi algorithm.	Understanding
C315.6	Assess automatic repeat request strategies and their efficiency considerations in communication systems.	Understanding
CO No.	Subject: LICA Lab	BTL
<b>After going through this course the student will be able to</b>		
C316.1	Design and construct adder, subtractor, comparator, integrator and differentiator using op-amp	Analyzing
C316.2	Design and construct different types of active filters	Applying
C316.3	Design and construct different oscillator circuits and function generator using IC 741	Applying
C316.4	Design and construct different multivibrators using IC555 timer	Understanding
C316.5	Use IC565 for PLL, IC 566 for VCO, IC 723 for voltage regulator	Understanding
C316.6	Design 4-bit DAC using op-amp	Applying



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No.	Subject: DC Lab	BTL
<b>After going through this course the student will be able to</b>		
C317.1	Analyze the pulse digital modulation techniques	Analyzing
C317.2	Illustrate modulation, demodulation, noise handling, data conversion and multiplexing in pass band transmission.	Applying
C317.3	Analyze need of compression and expansion in digital communication	Analysis
C317.4	Apply the various coding techniques on transmission medium in digital communication	Applying
CO No.	Subject: MP&MC Lab	BTL
<b>After going through this course the student will be able to</b>		
C318.1	To develop basic knowledge of Tasm software	Understanding
C318.2	To develop and execute simple programs on 8086 micro controller	Understanding
C318.3	To develop and execute the assembly language programs for interfacing Intel 8086 with peripheral devices	Understanding
C318.4	To develop and execute variety of assembly language programs of Intel 8086 including sorting and string manipulation instructions arithmetic and logical, sorting, searching, and string manipulation operations.	Understanding
C318.5	To develop and execute the assembly language programs for interfacing Intel 8051 with peripheral devices	Understanding
C318.6	To develop and execute simple programs on 8051 micro controller	Understanding

  
Coordinator

  
IQAC

**IQAC Co-ordinator**  
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## Department of Electronics and Communication Engineering

A Y: 2021-2022

### III Year II Semester

CO No	Subject: WWTD	Taxonomy level
<b>Student should be able to</b>		
C321.1	Define a sensor networks, Unique constraints and challenges of wireless sensor networks	Applying
C321.2	Explain the different Physical Layer and Transceiver layers .	Analyzing
C321.3	Explain the MAC Protocols, Contention - Based Protocols, Contention - Based Protocols	Applying
C321.4	Classify Driven Routing Protocols, On – Demand Routing Protocols, Hybrid Routing Protocols, Routing Protocols .	Applying
C321.5	Design a Transport Layer Protocol for Ad Hoc Wireless Networks,	Applying
C321.6	Discover Network Security Attacks, Key Management, Secure Routing in Ad Hoc Wireless Networks	Applying
CO No	Subject: VLSI Design	BTL
<b>Student should be able to</b>		
C322.1	Understand the IC Technologies , various MOS fabrication techniques and design rules to draw layouts.	Understanding
C322.2	Calculate the sheet resistances, area capacitances and delays. And also knows the limitations of scaling.	Applying
C322.3	Analyze the behavior of amplifier circuits with various loads.	Analyzing
C322.4	Design MOSFET based logic circuits using various logic styles like static and dynamic CMOS.	Understanding
C322.5	Describe FPGA design flow and various advanced technologies of VLSI.	Understanding
CO No	Subject: Digital Signal Processing	BTL
<b>Student should be able to</b>		
C323.1	Examine discrete-time signals and systems, linear constant coefficient difference equation and frequency domain representation.	Analyzing
C323.2	Analyze Discrete Fourier Series, Discrete Fourier Transform and Fast Fourier Transform algorithms	Analyzing
C323.3	Design structures for digital filters and solve difference equations using Z-Transforms.	Applying
C323.4	Design digital IIR filter using analog filter and digital FIR filter using windowing techniques.	Applying
C323.5	Describe DSP processors, memory architecture for DSP, addressing modes and registers	Understanding





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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: Mobile & Cellular Communications	BTL
<b>Student should be able to</b>		
C324.1	Analyze analog and digital cellular radio systems for mobile communication.	Analyzing
C324.2	Design a cellular system using frequency reuse concept and cell coverage for Signal traffic.	Applying
C324.3	Design the antenna system parameters by considering the effects in the reduction of C/I ratio.	Applying
C324.4	Apply frequency management and channel allocation schemes to improve the trunking efficiency.	Applying
C324.5	Analyze the Concepts of Handoff, cell splitting and operation of cellular system.	Analyzing
C324.6	Describe digital cellular networks.	Understanding
CO No	Subject: Artificial neural networks	BTL
<b>Student should be able to</b>		
C325.1	Understand Structure and Functions of Neural Networks	Applying
C325.2	Supervised Algorithms for Artificial Neural Networks	Understanding
C325.3	Unsupervised Learning Techniques for Artificial Neural Networks	Analyzing
C325.4	Unsupervised Learning Algorithms for Artificial Neural Networks	Analyzing
C325.5	Associative Memory Networks for Artificial Neural Networks.	Understanding
CO No	Subject: IOT	BTL
<b>Student should be able to</b>		
C326.1	Understand internet of Things and its hardware and software components.	Understanding
C326.2	Understand different Hardware Components like processors and controllers	Applying
C326.3	Interface I/O devices, sensors & communication modules.	Applying
C326.4	Remotely store and monitor data and control devices	Understanding
C326.5	Design real time IoT based applications	Understanding



