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: 2023-2024

I Year I Semester

COURSE: Engineering Physics		
CO. No	**Course Outcomes**	**Taxonomy Level**
After successful completion of this course student will be able to		
C111.1	Analyze the intensity variation of light due topolarization, interference and diffraction	Analyzing
C111.2	Familiarize with the basics of crystals and their structures	Creating
C111.3	Explain fundamentals of quantum mechanics and apply itto one dimensional motion of particles	Understanding
C111.4	Summarize various types of polarization of dielectrics and classify the magnetic materials.	Understanding
C111.5	Explain the basic concepts of Quantum Mechanics andthe band theory of solids	Understanding
C111.6	Identify the type of semiconductor using Hall effect	Analyzing

COURSE: Linear Algebra & Calculus		
CO. No	**Course Outcomes**	**Taxonomy Level**
After successful completion of this course student will be able to		
C112.1	Develop and use of matrix algebra techniques that are needed by engineers for practical applications	Creating
C112.2	Utilize mean value theorems to real life problems	Applying
C112.3	Familiarize with functions of several variables which is useful in optimization	Creating
C112.4	Learn important tools of calculus in higher dimensions	Applying
C112.5	Familiarize with double and triple integrals of functions of several variables in two dimensions using Cartesian and polar coordinates and in three dimensions using cylindrical and spherical coordinates	Creating

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO. No	Course Outcomes	Taxonomy Level
COURSE: Basic Electrical & Electronics Engineering		
After successful completion of this course student will be able to		
C113.1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments (L2)	Remembering
C113.2	Demonstrate the working of electrical machines, measuring instruments and power generation stations. (L2)	Applying
C113.3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines. (L3)	Applying
C113.4	Calculate electrical load and electricity bill of residential and commercial buildings. (L4)	Applying
COURSE: Engineering Graphics		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C114.1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understanding
C114.2	Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views.	Applying
C114.3	Understand and draw projection of solids in various positions in first quadrant.	Understanding
C114.4	Explain principles behind development of surfaces	Understanding
C114.5	Prepare isometric and perspective sections of simple solids.	Applying

Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: Introduction To Programming		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C115.1	Understand basics of computers, the concept of algorithm and algorithmic thinking	Understanding
C115.2	Analyse a problem and develop an algorithm to solve it.	Analyzing
C115.3	Implement various algorithms using the C programming language	Applying
C115.4	Understand more advanced features of C language	Understanding
C115.5	Develop problem-solving skills and the ability to debug and optimize the code	Creating
COURSE: It Workshop		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C116.1	Perform Hardware troubleshooting	Understanding
C116.2	Understand Hardware components and inter dependencies.	Understanding
C116.3	Safeguard computer systems from viruses/worms	Understanding
C116.4	Document/ Presentation preparation	Applying
C116.5	Perform calculations using spreadsheets	Understanding

Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: Engineering Physics Lab		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C117.1	Operate optical instruments like travelling microscope and spectrometer	Applying
C117.2	Estimate the wavelengths of different colours using diffraction grating.	Evaluating
C117.3	Plot the intensity of the magnetic field of circular coil carrying current with distance	Applying
C117.4	Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.	Evaluating
C117.5	Calculate the band gap of a given semiconductor	Applying
C117.6	Identify the type of semiconductor using Hall effect	Understanding
COURSE: Electrical & Electronics Engineering Workshop		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C118.1	Measure voltage, current and power in an electrical circuit. (L3)	Applying
C118.2	Measure of Resistance using Wheat stone bridge (L4)	Applying
C118.3	Discover critical field resistance and critical speed of DC shunt generators. (L4)	Understanding
C118.4	Investigate the effect of reactive power and power factor in electrical loads. (L5)	Creating

