



RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS::ONGOLE

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

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

DEPARTMENT OF ECE

COURSE OUTCOMES

I Year I Semester

A.Y:2019-20

| CO. No | Subject: Communicative English | Taxonomy Level |
|---|--|----------------|
| At the end of the course, the student will be able to | | |
| 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 |
|--|---|----------------|
| After successful completion of this course students will be able to: | | |
| 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.N O. | Subject: Applied Chemistry | Taxonomy Level |
|---|---|----------------|
| After successful completion of this course students will be able to : | | |
| C113 .1 | Analyzedifferenttypesofcompositematerialsandthepreparation,propertiesandapplicationsofthepolymers. | Analysing |
| C113 .2 | Applytheknowledgeofusingredoxchemistryinstoragedevices(batteries)andtechniquesusedforpreventingcorrosion. | Applying |
| C113 .3 | Summarizetheimportanceofmanyofthefunctional materials,superconductors,liquidcristalsandsemiconductors. | Understanding |



| | | |
|--------|---|---------------|
| C113.4 | Analyze the principles and applications of analytical techniques and different types of nonconventional energy sources. | Analysing |
| C113.5 | Demonstrate the importance of molecular machines and computational chemistry. | Understanding |

| Subject: Programming for Problem Solving Using C | | Taxonomy Level |
|---|--|----------------|
| After successful completion of this course students will be able to : | | |
| C114.1 | To use different operators, data types and write programs that use two-way/ multiway 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 |
|---|--|----------------|
| After going through this course the student will be able to | | |
| 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 | 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 Lab | Taxonomy Level |
|---|---|----------------|
| After going through this course the student will be able to | | |
| 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 |



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|--------|--------------------------------|----------|
| C116.5 | Compose weak and strong forms. | Creating |
|--------|--------------------------------|----------|

| C0.NO. | Subject: Applied Chemistry lab | Taxonomy Level |
|---|--|----------------|
| After going through this course the student will be able to | | |
| 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 | 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 |

| Subject : Programming for Problem Solving Using C lab | | Taxonomy Level |
|---|--|----------------|
| After going through this course the student will be able to | | |
| 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 |

| O.NO. | Subject: Environmental Studies | Taxonomy Level |
|---|---|----------------|
| After going through this course the student will be able to | | |
| C119.1 | Explain the concepts of the ecosystem and its functions in the environment. | Understanding |
| C119.2 | Summarize the natural resources and their importance for the sustenance of life & need to conserve the natural resources. | Understanding |
| C119.3 | Demonstrate the values, threats, conservation practices to protect the biodiversity | Applying |
| C119.4 | Describe various attributes of the pollution and their impacts and measure to reduce pollution along with waste management practices. | Remembering |
| C119.5 | Evaluate social issues both rural and urban environment and the possible means to combat the challenges, with help of environmental legislations of India | Evaluating |

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DEPARTMENT OF ECE

COURSE OUTCOMES

I Year II Semester

A.Y:2019-20

| CO. No. | Subject: Mathematics-II | Taxonomy Level |
|---|---|----------------|
| After going through this course the student will be able to | | |
| 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 computations using different methods. | Evaluating |

| O. No. | Subject: Mathematics-III | Taxonomy Level |
|--|---|----------------|
| After successful completion of this course students will be able to: | | |
| C122.1 | Interpret the physical meaning of different operators such as gradient, curl and divergence, estimate the work done against a field, | Applying |
| C122.2 | Apply the Laplace transform for solving differential equations | Applying |
| C122.3 | 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 |
| C122.4 | Formation of partial differential equation and Identify solution methods for first order partial differential equations | Applying |
| C122.5 | Classify higher order partial differential equations and solve heat flow and wave problems | Applying |

| CO. NO | Subject: Applied Physics | Taxonomy Level |
|--|--------------------------|----------------|
| After successful completion of this course students will be able to: | | |