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: VLSI Lab	BTL
<b>Student should be able to</b>		
C327.1	Design and implementation of logic gates	Applying
C327.2	Design and implementation of full adder and full subtractor	Applying
C327.3	Design and implementation of latches	Applying
C327.4	Design and implementation of static RAM cell and counter	Applying
C327.5	Design and implementation of combinational circuits	Applying
C327.6	Design and implementation of digital to analog converter	Applying
CO No	Subject: DSP Lab	BTL
<b>Student should be able to</b>		
C328.1	Generate discrete time signals and verify convolution schemes.	Analyzing
C328.2	Simulate frequency analysis of N-point DFT using FFT algorithms	Analyzing
C328.3	Design digital filtering techniques and obtain frequency response.	Applying
C328.4	Understand the process of normalization of histogram and cross correlation	Understanding
C328.5	Apply different masks to extract edges of objects in a given image	Analyzing
C328.6	Analyze Multirate Digital signal processing systems	Analyzing

  
Coordinator

  
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## Department of Electronics and Communication Engineering

A Y: 2021-2022

IV Year I Semester		
CO No	Subject: VLSI Design	Taxonomy level
<b>Student should be able to</b>		
C411.1	Describe the IC Technologies and various MOS fabrication techniques	Understanding
C411.2	Design N-MOS, P-MOS & C-MOS stick and layout diagrams with various techniques	Understanding
C411.3	Measure the various types of sheet resistance concept applied to MOS transistor.	Evaluate
C411.4	Describe the Chip inputs, Outputs and its testability	Understanding
C411.5	Describe the FPGA design	Understanding
C411.6	Describe the low power VLSI Design	Understanding
CO No	Subject: Computer Networks	Taxonomy level
<b>Student should be able to</b>		
C412.1	Illustrate the different network models with examples	Analyzing
C412.2	Evaluate the performance of different guided and unguided media	Evaluate
C412.3	Explain the concept of ALOHA,MAC	Create
C412.4	Analyze the different types of routing algorithms	Create
C412.5	Differentiate the concept of TCP and UDP protocols	Create
C412.6	Illustrate the different network models with examples	Analyzing
CO No	Subject: Digital Image Processing	Taxonomy level
<b>Student should be able to</b>		
C413.1	Apply transform techniques on images.	Applying
C413.2	Analyze spatial and frequency domain filtering on images.	Analyzing
C413.3	Apply image restoration operations on images.	Applying
C413.4	Analyze color conversions on images and code images to achieve good compression.	Analyzing
C413.5	Develop coding techniques for image compression and wavelet based image processing.	Applying
C413.6	Develop morphological operations and segmentation techniques on images.	Analyzing



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### Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: Computer Architecture & Organization	Taxonomy level
<b>Student should be able to</b>		
C414.1	Understand the fundamentals of different instruction set architectures and their relationship to the CPU design.	Understanding
C414.2	Understand the principles and the implementation of computer arithmetic and ALU.	Understanding
C414.3	Understand the micro programming concept	Understanding
C414.4	Understand the memory system interfacing and organization	Understanding
C414.5	Understand the I/O interfacing organization	Understanding
C414.6	Understand the operation of modern CPUs including interfacing, pipelining, memory systems and busses	Understanding
CO No	Subject: Radar Systems	Taxonomy level
<b>Student should be able to</b>		
C415.1	Derive the radar range equation and to solve some analytical problems	Understanding
C415.2	Understand the CW,FM-CW radars and its application	Understanding
C415.3	Understand the MTI,Pulse Doppler radars and its applications	Understanding
C415.4	Understand the concept of Tracking and different Tracking Techniques	Understanding
C415.5	Derive the characteristics of a matched filter and distinguish different phased array antennas	Applying
C415.6	Understand the various components of radar receiver and its performance	Understanding
CO No	Subject: Optical Communication	Taxonomy level
<b>Student should be able to</b>		
C416.1	Understand the historical development and advantages of optical fiber communication.	Analyzing
C416.2	Explain the principles of optical waveguides, modes, and single-mode fiber characteristics.	Remembering
C416.3	Analyze the properties of different fiber materials and assess their suitability.	Analyzing
C416.4	Evaluate signal distortion factors, including attenuation, dispersion, and losses.	Application
C416.5	Demonstrate proficiency in connector types, splicing, and optical source characteristics.	Evaluating
C416.6	Comprehend optical receiver operation, digital transmission, and system design principles..	Remembering