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Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: Computer Programming Lab		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C119.1	Read, understand, and trace the execution of programs written in C language	Understanding
C119.2	Select the right control structure for solving the problem	Understanding
C119.3	Develop C programs which utilize memory efficiently using programming constructs like pointers.	Creating
C119.4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C	Creating
COURSE: Nss/Ncc/Scouts & Guides/Community Service		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to		
C1110.1	Understand the importance of discipline, character and service motto.	Understanding
C1110.2	Solve some societal issues by applying acquired knowledge, facts, and techniques	Applying
C1110.3	Explore human relationships by analyzing social problems.	Analyzing
C1110.4	Determine to extend their help for the fellow beings and downtrodden people.	Understanding
C1110.5	Develop leadership skills and civic responsibilities	Creating

Coordinator

Department of Electronics and Communication Engineering

A Y: 2023-2024

I Year II Semester

COURSE: Communicative English		
CO No.	**Course Outcomes**	**Taxonomy Level**
After successful completion of this course student will be able to:		
C121.1	Understand the context, topic, and pieces of specific information from social or Transactional dialogues.	Understanding
C121.2	Apply grammatical structures to formulate sentences and correct word forms.	Applying
C121.3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.	Analyzing
C121.4	Evaluate reading / listening texts and to write summaries based on global comprehension of these texts.	Evaluating
C121.5	Create a coherent paragraph, essay, and resume.	Creating

COURSE: ENGINEERING CHEMISTRY		
CO No.	**Course Outcomes**	**Taxonomy Level**
After successful completion of this course student will be able to:		
C122.1	Demonstrate the corrosion prevention methods and factors affecting corrosion	Applying
C122.2	Explain the preparation, properties, and applications of thermoplastics & thermosetting, elastomers & conducting polymers	Analyzing
C122.3	Explain calorific values, octane number, refining of petroleum and cracking of oils	Analyzing
C122.4	Explain the setting and hardening of cement	Analyzing
C122.5	Summarize the concepts of colloids, micelle and nanomaterials	Analyzing

Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C123.1	Solve the differential equations related to various engineeringfields.	Creating
C123.2	Identify solution methods for partial differential equations that model physical processes	Applying
C123.3	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Creating
C123.4	Estimate the work done against a field, circulation and fluxusing vector calculus.	Applying
COURSE: BASIC CIVIL AND MECHANICAL ENGINEERING		
CO No.	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C124.1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society.	Understanding
C124.2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying	Understanding
C124.3	Realize the importance of Transportation in nation's economy andthe engineering measures related to Transportation	Understanding
C124.4	Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.	Understanding
C124.5	Understand the basic characteristics of Civil Engineering Materialsand attain knowledge on prefabricated technology	Understanding
COURSE: Network Analysis		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C125.1	Understand basic electrical circuits with nodal and mesh analysis.	Understanding
C125.2	Analyse the circuit using network simplification theorems	Analyzing
C125.3	Find Transient response and Steady state response of a network	Applying
C125.4	Analyse electrical networks in the Laplace domain	Understanding
C125.5	Compute the parameters of a two-port network	Creating

Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: COMMUNICATIVE ENGLISH LAB		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C126.1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills	Understanding
C126.2	Apply communication skills through various language learning activities	Applying
C126.3	Analyze the English speech sounds, stress, rhythm, intonationand syllable division for better listening and speaking comprehension	Analyzing
C126.4	Evaluate and exhibit professionalism in participating in debates and group discussions	Evaluating
C126.5	Create effective Course Objectives	Creating
COURSE: ENGINEERING CHEMISTRY LAB		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C127.1	Determine the cell constant and conductance of solutions	Understanding
C127.2	Prepare advanced polymer materials	Understanding
C127.3	Determine the physical properties like surface tension, adsorption and viscosity	Understanding
C127.4	Estimate the Iron and Calcium in cement	Creating
C127.5	Calculate the hardness of water	Creating
COURSE: ENGINEERING WORKSHOP		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C128.1	Identify workshop tools and their operational capabilities	Understanding
C128.2	Practice on manufacturing of components using workshoptrades including fitting, carpentry, foundry and welding.	Analyzing
C128.3	Apply fitting operations in various applications	Applying
C128.4	Apply basic electrical engineering knowledge for HouseWiring Practice	Applying

