



# 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: 2022-2023

### I Year I Semester

CO No.	Subject: COMMUNICATIVE ENGLISH	Taxonomy level
<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	Taxonomy level
<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	Taxonomy level
<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



# 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: 2022-2023

CO No.	Subject: Programming for Problem Solving Using C	Taxonomy level
<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	Taxonomy level
<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	Taxonomy level
<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



# 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: 2022-2023

CO No.	Subject: APPLIED CHEMISTRY LAB	Taxonomy level
<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	Taxonomy level
<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

  
IQAC

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

  
HoD  
**HEAD OF THE DEPARTMENT**  
Dept Of S & H  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P. 523 272



# 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: 2022-2023

### I Year II Semester

CO No.	Subject: Mathematics-II	Taxonomy level
<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: AppliedPhysics	Taxonomy level
<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	Taxonomy level
<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

**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: 2022-2023

CO No.	Subject: Network Analysis	Taxonomy level
<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	Taxonomy level
<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



# 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: 2022-2023

CO No.	Subject: Basic Electrical Engineering Lab	Taxonomy level
<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	Compute the performance of 1-phase transformer.	Evaluating
C127.4	Perform tests on 3-phase induction motor and alternator to determine their performance characteristics.	Evaluating

CO No.	Subject: Applied Physics Lab	Taxonomy level
<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	Apply the basic concepts of dielectric to determine dielectric constant by charging and discharging method.	Applying
C128.5	Apply the mathematical concepts/equations to obtain quantitative results	Evaluating

*Law*  
Coordinator

*P.R.*  
IQAC

**IQAC Co-ordinator**  
**RISE Krishna Sai Gandhi Group**  
**of Institutions, Valluru 523 27**

*S. Madan*  
HoD

**HEAD OF THE DEPARTMENT**  
**Dept Of S & H**  
**RISE Krishna Sai Gandhi Group**  
**of Institutions, VALLURU, A.P. 523 272**



# 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: 2022-2023

### 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



# 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: 2022-2023

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 among them needed for a specific problem	Remember
C216.2	Implement programs to distinguish different forms of inheritance	Understanding
C216.3	Create packages and to reuse them	Applying
C216.4	Develop programs using Exception Handling mechanism	Understanding
C216.5	Develop multithreaded application using synchronization concept.	Understanding
C216.6	Design GUI based applications using Swings and AWT.	Applying





# 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: 2022-2023

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

  
IQAC  
IQAC Co-ordinator  
RISE Krishna Sai Gandhi Group  
of Institutions, Valluru 523 27.

  
HoD  
HEAD OF THE DEPARTMENT  
Department of E.C.E  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P.-523 272



# 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: 2022-2023

### 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



# 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: 2022-2023

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



# 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: 2022-2023

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

  
Coordinator

  
IQAC

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

  
HoD

**RISE Krishna Sai Gandhi Group**  
**of Institutions, VALLURU, A.P.-523 272**



# 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: 2022-2023

### III Year I Semester

CO No.	Subject: Analog IC Applications	Taxonomy level
<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	Understanding
C311.3	Understanding the active filters using operational Amplifier	Applying
C311.4	Operation and design of active filters using operational Amplifier	Applying
C311.5	Design and applications of 555 timer and Phase locked loop	Applying
C311.6	Use the Op-Amp in A to D & D to A Converters	Applying
CO No.	Subject: Electromagnetic waves and Transmission Lines	Taxonomy level
<b>After going through this course the student will be able to</b>		
C312.1	To understand the basic concepts of Electrostatics and magneto statics	Evaluating
C312.2	Acquire the knowledge of Maxwell's equations in Time varying Fields and boundary conditions of electric and magnetic fields	Evaluating
C312.3	To Learn the basic wave equations and observe the EM wave characteristics of Different mediums	Applying
C312.4	To understand the power flow calculations of EM wave, Reflection and refraction of plane waves	Analyzing
C312.5	Design and Analysis of transmission lines	Analyzing
C312.6	Design and Analysis of Smith chart	Analyzing
CO No.	Subject: Digital Communications	Taxonomy level
<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.	Applying