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|--------|--|---------------|
| C123.1 | Analyze the differences between interference and diffraction with applications | Analyzing |
| C123.2 | Explain the fundamental concepts of quantum mechanics. | Understanding |
| C123.3 | Explain the various electron theories . | Understanding |
| C123.4 | Classify the energy bands of semiconductors | Understanding |
| C123.5 | Explain the applications of dielectric and magnetic materials | Understanding |

| CO. NO | Subject : Network Analysis | Taxonomy Level |
|--|--|----------------|
| CO.NO. | | |
| After successful completion of this course students will be able to: | | |
| C124.1 | Student able to explain the basic network elements and analyze the performance of periodic waveforms | Analyzing |
| C124.2 | Student will analyze the filter design concepts in real world applications. | Analyzing |
| C124.3 | Student able to analyze the coupled circuit and resonance | Analyzing |
| C124.4 | Student will apply theorems for electrical circuits both ac and dc | Applying |
| C124.5 | Student Gain the knowledge in characteristics of two port network parameters (Z, Y, ABCD, h & g).. | Evaluating |

| CO. NO | Subject : Basic Electrical Engineering | Taxonomy Level |
|---|---|----------------|
| After going through this course the student will be able to | | |
| C125.1 | Explain the operation of DC generator and DC motor analyze the characteristics of DC generator and speed control methods of DC motors. | Understanding |
| C125.2 | Understand the constructional details, principle of operation and performance of transformers. | Understanding |
| C125.3 | Explain the principle of operation, construction and details of synchronous machines | Understanding |
| C125.4 | Explain the principle of operation, constructional details, performance, torque slip characteristics and starting methods of 3-phase induction motors | Understanding |



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|--------|--|---------------|
| | | |
| C125.5 | Understand the operation of various special machines | Understanding |

| CO No. | Subject : Electronic Work shop | Taxonomy level |
|---|---|----------------|
| After going through this course the student will be able to | | |
| C126.1 | Identification of various electronic components and equipment | Remembering |
| C126.2 | Implimenting Soldering practice using tool kit | Analyzing |
| C126.3 | Design and implement PCB layout | Applying |
| C126.4 | Test various active and passive components | Analyzing |
| C126.5 | Understand equitence and measurements on CRO | Understanding |

| CO No. | Subject :Basic Lab Electrical Engineering | Taxonomy level |
|---|---|----------------|
| After the completion of this course the student will be able to | | |
| 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 |

| O. NO | Subject : Applied Physics Lab | Taxonomy level |
|---|--|----------------|
| After the completion of this course the student will be able to | | |
| 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 |

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|--------|--|------------|
| C128.3 | Apply the basic concepts of magnetism to study the variation of B versus H. | Applying |
| C128.4 | Apply the basic concepts of dielectrics to determine dielectric constant by charging and discharging method. | Applying |
| C128.5 | Apply the mathematical concepts/equations to obtain quantitative results | Evaluating |

| CO.NO | Subject: Communication skills lab | Taxonomy level |
|---|---|----------------|
| After the completion of this course the student will be able to | | |
| C129.1 | Explain the basic concepts of language useful for pupils in their career | Understanding |
| C129.2 | Illustrate the usage of tenses in everyday life | Applying |
| C129.3 | Apply the techniques of science through language ability in a practical way | Applying |
| C129.4 | Make use of grammatical sentences for perfect communication | Creating |
| C129.5 | Analyze the importance of future tense with examples | Analyzing |
| C129.6 | Find the speaking and writing skills through reading ability of safety measures | Applying |

| CO No | Subject : Engineering Exploration Project | Taxonomy level |
|---------|---|----------------|
| | After the completion of this course the student will be able to | |
| C1210.1 | Develop applications in various areas for societal needs | Creating |
| C1210.2 | Develop skills for analysis and synthesis of practical systems | Creating |
| C1210.3 | Acquire the use of new tools effectively and creatively. | Creating |
| C1210.4 | Work in team to carry out analysis and cost-effective, environmental friendly designs of engineering systems. | Creating |
| C1210.5 | Write Technical / Project reports and oral presentation of the work done to an audience | Creating |
| C1210.6 | Demonstrate a product developed | Creating |



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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