Department of Electronics and Communication Engineering

A Y: 2023-2024

COURSE: NETWORK ANALYSIS AND SIMULATION LABORATORY		
CO. No	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C129.1	Verify Kirchoff's laws and network theorems	Understanding
C129.2	Measure time constants of RL & RC circuits	Evaluating
C129.3	Analyze behavior of RLC circuit for different cases	Creating
C129.4	Design resonant circuit for given specifications	Creating
C129.5	Characterize and model the network in terms of all network parameters	Applying
COURSE: HEALTH AND WELLNESS, YOGA AND SPORTS		
CO No.	Course Outcomes	Taxonomy Level
After successful completion of this course student will be able to:		
C1210.1	Understand the importance of yoga and sports for Physical fitness and sound health	Understanding
C1210.2	Demonstrate an understanding of health-related fitness components.	Understanding
C1210.3	Compare and contrast various activities that help enhance their health	Understanding
C1210.4	Assess current personal fitness levels	Analyzing
C1210.5	Develop Positive Personality	Creating

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Department of Electronics and Communication Engineering

A Y: 2023-2024

II Year I Semester

CO No	Subject: Electronic Devices and Circuits	Taxonomy level
Student should be able to		
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**
Student should be able to		
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**
Student should be able to		
C213.1	Differentiate the various classifications of signals andsystems	Understanding
C213.2	Analyze the frequency domain representation of signals using Fourierconcepts	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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: M-III	Taxonomy level
Student should be able to		
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
Student should be able to		
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.	Applying
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: EDC Lab	Taxonomy level
Student should be able to		
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**
Student should be able to		
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**
Student should be able to		
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
RISE Krishna Sai Gandhi Gr
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HoD

HEAD OF THE DEPARTMENT
Department of E.C.E
rishna Sai Gandhi Group
523 272

Department of Electronics and Communication Engineering

A Y: 2023-2024

II Year II Semester

CO No	Subject: Electronic Circuit analysis	Taxonomy level
Student should be able to		
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
Student should be able to		
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
Student should be able to		
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 stabillity 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

Department of Electronics and Communication Engineering

A Y: 2023-2024

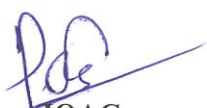| CO No	Subject: Analog communications	Taxonomy level
Student should be able to		
C223.1	Familiarize with the fundamentals of analog communication systems, Amplitude modulation and demodulation	Understanding
C223.2	Familiarize with various techniques for Frequency modulation and demodulation	Analyzing
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
Student should be able to		
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
Student should be able to		
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: ANALOG COMMMUNICATIONS Lab	Taxonomy level
Student should be able to		
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
Student should be able to		
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-flipfloop by using vhdl or hardwares	Understanding
C228.5	Implement &design shiff 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
Student should be able to		
C229.1	Use language fluently, accurately and appropriately indebates and group discussions	Applying
C229.2	Use their skills of listening comprehension to communicate effectively incross-cultural contexts.	Applying
C229.3	Learn and use new vocabulary.	Applying
C229.4	Write resumes, project reports and reviews	Applying

Coordinator

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

Department of Electronics and Communication Engineering

A Y: 2023-2024

III Year I Semester

CO No.	Subject: Analog IC Applications	Taxonomy level
After going through this course the student will be able to		
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
After going through this course the student will be able to		
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 equationsand 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
After going through this course the student will be able to		
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

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Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No.	Subject: Data Structures	Taxonomy level
After going through this course the student will be able to		
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
After going through this course the student will be able to		
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
After going through this course the student will be able to		
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No.	Subject: DC Lab	Taxonomy level
After going through this course the student will be able to		
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
After going through this course the student will be able to		
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

