



# 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: 2020-2021

### 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: 2020-2021

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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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 no 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

  
Coordinator

  
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**Department of Electronics and Communication Engineering**

A Y: 2020-2021

**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 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: 2020-2021

CO No.	Subject: Network Analysis	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 Electrical Engineering	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	Explain the principle of operation, construction and details of synchronous machines	Understanding
125.4	Explain the principle of operation, constructional details, performance, torque-slip characteristics and starting methods of 3-phase induction motors	Understanding

CO No.	Subject: Electronic Workshop	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: 2020-2021

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

  
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## Department of Electronics and Communication Engineering

A Y: 2020-2021

### 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: 2020-2021

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.	Analyzing
CO No	Subject: oops through java	Taxonomy level
C216.1	Evaluate default value of all primitive data type, Operations, Expressions, Controlflow, Strings.	Understanding
C216.2	Determine Class, Objects, Methods, Inheritance, Exception, Runtime Polymorphism, User defined Exception handling mechanism.	Understanding
C216.3	Illustrating simple inheritance, multi-level inheritance, Exception handling mechanism.	Applying
C216.4	Construct Threads, Event Handling, implement packages, developing applets.	Applying
CO No	Subject: Managerial Economics & Financial Analysis	Taxonomy level
<b>Student should be able to</b>		
C217.1	Relate Economic Principles with Business Practices for getting successful outcomes	Remembering
C217.2	Make use of Cost analysis to find Break Even Point (BEP) of an enterprise in order to avoid losses	Applying
C217.3	Compare the Price – out determinations under different competitions in the Markets and Pricing strategies	Understanding
C217.4	Interpret different forms of business organizations and the new economic environment in the real business. Interpret different forms of business organizations and the new economic environment in the real business.	Applying
C217.5	Make use of the financial statements and relevant ratios for evaluating company's financial performance to make optimal decisions	Understanding
C217.6	Illustrate different Capital Budgeting Methods.	Understanding





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## Department of Electronics and Communication Engineering

A Y: 2020-2021

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

  
Coordinator

  
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## Department of Electronics and Communication Engineering

A Y: 2020-2021

### 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	<b>Linear control systems</b>	<b>Taxonomy level</b>
<b>Student should be able to</b>		
C222.1	This course introduces the concepts of feedback and its advantages to various control systems and able to determine Transfer functions.	Understanding
C222.2	Capability to determine time response specifications of second order systems and to determine error constants	Analyzing
C222.3	The performance metrics to design the control system in time-domain and frequency domain are introduced	Evaluating
C222.4	Acquires the skill to analyze absolute and relative stability of LTI systems using Routh's stability criterion and the root locus method	Applying
C222.5	Acquires skills to analyse the stability of the system using bode plot, nyquist and polar plots	Evaluating
C222.6	6. Ability to represent physical systems as state models and determine the response. Understanding the concepts of controllability and observability	Analyzing
CO No	<b>Subject: EMWTL</b>	<b>Taxonomy level</b>
<b>Student should be able to</b>		
C223.1	To understand the basic concepts of Electrostatics and magneto statics	Understanding
C223.2	Acquire the knowledge of Maxwell's equations in Time varying Fields and boundary conditions of electric and magnetic fields	Analyzing
C223.3	To Learn the basic wave equations and observe the EM wave characteristics of Different mediums	Applying
C223.4	To understand the power flow calculations of EM wave, Reflection and refraction of plane waves	Understanding
C223.5	Design and Analysis of transmission lines	Understanding
C223.6	Design and Analysis of Smith chart	Applying



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## Department of Electronics and Communication Engineering