AY: 2019-20

SEM:I

YEAR: II

COURSE OUTCOMES

| CO No | Subject: Electronic Devices and Circuits | Taxonomy |
|---------------------------|---|---------------|
| Student should be able to | | |
| C211.1 | Explain the basic concepts of semiconductor physics. | Understanding |
| C211.2 | Explain the formation of p-n junction and how it can be used as a p-n | Understanding |
| C211.3 | Describe the construction, working principle of rectifiers with and without | Applying |
| C211.4 | Explain the construction, principle of operation of transistors, BJT and | Understanding |
| C211.5 | Make use of transistor biasing, various biasing techniques for BJT and FET | Applying |
| C211.6 | Perform the analysis of small signal low frequency transistor amplifier | Analyzing |

| CO No | Subject: Switching Theory & Logic Design | Taxonomy |
|---------------------------|--|---------------|
| 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 |
|---------------------------|---|---------------|
| Student should be able to | | |
| C213.1 | Characterize the signals and systems and principles of vector spaces, Concept of | Understanding |
| C213.2 | Analyze the continuous-time signals and continuous-time systems using Fourier | Analyzing |
| C213.3 | Apply sampling theorem to convert continuous-time signals to discrete-time signal | Applying |
| C213.4 | Understand the relationships among the various representations of LTI systems | Understanding |
| C213.5 | Understand the Concepts of convolution, correlation, Energy and Power density and | Understanding |
| C213.6 | Apply z-transform to analyze discrete-time signals and systems. | Applying |

| CO No | Subject: Network Analysis | Taxonomy |
|---------------------------|--|------------|
| Student should be able to | | |
| C214.1 | Student able to explain the basic network elements and analyze the performance of periodic waveforms | Analyzing |
| C214.2 | Student Will analyze the RLC circuits behavior in detailed | Analyzing |
| C214.3 | Student able to analyze the coupled circuit and resonance | Analyzing |
| C214.4 | Student will apply theorems for electrical circuits both ac and dc | Applying |
| C214.5 | Student Gain the knowledge in characteristics of two port network parameters | Evaluating |
| C214.6 | Student will analyze the filter design concepts in real world applications. | Analyzing |



| CO No | Subject: Random variables & Stochastic Process | Taxonomy |
|---------------------------|--|---------------|
| Student should be able to | | |
| C215.1 | Determine the random variables and solve simple probabilistic problems | Understanding |
| C215.2 | Illustrates the different types of moments and transformations of random variables | Understanding |
| C215.3 | Applying distributions, density and moments theory for multiple random variables | Applying |
| C215.4 | Determine and explain the random process and stationary levels | Understanding |
| C215.5 | Evaluating the different types of correlations and their spectral and temporal | Evaluating |
| C215.6 | Analyze the LTI systems with random inputs and analyze these systems in the | Analyzing |

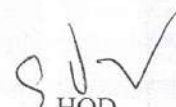
| CO No | Subject: Managerial Economics & Financial Analysis | Taxonomy |
|---------------------------|---|---------------|
| Student should be able to | | |
| C216.1 | Determine the objectives, nature, scope, role & responsibilities of a manager | Understanding |
| C216.2 | Predict the demand for a product or product mix of a company, Examine optimum | Understanding |
| C216.3 | Recognize Types of Business Organization and Business Cycles | Understanding |
| C216.4 | Explore the knowledge in competitive markets, pricing strategies, forms of business | Applying |
| C216.5 | Prepare the accounting concepts like Journal, Ledger, Trial Balance, financial | Applying |
| C216.6 | Explain the significance of capital in business and knowing the steps, methods, | Understanding |

| CO No | Subject: EDC Lab | Taxonomy |
|---------------------------|---|---------------|
| 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: N&ET Lab | Taxonomy |
|---------------------------|--|------------|
| Student should be able to | | |
| C218.1 | Analyze RLC Circuits And Understand Resonant Frequency And Q-Factor. | Analyzing |
| C218.2 | Determine the Z,Y-parameters | Evaluating |
| C218.3 | Apply network theorems to analyze the electrical network. | Applying |
| C218.4 | Determine the performance of dc shunt machine. | Evaluating |
| C218.5 | Determine the performance of 1-phase transformer. | Evaluating |
| C218.6 | Perform tests on 3-phase induction motor and alternator to determine their | Evaluating |


COORDINATOR




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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