# 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: 2022-2023

CO No.	Subject: Data Structures	Taxonomy level
<b>After going through this course the student will be able to</b>		
C314.1	Select appropriate data structures as applied to specified problem definition.	Understanding
C314.2	Summarize and understand the practical applications of several advanced techniques like Hashing and Analyzing and Implement appropriate sorting /searching technique for given problems.	Analyzing
C314.3	Demonstrate the operations such as Insertion, Deletion and Search on Data structures like Binary Search Tree and solve the problems. • Demonstrate the operations such as Insertion, Deletion and Search on	Applying
C314.4	Advanced Data structures like Heaps, AVL trees and B Trees. • Comparisons of trees like Red Black trees and B-Trees etc. and priority queue operations. queue operations.	Applying
CO No.	Subject: Electronic Measurements and Instrumentation	Taxonomy level
<b>After going through this course the student will be able to</b>		
C315.1	Analyze performance characteristics of electronic measuring instruments.	Understanding
C315.2	Explain signal generators, wave and distortion analyzers.	Analyzing
C315.3	Demonstrate the functionality of oscilloscopes.	Understanding
C315.4	Analyze bridges for measurement of inductance and capacitance.	Analyzing
C315.5	Analyze active and passive transducers.	Analyzing
C315.6	Describe physical parameters force, pressure, velocity, humidity, moisture, speed proximity and data acquisition system.	Analyzing
CO No.	Subject: LICA Lab	Taxonomy level
<b>After going through this course the student will be able to</b>		
C316.1	Design of adder, subtractor, comparator Circuits.	Analyzing
C316.2	Design of Integrator and Differentiator Circuits using IC 741.	Applying
C316.3	Examine the frequency response of filters.	Applying
C316.4	Design of RC Phase shift and Wien bridge Oscillator using IC 741	Understanding
C316.5	Applications of PLL,VCO	Understanding
C316.6	Understandig the operation of 4 bit DAC using Op-Amp	Applying



# 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: 2022-2023

CO No.	Subject: DC Lab	Taxonomy level
<b>After going through this course the student will be able to</b>		
C317.1	Understand the basic theories of digital communication system in practical	Analyzing
C317.2	Analyse the pulsed modulation systems and their performance	Applying
C317.3	Analyse the different digital modulation and demodulation schemes	Applying
C317.4	Identify and describe techniques in modern digital communication in source coding	Applying
C317.5	Analyse the companding techniques	Applying
C317.6	Able to perform channel coding	Applying
CO No.	Subject: Data Structures by using JAVA Lab	Taxonomy level
<b>After going through this course the student will be able to</b>		
C318.1	Select appropriate data structures as applied to specified problem definition.	Analyzing
C318.2	Understand the practical applications of several advanced techniques like hashing and analysing and implement appropriate sorting/searching technique for given problems.	Analyzing
C318.3	Demonstrate the operations such as insertion, deletion, and search on data structures like binary search tree and solve the problems.	Evaluating
C318.4	Demonstrate the operations such as insertion, deletion, and search on advanced data structures like Heaps, AVL trees and B-trees	Evaluating
C318.5	Comparisons of trees like Red Black trees and B-trees etc., and priority	Analyzing

  
Coordinator

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

  
HoD  
HEAD OF THE DEPARTMENT  
Department of E.C.E  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P-523 272



# 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: 2022-2023

### 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	Applying
C321.2	Develop program for different addressing modes.	Analyzing
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.	Applying
C321.5	Develop simple applications on microcontroller based systems.	Applying
C321.6	Understand the development and improvement in Microprocessors and controllers.	Applying
CO No	Subject: VLSI Design	Taxonomy level
<b>Student should be able to</b>		
C322.1	Describe the IC Technologies and various MOS fabrication techniques	Understanding
C322.2	Design N-MOS, P-MOS & C-MOS stick and layout diagrams with various techniques	Applying
C322.3	Measure the various types of sheet resistance concept applied to MOS transistor.	Analyzing
C322.4	Describe the Chip inputs, Outputs and its testability	Creating
C322.5	Describe the FPGA design	Understanding
C322.6	Describe the low power VLSI Design	
CO No	Subject: Digital Signal Processing	Taxonomy level
<b>Student should be able to</b>		
C323.1	Apply the difference equations concept in the analysis of Discrete time systems	Analyzing
C323.2	Use the FFT algorithm for solving the DFT of a given signal	Analyzing
C323.3	Design a Digital filter (FIR&IIR) from the given specifications	Applying
C323.4	Realize the FIR and IIR structures from the designed digital filter.	Applying
C323.5	Use the Multirate Processing concepts in various applications	Understanding
C323.6	Apply the signal processing concepts on DSP Processor.	Understanding