A Y: 2020-2021

CO No	Subject: Analog communications	Taxonomy level
<b>Student should be able to</b>		
C224.1	Familiarize with the fundamentals of analog communication systems, Amplitude modulation and demodulation	Understanding
C224.2	Familiarize with various techniques for Frequency modulation and demodulation	Analyzing
C224.3	Familiarize with various techniques for analog modulation and demodulation of signals	Applying
C224.4	Develop the ability to classify and understand various functional blocks of radio transmitters and receivers	Applying
C224.5	Distinguish the figure of merits of various analog modulation methods	Analyzing
C224.6	Familiarize with basic techniques for generating and demodulating various pulse modulated signals	Analyzing
CO No	Subject: Computer Architecture and organization	Taxonomy level
<b>Student should be able to</b>		
C225.1	To understand the architecture of a modern computer with its various processing units. Also the Performance measurement of the computer system.	Applying
C225.2	To Understand the various instructions, addressing mode	Applying
C225.3	To Understand the concept of I/O organization	Applying
C225.4	To understand the memory management system of computer.	Applying
C225.5	To understand the PROCESSING UNIT Micro programmed Control.	Applying
CO No	Subject: Management and Organizational Behavior	Taxonomy level
<b>Student should be able to</b>		
C226.1	To understand the introduction of management and its importance.	Remembering
C226.2	To understand the Functional Management, like human resource management and marketing management.	Applying
C226.3	To understand the Strategic Management, like vision, mission, objectives, contemporary concepts.	Understanding
C226.4	To understand the Individual Behavior and its importance of corporate world.	Applying
C226.5	To understand the motivation concept and personality development.	Understanding
C226.6	To understand the Group Dynamics and its Types of Groups etc.	Understanding



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## Department of Electronics and Communication Engineering

A Y: 2020-2021

CO No	Subject: ECA Lab	Taxonomy level
<b>Student should be able to</b>		
C227.1	Design small signal single stage amplifiers and then observe it's frequency response.	Remember
C227.2	Design multi stage amplifiers and then observe it's frequency response.	Applying
C227.3	Design an oscillator circuit and calculate it's output frequency.	Understanding
C227.4	Design feedback amplifiers and then observe it's frequency response.	Understanding
C227.5	Design an oscillator circuit and calculate it's output frequency.	Understanding
C227.6	Design tuned amplifiers and then observe it's frequency response.	Applying
CO No	Subject: ANALOG COMMUNICATIONS Lab	Taxonomy level
<b>Student should be able to</b>		
C228.1	Analyze the modulation and demodulation techniques of conventional AM scheme. .	Analyzing
C228.2	Analyze the modulation and demodulation techniques of conventional DSB & SSB scheme.	Analyzing
C228.3	Analyze the modulation and demodulation techniques of conventional angle modulation scheme.	Analyzing
C228.4	Analyze the different transmitters & receivers techniques.	Analyzing
C228.5	Analyze the circuit diagrams of PLL&AGC.	Analyzing
C228.1	Analyze the modulation and demodulation techniques of conventional AM scheme. .	Analyzing

  
Coordinator

  
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## Department of Electronics and Communication Engineering

A Y: 2020-2021

III Year I Semester		
CO No.	Subject: Computer Architecture and Organization	Taxonomy level
<b>After going through this course the student will be able to</b>		
C311.1	Analyze the performance of a Digital Communication System using pulse digital modulation techniques	Understanding
C311.2	Analyze digital transmission methods and detection techniques for baseband transmission	Understanding
C311.3	Evaluate the Error performance of Digital Modulation schemes	Applying
C311.4	Analyze the Information theory in communication systems	Remembering
C311.5	Apply the source coding techniques on transmission medium in digital communication system	Understanding
C311.6	Understanding of how a computer performs arithmetic operation of positive and negative numbers.	Analyzing
CO No	Subject: Linear I C Applications	Taxonomy level
<b>Student should be able to</b>		
C312.1	Describe the op-amp and internal circuitry of op-amps	Analyzing
C312.2	Discuss the applications of operational amplifier and design of various applications of op-amp	Analyzing
C312.3	Understanding the active filters using operational Amplifier	Creating
C312.4	Operation and design of active filters using operational Amplifier	Creating
C312.5	Design and applications of 555 timer and Phase locked loop	Applying
C312.6	Use the Op-Amp in A to D & D to A Converters	Analyzing
CO No	Subject: Digital I C Applications	Taxonomy level
<b>Student should be able to</b>		
C313.1	Explain the concepts of logic families used in ics	Understanding
C313.2	Develop digital logic with vhdl simulation and synthesis	Applying
C313.3	Develop vhdl applications by using different statements	Applying
C313.4	Design the combinational circuits using vhdl for real time applications	Applying
C313.5	Design the sequential circuits using vhdl for real time applications	Applying
C313.6	Design state diagrams state tables state reduction with the help of mealy and moore circuits	Applying