AY: 2019-20

SEM:II

YEAR: II

COURSE OUTCOMES

| 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. | Analyzing |
| C221.2 | Design of multi stage amplifiers using BJT & FET. | Analyzing |
| 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. | Applying |
| C221.5 | Analyze different power amplifiers based on their performance. | Analyzing |
| C221.6 | Analyze different tuned amplifiers based on their performance. | Analyzing |

| CO No | Subject: Control Systems | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C222.1 | Describe concepts of feedback and its advantages to various control systems | Understanding |
| C222.2 | Determine the transfer function for a given system using block diagram and signal flow | Evaluating |
| C222.3 | Analyze the transient and steady state response of control systems. | Analyzing |
| C222.4 | Calculate the stability of a system. | Applying |
| C222.5 | Design compensation networks | Designing |
| C222.6 | Analyze of State variables and state models | Analyzing |

| CO No | Subject: Electromagnetic Waves and Transmission Lines Transmission Lines | Taxonomy level |
|---------------------------|---|----------------|
| Student should be able to | | |
| C223.1 | Determine Electric & magnetic field intensity using various laws and identify the applications of electro magneto static fields | Creating |
| C223.2 | Apply the Maxwell equations to analyze the time varying behavior of EM waves | Evaluating |
| C223.3 | Analyze the wave propagation in various media and determine the characteristics of the uniform plane wave | Analyzing |
| C223.4 | Analyze reflection and refraction of plane waves in conductor's and dielectrics | Applying |
| C223.5 | Determine the primary and secondary constants of transmission lines under | Remembering |
| C223.6 | Determine reflection coefficient, VSWR of a transmission line. theoretically & using smith chart | Understanding |



| CO No | Subject: Analog Communications | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C224.1 | Understand the fundamentals of analog communication systems.. | Understanding |
| C224.2 | Demonstrate various amplitude modulation and demodulation schemes and compare their spectral characteristics | Understanding |
| C224.3 | Understand the power and bandwidth requirements of FM and compare with AM | Understanding |
| C224.4 | Analyze various functional blocks of transmitters and receivers | Analyzing |
| C224.5 | Analyze noise characteristics of various analog modulation schemes | Analyzing |
| C224.6 | Understand the various pulse analog modulation schemes and demonstrate FDM & TDM techniques. | Understanding |

| CO No | Subject: Pulse and Digital Circuits | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C225.1 | Design linear wave shaping circuits. | Creating |
| C225.2 | Design non-linear wave shaping circuits. | Creating |
| C225.3 | Apply the fundamental concepts of wave shaping for various switching, Analysis of Bi-stable Multivibrator. | Applying |
| C225.4 | Analysis of Mono stable multi vibrator and Astable Multivibrator. | Analyzing |
| C225.5 | Analysis of different Time base Generators | Analyzing |
| C225.6 | Understand the concept of Logic gates & Sampling gates | Understanding |

| CO No | Subject: Management Science | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C226.1 | To know the management science in decision making process& its importance, evaluation of management thought, how organisation structure is designed and its principle and types. | Remembering |
| C226.2 | To Implement-quality of working methods , management about work study, how quality is controlled, control charts and inventory control and their types | Applying |
| C226.3 | To understand the main functional areas of organisation i.e., Financial Management, Production Management, Marketing Management, Human resource Management, Product life cycles and Channels of Distribution | Understanding |
| C226.4 | The learning objective of this unit is to understand the Development of Network And Identifying Critical Path | Understanding |
| C226.5 | To Appling concept of strategic management, environmental scanning, swot analysis and steps in strategy formulation and implementation. | Applying |
| C226.6 | To understand basic concepts of MIS, MRP, JIT, TQM, Six sigma, CMM, Supply chain management, ERP, BPO , about performance management, bench marking and balance score card and business process re-engineering . | Understanding |