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: VLSI Lab	Taxonomy level
<b>Student should be able to</b>		
C417.1	Design and implementation of logic gates	Creating
C417.2	Design and implementation of combinational circuits	Creating
C417.3	Design and implementation of lathes	Creating
C417.4	Design and implementation of RAM cell and differential amplifier	Creating
C417.5	Design and implementation of counter	Creating
C417.6	Design and implementation of oscillator	Creating
CO No	Subject: MWE Lab	Taxonomy level
<b>Student should be able to</b>		
C418.1	Describe the Basic microwave bench set up	Understanding
C418.2	Observe the characteristics of Reflex Klystron & Gunn diode	Analyzing
C418.3	Calculate VSWR , wavelength, impedance, frequency of waveguide	Evaluating
C418.4	Measure the scattering parameters of microwave devices.	Evaluating
C418.5	Measure the losses in fibers and NA	Evaluating
C418.6	Observe VI characteristic of with optical sources	Analyzing

  
Coordinator

  
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## Department of Electronics and Communication Engineering

A Y: 2021-2022

IV Year II Semester		
CO No	Subject: Cellular Mobile Communication	Taxonomy level
<b>Student should be able to</b>		
C421.1	Analyze analog and digital cellular radio systems for mobile communication.	Analyzing
C421.2	Design a cellular system using frequency reuse concept and cell coverage for Signal traffic.	Evaluating
C421.3	Design the antenna system parameters by considering the effects in the reduction of C/I ratio.	Evaluating
C421.4	Apply frequency management and channel allocation schemes to improve the trunking efficiency.	Applying
C421.5	Analyze the Concepts of Handoff, cell splitting and operation of cellular system.	Analyzing
C421.6	Describe digital cellular networks.	Understanding

CO No	Subject: Electronic Measurements and Instrumentation	Taxonomy level
<b>Student should be able to</b>		
C422.1	Analyze performance characteristics of electronic measuring instruments.	Understanding
C422.2	Explain signal generators, wave and distortion analyzers.	Analyzing
C422.3	Demonstrate the functionality of oscilloscopes.	Understanding
C422.4	Analyze bridges for measurement of inductance and capacitance	Analyzing
C422.5	Analyze active and passive transducers.	Creating
C422.6	Describe physical parameters force, pressure, velocity, humidity, moisture, speed proximity and data acquisition system.	Creating



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A Y: 2021-2022

CO No	Subject: SC	Taxonomy level
<b>Student should be able to</b>		
C423.1	Understanding the basics of satellite communication and its applications, Identifying Orbital mechanisms and launchings	Understanding
C423.2	Developing the satellite subsystems	Applying
C423.3	Developing various satellite link design	Applying
C423.4	Designing of satellite links and usage of multiple access techniques	Applying
C423.5	Understanding the concepts Earth station technology, Low earth orbit and GEO-Stationary satellite systems	Applying
C423.6	Identifying the Navigation systems and GPS standards	Understanding
CO No	Subject: Wireless Sensors and Networks	Taxonomy level
<b>Student should be able to</b>		
C424.1	Apply concepts of WSN to driving applications By enabling technologies and different architectures	Applying
C424.2	Analyze different topologies in networking technologies	Analyzing
C424.3	Design MAC protocol for Ad-Hoc wireless networks and different contention based on MAC protocols	Creating
C424.4	Categorize different routing protocols and their issues in design	Analyzing
C424.5	Compose transport layer protocol for issues in designing, design goals, classification of transport layer solutions, other protocols for Ad-hoc wireless networks	Creating
C424.6	Discover security in wireless sensor network ,differ sensor n networks platforms and tools for application in wireless sensor network	Analyzing



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## Department of Electronics and Communication Engineering

A Y: 2021-2022

CO No	Subject: SEMINAR	Taxonomy level
<b>Student should be able to</b>		
C425.1	Interpret logical progression of the paper and present with suitable presentation	Applying
CO NO	Project	Taxonomy level
<b>Student should be able to</b>		
C426.1	Develop applications in various areas for societal needs	Creating
C426.2	Develop skills for analyzes and synthesis of practical systems	Creating
C426.3	Acquire the use of new tools effectively and creatively	Creating
C426.4	Work in team to carry out analysis and cost effective ,environmental friendly designs of engineering systems	Creating
C426.5	Write technical /project reports and oral presentation of the work done to an audience	Creating
C426.6	Domenstrate a product developed	Creating

  
Coordinator

  
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