# 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: 2022-2023

CO No	Subject: Micro wave Engineering	Taxonomy level
<b>Student should be able to</b>		
C324.1	Analyze the different waveguide characteristics	Analyzing
C324.2	Design different modes in waveguide structures	Applying
C324.3	Calculate S-matrix for various waveguide components	Applying
C324.4	Evaluate the Splitting the microwave energy in a desired direction	Applying
C324.5	Evaluate the Distinguish between microwave tubes and solid state devices, calculation of efficiency of devices	Analyzing
C324.6	Apply the Measure various microwave parameters using a microwave test bench	Understanding
CO No	Subject: COMPUTER NETWORKS	Taxonomy level
<b>Student should be able to</b>		
C325.1	Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards.	Applying
C325.2	Discuss different transmission media and different switching networks.	Understanding
C325.3	Analyze data link layer services, functions and protocols like HDLC and PPP.	Analyzing
C325.4	Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols.	Analyzing
C325.5	Determine application layer services and client server protocols working with the client server	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.	Creating
C326.5	To develop and execute the assembly language programs for interfacing Intel 8051 with peripheral devices peripheral devices	Understanding
C326.6	To develop and execute simple programs on 8051 micro controller	Creating



# 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: 2022-2023

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 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	Taxonomy level
<b>Student should be able to</b>		
C328.1	Demonstrate proficiency in generating discrete-time (DT) signals for various signal processing applications.	Analyzing
C328.2	Perform the computation of Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT) using software tools, and interpret their significance.	Analyzing
C328.3	Apply practical skills in generating sinusoidal signals using a TI DSP Starter Kit, demonstrating hands-on proficiency.	Applying
C328.4	Design and implement Finite Impulse Response (FIR) filters for signal processing tasks, evaluating their performance.	Understanding
C328.5	Verify the practical application of the sampling theorem using the Cypress FM4 Starter Kit, highlighting the importance of correct sampling rates.	Analyzing
C328.6	Design and implement FIR filters for signal processing applications, applying the knowledge gained from the experiments.	Analyzing

  
Coordinator

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

  
HoD  
Department of E.C.E  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P.-523 272



# 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: 2022-2023

### IV Year I Semester

CO No	Subject: Microwave and Optical Communication Engineering	Taxonomy level
<b>Student should be able to</b>		
C411.1	Design different modes in waveguide structures	Creating
C411.2	Calculate S-matrix for various waveguide components and splitting the microwave energy in a desired direction	Analyzing
C411.3	Distinguish between Microwave tubes and Solid State Devices, calculation of efficiency	Remembering
C411.4	Measure various microwave parameters using a Microwave test bench	Understanding
C411.5	Analysis of optical measurements	Analyzing
CO No	Subject: Data Communications & Computer networks	Taxonomy level
<b>Student should be able to</b>		
C412.1	Explain the Categories and functions of various Data communication Networks and TCP/IP and OSI reference models	Understanding
C412.2	Design and analyze various error detection techniques and flow control mechanisms in Data Link Layer	Applying
C412.3	Demonstrate the mechanism of routing the data in networklayer	Understanding
C412.4	Explain the significance of various Flow control and Congestion controlMechanisms in Transport Layer	Understanding
C412.5	Explain the Functioning of various Application layerProtocols	Understanding
CO No	Subject: Digital Image and Video Processing	Taxonomy level
<b>Student should be able to</b>		
C413.1	Defining the digital image, representation of digital image, importance of image resolution, applications in imageprocessing.	Applying
C413.2	Know the advantages of representation of digital images in transform domain, application of various imagetransforms	Analyzing
C413.3	Know how an image can be enhanced by using histogram techniques, filtering techniques etc x Understand image degradation, image restoration techniques using spatial filtersand frequencydomain	Applying
C413.4	Know the detection of point, line and edges in images, edge linking through local processing, globalprocessing & Understand the redundancy in images, various image compressiontechniques	Analyzing
C413.5	Know the video technology from analog color TV systems to digital video systems,how video signal is sampled and filtering operations in video processing	Applying
C413.6	Know the general methodologies for 2D motion estimation, various coding used in video processing	Applying