| CO No | Subject: ECA Lab | Taxonomy level |
|---------------------------|---|----------------|
| Student should be able to | | |
| C227.1 | Design small signal single stage amplifiers and then observe it's frequency | Analyzing |
| C227.2 | Design multi stage amplifiers and then observe it's frequency response. | Analyzing |
| C227.3 | Design feedback amplifiers and then observe it's frequency response. | Analyzing |
| C227.4 | Design an oscillator circuit and calculate it's output frequency. | Analyzing |
| C227.5 | Design power amplifiers and then observe it's frequency response. | Analyzing |
| C227.6 | Design tuned amplifiers and then observe it's frequency response. | Analyzing |

| CO No | Subject: Analog Communications Lab | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C228.1 | Analyze the modulation and demodulation techniques of conventional AM | Analyzing |
| C228.2 | Analyze the modulation and demodulation techniques of conventional | Analyzing |
| C228.3 | Analyze the modulation and demodulation techniques of conventional | Analyzing |
| C228.4 | Analyze the different transmitters & receivers techniques. | Analyzing |
| C228.5 | Analyze the circuit diagrams of PLL & AGC. | Analyzing |
| C228.6 | Analyze the different digital modulation and de-modulation techniques. | Analyzing |


COORDINATOR


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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AY: 2019-20

SEM:I

YEAR: III

COURSE OUTCOMES

| CO No. | Subject: Computer Architecture and Organization | Taxonomy |
|---|---|---------------|
| After going through this course the student will be able to | | |
| C311.1 | Demonstrate evolution of the computer and Explain the performance of the computer | Understanding |
| C311.2 | Explain Instruction formats and decode the register transfer notations and assembly | Understanding |
| C311.3 | Apply different types of addressing modes to address an operand of Arithmetic and | Applying |
| C311.4 | Define the different I/O modules and their interfacing | Remembering |
| C311.5 | Classify the different types of memory systems to understand the memory | Understanding |
| C311.6 | Analyze hardwired and micro programmed control to design control unit. | Analyzing |

| CO No | Subject: Linear I C Applications | Taxonomy |
|---------------------------|--|-----------|
| Student should be able to | | |
| C312.1 | Analyze the characteristics of differential amplifiers | Analyzing |
| C312.2 | Analyse the DC&AC characteristics of OP-Amp | Analyzing |
| C312.3 | Design linear and nonlinear applications of op-amps | Creating |
| C312.4 | Design Active filters using opamps | Creating |
| C312.5 | Implement the applications of special IC's like Timer and PLL | Applying |
| C312.6 | Analyze the conversion techniques of DAC and ADC using op-amps | Analyzing |

| CO No | Subject: Digital I C Applications | TAXONOMY |
|---------------------------|--|---------------|
| Student should be able to | | |
| 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 mealay and | Applying |

| CO No | Subject: Digital Communications | TAXONOMY |
|---------------------------|--|-------------|
| Student should be able to | | |
| C314.1 | Analyse the performance of dc system using pulse digital modulation techniques | Analysis |
| C314.2 | Analyse digital transmission method s and detection techniques for base band transmisson | Analysis |
| C314.3 | Evaluate the error performance of digital modulation schemes | Evaluation |
| C314.4 | Analyse the information theory in communication systems | Analysis |
| C314.5 | Apply source coding technique on transmission mediam in digital communicaton system | Application |
| C314.6 | Apply the channel coding techniques in digital communication system in order to provide | Application |



| CO No | Subject: Antenna and Wave Propagation | TAXONOMY |
|---------------------------|---|---------------|
| Student should be able to | | |
| C3 15.1 | Describe all the basic parameters of an antenna | Understanding |
| C3 15.2 | Analyze the parameters of linear wire antennas and explain the antenna theorems | Analyzing |
| C3 15.3 | Design and analyze various antenna arrays | Creating |
| C3 15.4 | Explain the operation of non resonant antennas | Understanding |
| C3 15.5 | Describe about VHF, UHF and Microwave antennas and its measurements. | Understanding |
| C3 15.6 | Explain the characteristics of radio wave propagation | Understanding |

| CO No | Subject: PDC Lab | TAXONOMY |
|---------------------------|--|-----------|
| Student should be able to | | |
| C31 6.1 | Design linear and non linear wave shaping circuits | Analyzing |
| C31 6.2 | Design transistor as a switch | Analyzing |
| C31 6.3 | Examine the functionality of combinational and sequential logic circuits | Analyzing |
| C31 6.4 | Examine the performance of sampling gates | Analyzing |
| C31 6.5 | Design astable, bistable and monostable multivibrators using transistors | Applying |
| C31 6.6 | Design UJT relaxation oscillator and bootstrap sweep circuit | Applying |