III Year II Semester

CO No	Subject: Micro Processors & Micro Controllers	Taxonomy level
Student should be able to		
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
Student should be able to		
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
Student should be able to		
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: Micro wave Engineering	Taxonomy level
Student should be able to		
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
Student should be able to		
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
Student should be able to		
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

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: VLSI Lab	Taxonomy level
Student should be able to		
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**
Student should be able to		
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

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A Y: 2023-2024

IV Year I Semester

CO No	Subject: Optical Communications	Taxonomy level
Student should be able to		
C411.1	Choose necessary components required in modern optical communications systems	Understanding
C411.2	Design and build optical fiber experiments in the laboratory, and learn how to calculate electromagnetic modes in waveguides, the amount of light lost going through an optical system, dispersion of optical fibers	Analyzing
C411.3	Use different types of photo detectors and optical test equipment to analyze optical fiber and light wave systems	Remembering
C411.4	Choose the optical cables for better communication with minimum losses	Understanding
C411.5	Design, build, and demonstrate optical fiber experiments in the laboratory	Analyzing
CO No	Subject: Satellite Communication	Taxonomy level
Student should be able to		
C412.1	Understand the concepts, applications and subsystems of Satellite communications	Understanding
C412.2	Derive the expression for G/T ratio and to solve some analytical problems on satellite link design.	Applying
C412.3	Understand the various types of multiple access techniques and architecture of earth station design	Understanding
C412.4	Understand the concepts of GPS and its architecture	Understanding
CO No	Subject: Radar Engineering	Taxonomy level
Student should be able to		
C413.1	Derive the radar range equation and to solve some analytical problems	Analyzing
C413.2	Understand the CW, FM-CW radars and its application	Understanding
C413.3	Understand the MTI,Doppler radars and its applications	Understanding
C413.4	Understand the concept of Tracking and different Tracking Techniques	Understanding
C413.5	Derive the characteristics of a matched filter and distinguish different phased array antennas	Analyzing
C413.6	Understand the various components of radar receiver and its performance	Understanding

Department of Electronics and Communication Engineering

A Y: 2023-2024

CO No	Subject: OpenElective (OE2) Image Processing	Taxonomy level
Student should be able to		
C414.1	Apply transform techniques on images.	Applying
C414.2	Analyze spatial and frequency domain filtering on images.	Analyzing
C414.3	Apply image restoration operations on images.	Applying
C414.4	Analyze color conversions on images and code images to achieve good compression.	Analyzing
C414.5	Develop coding techniques for image compression and wavelet based image processing.	Applying
C414.6	Develop morphological operations and segmentation techniques on images.	Applying
CO No	Subject: Professional Elective (PE4) Introduction to machine learning	Taxonomy level
Student should be able to		
C415.1	Identify machine learning techniques suitable for a given problem	Understanding
C415.2	Solve the problems using various machine learning techniques	Applying
C415.3	Apply Dimensionality reduction techniques	Understanding
C415.4	Design application using machine learning techniques	Understanding
CO No	Subject: Universal human values	Taxonomy level
Student should be able to		
C416.1	Understand the significance of value inputs in a classroom and start applying them in their life and profession	Understanding
C416.2	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc	Understanding
C416.3	Understand the role of a human being in ensuring harmony in society and nature.	Understanding
C416.4	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	Understanding

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Department of Electronics and Communication Engineering

A Y: 2023-2024

IV Year II Semester

CO No	Subject: Project	Taxonomy level
Student should be able to		
C422.1	Envisaging applications for societal needs	Evaluating
C422.2	Develops skills for analysis and synthesis of practical systems	Creating
C422.3	Acquire the use of new tools effectively and creatively	Creating
C422.4	Work in team to carry out analysis and cost-effective, environmental friendly designs of engineering systems	Creating
C422.5	Write Technical / Project reports and oral presentation of the work done to an audience. Demonstrate a product developed	Evaluating

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