**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: 2022-2023

CO No	Subject: Professional Elective (PE3) Analog IC design	Taxonomy level
<b>Student should be able to</b>		
C414.1	To describe about single stage amplifier.	Understanding
C414.2	To analyse high frequency and noise characteristics of amplifiers	Applying
C414.3	To analyse about feedback circuits and about Op-Amp performance characteristics.	Understanding
C414.4	To learn about frequency compensation techniques	Understanding
C414.5	To understand the stability of an Op-Amp	Applying
C414.6	To analyse Band gap references	Applying
CO No	Subject: Professional Elective (PE4) (Embedded Systems)	Taxonomy level
<b>Student should be able to</b>		
C415.1	Explain the basic concepts and applications of embedded systems	Understanding
C415.2	Distinguish all communication devices in Embedded system, other peripheral device	Applying
C415.3	Analyze embedded firmware design approaches and development languages.	Understanding
C415.4	Analyze real time operating systems with examples of Task Communication, Synchronization.	Understanding
C415.5	Explain the embedded software development tools.	Applying
C415.6	Design, implement and test an embedded system.	
CO No	Subject: Internet of Things Lab	Taxonomy level
<b>Student should be able to</b>		
C416.1	Under Stand Raspberry Pi Board/ Arduino/NodeMCU	Understanding
C416.2	Installation of Software for PSOC4BLE ,Arduino , Node MCU	Analyzing
C416.3	Programming knowledge on PSOC4BLE	Applying
C416.4	Programming knowledge on Arduino board	Analyzing
CO No	Subject: Microwave and Optical Communication Engineering LAB	Taxonomy level
<b>Student should be able to</b>		
C417.1	Describe the Basic microwave bench set up	Understanding
C417.2	Observe the characteristics of Reflex Klystron & Gunn diode	Analyzing
C417.3	Calculate VSWR , wavelength, impedance, frequency of waveguide	Evaluating
C417.4	Measure the scattering parameters of microwave devices.	Evaluating
C417.5	Measure the losses in fibers and NA	Evaluating

  
Coordinator

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

  
HoD  
HEAD OF THE DEPARTMENT  
Department of E.C.E  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P.-523 272



# 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: 2022-2023

### IV Year II Semester

CO No	Subject: Professional Elective (PE5) Wireless Communications	Taxonomy level
<b>Student should be able to</b>		
C421.1	Know about the Wireless systems and Standards (1G/2G/3Gsystems).	Understanding
C421.2	Concept and analysis of CDMA-based wireless networks	Analysis
C421.3	Understand the concepts of Multiple-Input Multiple-Output (MIMO).	Understanding
C421.4	Understand the modern wireless systems using OFDM.	Understanding
C421.5	Analysis of Satellite-Based Wireless systems	Analyzing
CO No	Subject: Open Elective (OE2)CYBER SECURITY & CRYPTOGRAPHY	Taxonomy level
<b>Student should be able to</b>		
C422.1	Explain the computer forensics fundamentals.	Understanding
C422.2	Describe the types of computers forensics technology	Understanding
C422.3	Describe the various tools for Cyber Crime Investigation.	Understanding
C422.4	Analyze various computer forensics systems.	Understanding
C422.5	Illustrate the methods for data recovery, evidence collection and data seizure.	Understanding
CO No	Subject: Project - Part II	Taxonomy level
<b>Student should be able to</b>		
C423.1	Envisaging applications for societal needs	Evaluating
C423.2	Develops skills for analysis and synthesis of practical systems	Creating
C423.3	Acquire the use of new tools effectively and creatively	Creating
C423.4	Work in team to carry out analysis and cost-effective, environmental friendly designs of engineering systems	Creating
C423.5	Write Technical / Project reports and oral presentation of the work done to an audience. Demonstrate a product developed	Evaluating

  
Coordinator

  
IQAC  
IQAC Co-ordinator  
RISE Krishna Sai Gandhi Group  
of Institutions, Valluru 523 27.

  
HoD  
HEAD OF THE DEPARTMENT  
Department of E.C.E  
RISE Krishna Sai Gandhi Group  
of Institutions, VALLURU, A.P. 523 272