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CO No	Subject: Digital Communications	Taxonomy level
<b>Student should be able to</b>		
C314.1	Analyse the performance of dc system using pulse digital modulation techniques	Analyzing
C314.2	Analyse digital transmission methods and detection techniques for base band transmission	Analyzing
C314.3	Evaluate the error performance of digital modulation schemes	Evaluating
C314.4	Analyse the information theory in communication systems	Analyzing
C314.5	Apply source coding technique on transmission medium in digital communication system	Applying
C314.6	Apply the channel coding techniques in digital communication system in order to provide error detection and correction capabilities to the receiver.	Applying
CO No	Subject: Antenna and Wave Propagation	Taxonomy level
<b>Student should be able to</b>		
C315.1	Describe all the basic parameters of an antenna	Understanding
C315.2	Analyze the parameters of linear wire antennas and explain the antenna theorems	Analyzing
C315.3	Design and analyze various antenna arrays	Creating
C315.4	Explain the operation of non resonant antennas	Understanding
C315.5	Describe about VHF, UHF and Microwave antennas and its measurements.	Understanding
C315.6	Explain the characteristics of radio wave propagation	Understanding
CO No	Subject: PDC Lab	Taxonomy level
<b>Student should be able to</b>		
C316.1	Design linear and non linear wave shaping circuits	Analyzing
C316.2	Design transistor as a switch	Analyzing
C316.3	Examine the functionality of combinational and sequential logic circuits	Analyzing
C316.4	Examine the performance of sampling gates	Analyzing
C316.5	Design astable, bistable and monostable multivibrators using transistors	Applying
C316.6	Design UJT relaxation oscillator and bootstrap sweep circuit	Applying



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## Department of Electronics and Communication Engineering

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CO No	Subject: LICA Lab	Taxonomy level
<b>Student should be able to</b>		
C317.1	Design of adder, subtractor, comparator Circuits.	Analyzing
C317.2	Design of Integrator and Differentiator Circuits using IC 741.	Applying
C317.3	Examine the frequency response of filters.	Applying
C317.4	Design of RC Phase shift and Wien bridge Oscillator using IC 741	Understanding
C317.5	Applications of PLL,VCO	Understanding
C317.6	Understandig the operation of 4 bit DAC using Op-Amp	Applying
CO No	Subject: DSD & DICA Lab	Taxonomy level
<b>Student should be able to</b>		
C318.1	Implement & Design Logic Gates By Using Vhdl Or Hardware	Analyzing
C318.2	Implement & Design 3 To 8 Decoder -74138 By Using Vhdl Or Hardware.	Analyzing
C318.3	Implement & Design 8 X 1 Multiplexer By Using Vhdl Or Hardware	Analyzing
C318.4	Implement & Design D-Flipfloop By Using Vhdl Or Hardware	Analyzing
C318.5	Implement & Design Shiff Register By Using Vhdl Or Hardware	Analyzing
C318.6	Implement &Design ALU By Using Vhdl Or Hardware	Analyzing

  
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# 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: 2020-2021

III Year II Semester		
CO No	Subject: Micro Processors & Micro Controllers	Taxonomy level
<b>Student should be able to</b>		
C321.1	Acquire knowledge about the processors, Understand the basic concepts of Microprocessors and addressing modes	Analyzing
C321.2	Develop program for different addressing modes.	Applying
C321.3	Understand the different types of interrupts that are functional at the work Place.	Applying
C321.4	Understand and capable or interfacing the microprocessor to the I/O devices.	Analyzing
C321.5	Develop simple applications on microcontroller based systems.	Analyzing
C321.6	Understand the development and improvement in Microprocessors and controllers.	Creating
CO No	Subject: Micro Wave Engineering	Taxonomy level
<b>Student should be able to</b>		
C322.1	Analysze the different waveguide characteristics	Evaluating
C322.2	Design different modes in waveguide structures	Evaluating
C322.3	Caluculate S-matrix for various waveguide components	Understanding
C322.4	Evaluate the Splitting the microwave energy in a desired direction	Understanding
C322.5	Evaluate the Distinguish between microwave tubes and solid state devices, calculation of efficiency of devices	Evaluating
C322.6	Apply the Measure various microwave parameters using a microwave test bench	Understanding
CO No	Subject: VLSI Design	Taxonomy level
<b>Student should be able to</b>		
C323.1	Describe the IC Technologies and various MOS fabrication techniques	Understanding
C323.2	Design N-MOS, P-MOS & C-MOS stick and layout diagrams with various techniques.	Creating
C323.3	Measure the various types of sheet resistance concept applied to MOS transistor.	Evaluating
C323.4	Describe the chip inputs,outputs and its testability	Understanding
C323.5	Describe FPGA design	Understanding
C323.6	Describe Low Power VLSI Design	Understanding