| CO No | Subject: LICA Lab | TAXONOMY |
|---------------------------|--|---------------|
| Student should be able to | | |
| C317.1 | Design and construct adder, subtractor, comparator, integrator and differentiator using op-amp | Analyzing |
| C317.2 | Design and construct different types of active filters | Applying |
| C317.3 | Design and construct different oscillator circuits and function generator using IC 741 | Applying |
| C317.4 | Design and construct different multivibrators using IC555 timer | Understanding |
| C317.5 | Use IC565 for PLL, IC 566 for VCO, IC 723 for voltage regulator | Understanding |
| C317.6 | Design 4-bit DAC using op-amp | Applying |

| CO No | Subject: DICA Lab | TAXONOMY |
|---------------------------|---|-----------|
| Student should be able to | | |
| 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-Flipflop By Using Vhdl or Hardware | Analyzing |
| C318.5 | Implement & Design Shift 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 Prakasam
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RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



AY: 2019-20

SEM:II

YEAR: III

COURSE OUTCOMES

| CO No | Subject: Micro Processors & Micro Controllers | Taxonomy level |
|---------------------------|---|----------------|
| Student should be able to | | |
| C321.1 | Analyze the basic architecture, various activities and formats of 8086 | Analyzing |
| C321.2 | Implement programs with an assembler for 8086 Microprocessor based systems on real time applications using low-level language like ALP. | Applying |
| C321.3 | Apply the interfacing concepts of 8086 microprocessor with different peripherals. | Applying |
| C321.4 | Analyze the features and architectural differences of advanced microprocessors | Analyzing |
| C321.5 | Analyze the features, programming tools and assembly language programming of | Analyzing |
| C321.6 | Discuss the characteristics and instruction set of PIC microcontrollers | Creating |

| CO No | Subject: Micro Wave Engineering | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C322.1 | Evaluate the Expression for fields in TE and TM modes in Rectangular | Evaluating |
| C322.2 | Evaluate the Expression for fields in TE and TM modes Circular waveguides, | Evaluating |
| C322.3 | Understand the operation of various types of O-type microwave tubes. | Understanding |
| C322.4 | Understand the operation of various types HELIX TWTS, M-type tubes. | Understanding |
| C322.5 | Develop the S-Matrix of Microwave components. | Evaluating |
| C322.6 | Describe about microwave solid state devices their classification, operation and | Understanding |

| CO No | Subject: VLSI Design | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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 | 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 |



| CO No | Subject: MPMC Lab | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C326.1 | Understand the concepts on hardware and software/programming of a microprocessor. | Understanding |
| C326.2 | Apply assembly language programming skills for simple airthmatic & logical calculations. | Applying |
| C326.3 | Apply assembly language programming skills for complex calculations | Applying |
| C326.4 | Design the interfacing of peripherals with 8086 microprocessor. | Creating |
| C326.5 | Understand the concepts on hardware and software programming of microcontroller | Understanding |
| C326.6 | Design the circuit for interfacing of peripherals with 8051 microcontroller | Creating |

| CO No | Subject: VLSI Lab | Taxonomy level |
|---------------------------|---|----------------|
| Student should be able to | | |
| C327.1 | Design and implementation of logic gates | Creating |
| C327.2 | Design and implementation of full adder and full subtractor | Creating |
| C327.3 | Design and implementation of latches | Creating |
| C327.4 | Design and implementation of static RAM cell and counter | Creating |
| C327.5 | Design and implementation of combinational circuits | Creating |
| C327.6 | Design and implementation of digital to analog converter | Creating |

| CO No | Subject: DC Lab | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C328.1 | Analyze the pulse digital modulation techniques | Analyzing |
| C328.2 | Illustrate modulation, demodulation, noise handling, data conversion and multiplexing In pass band transmission. | applying |
| C328.3 | Analyze need of compression and expansion in digital communication | Analysis |
| C328.4 | Apply the various coding techniques on transmission medium in digital communication | applying |