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## Department of Electronics and Communication Engineering

A Y: 2020-2021

CO No	Subject: Digital Signal Processing	Taxonomy level
<b>Student should be able to</b>		
C324.1	Examine discrete-time signals and systems, linear constant coefficient difference equation and frequency domain representation.	Analyzing
C324.2	Analyze Discrete Fourier Series, Discrete Fourier Transform and Fast Fourier Transform algorithms	Analyzing
C324.3	Design structures for digital filters and solve difference equations using Z-Transforms.	Evaluating
C324.4	Design digital IIR filter using analog filter and digital FIR filter using windowing techniques.	Evaluating
C324.5	Distinguish Decimation and interpolation for Multi-rate signal processing.	Analyzing
C324.6	Describe DSP processors, memory architecture for DSP, addressing modes and registers	Understanding
CO No	Subject: Bio-Medical Engineering	Taxonomy level
<b>Student should be able to</b>		
C325.1	Explain the concepts of bio medical potentials	understanding
C325.2	Classify the different types of electrodes and transducers	understanding
C325.3	Analysis about cardiovascular system and respiratory system	Analyzing
C325.4	Explain about patient care monitoring therapeutic devices and prosthetic devices	Evaluating
C325.5	Illustrate diagnostic techniques and bio telemetry	understanding
C325.6	Demonstrate monitors and recorders and shocking Hazards	understanding
CO No	Subject: MPMC Lab	Taxonomy level
<b>Student should be able to</b>		
C326.1	To develop basic knowledge of Tasm software	Understanding
C326.2	To develop and execute simple programs on 8086 micro controller	Applying
C326.3	To develop and execute the assembly language programs for interfacing Intel 8086 with peripheral devices	Applying
C326.4	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.	Applying
C326.5	To develop and execute the assembly language programs for interfacing Intel 8051 with peripheral devices	Applying
C326.6	To develop and execute simple programs on 8051 micro controller	Applying



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## Department of Electronics and Communication Engineering

A Y: 2020-2021

CO No	Subject: VLSI Lab	Taxonomy level
<b>Student should be able to</b>		
C327.1	Design and implementation of logic gates	Applying
C327.2	Design and implementation of combinational circuits	Applying
C327.3	Design and implementation of lathes	Applying
C327.4	Design and implementation of RAM cell and differential amplifier	Applying
C327.5	Design and implementation of counter	Applying
C327.6	Design and implementation of oscillator	Applying
CO No	Subject: DC Lab	Taxonomy level
<b>Student should be able to</b>		
C328.1	Understand the basic theories of digital communication system in practical	Analyzing
C328.2	Analyse the pulsed modulation systems and their performance	applying
C328.3	Analyse the different digital modulation and demodulation schemes	Analysis
C328.4	Identify and describe techniques in modern digital communication in source coding	applying
C328.5	Analyse the companding techniques	Analysis
C328.6	Able to perform channel coding	Understanding
CO No	Subject: IPR & Patents	Taxonomy level
<b>Student should be able to</b>		
C329.1	Define different Intellectual Properties rights and agencies for registration.	Remembering
C329.2	List out the formalities of copyright registration	Remembering
C329.3	Outline the process of patent for the protection of software and innovations.	Understanding
C329.4	Classify dilution of ownership to protect the trademark.	Understanding
C329.5	Define the trade secrete laws for employees confidentiality	Remembering
C329.6	Illustrate Cybercrime with example and how to secure data.	Understanding

  
Coordinator

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

A Y: 2020-2021

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	Create
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: 2020-2021

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,Pule 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: 2020-2021

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

  
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## Department of Electronics and Communication Engineering

A Y: 2020-2021

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
<b>CO No</b>	<b>Subject: SC</b>	<b>Taxonomy level</b>
<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



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**Department of Electronics and Communication Engineering**


A Y: 2020-2021

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

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	Application
<b>CO NO</b>	<b>Project</b>	<b>Taxonomy level</b>
<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

  
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