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| CO No | Subject: Digital Signal Processing | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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 |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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: IPR & Patents | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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 secret laws for employees confidentiality | Remembering |
| C329.6 | Illustrate Cybercrime with example and how to secure data. | Understanding |



RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



AY: 2019-20

SEM:I

YEAR: IV

COURSE OUTCOMES

| CO No | Subject: RADAR SYSTEM | TAXONOMY |
|---------------------------|---|---------------|
| Student should be able to | | |
| C411.1 | Explain the radar range equation and performance characteristics. | Understanding |
| C411.2 | Analyze the operation and applications of CW and FMCW radars. | Analyzing |
| C411.3 | Analyze the operation of MTI and Pulse Doppler Radars | Analyzing |
| C411.4 | Analyze the concept of different Radar tracking methods. | Analyzing |
| C411.5 | Derive the characteristics of a matched filter and distinguish different phased | Remembering |
| C411.6 | Distinguish different types of displays, duplexers and antennas used in radar | Analyzing |

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| CO No | Subject: Digital Image Processing | TAXONO |
|---------------------------|---|-----------|
| Student should be able to | | |
| C412.1 | Apply transform techniques on images. | Applying |
| C412.2 | Analyze spatial and frequency domain filtering on images. | Analyzing |
| C412.3 | Apply image restoration operations on images. | Applying |
| C412.4 | Develop coding techniques for image compression and wavelet based | Applying |
| C412.5 | Develop morphological operations and segmentation techniques on | Applying |
| C412.6 | Analyze color conversions on images and code images to achieve good | Analyzing |

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| CO No | Subject: COMPUTER NETWORKS | TAXONOMY |
|---------------------------|---|---------------|
| Student should be able to | | |
| C413.1 | Illustrate the different network models with examples | Analyzing |
| C413.2 | Evaluate the performance of different guided and unguided media | Analyzing |
| C413.3 | Explain the concept of ALOHA,MAC | Understanding |
| C413.4 | Analyze the different types of routing algorithms | Analyzing |
| C413.5 | Differentiate the concept of TCP and UDP protocols | Analyzing |
| C413.6 | Illustrate the different network models with examples | Analyzing |

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| CO No | Subject: OPTICAL COMMUNICATION | TAXONOMY |
|---------------------------|--|---------------|
| Student should be able to | | |
| C414.1 | Analyze the light propagation mechanism in a fiber and distinguish various | Analyzing |
| C414.2 | Choose fiber materials and estimates the attenuation and dispersion in an | Remembering |
| C414.3 | Connect optical fibers and analyze the fiber alignment and joint loss | Analyzing |
| C414.4 | Describe how different types of optical sources and photo detectors are used | Understanding |
| C414.5 | Determines the power coupling efficiency and analyzes the Digital receiver | Evaluating |
| C414.6 | Choose components to design an optical system and measures attenuation and | Remembering |



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| CO No | Subject: TV ENGINEERING | TAXONOMY |
|---------------------------|--|---------------|
| Student should be able to | | |
| C414A.1 | Describe Television Fundamentals, picture tubes, Composite Video | Remembering |
| C414A.2 | Analyze Principles of TV Transmission and Reception. | Analysis |
| C414A.3 | Interpret Vision, IF Subsystem, Receiver Sound System, TV Receiver | Understanding |
| C414A.4 | Discuss DTV, HDTV Producing, DTV Conversions and Compression | Creating |
| C414A.5 | Analyze DTV Transmitter and Receiver with Standards. | Analysis |
| C414A.6 | Describe Emerging Technologies and Standards in Video Processing. | Remembering |

| CO No | Subject: EMBEDDED SYSTEMS | TAXONOMY |
|---------------------------|--|-------------|
| Student should be able to | | |
| C416.1 | Explain the basic concepts and applications of embedded systems. | Understandi |
| C416.2 | Distinguish all communication devices in embedded system, other | Analyzing |
| C416.3 | Analyze embedded firmware design approaches and development | Analyzing |
| C416.4 | Analyze real time operating systems with examples of Task | Analyzing |
| C416.5 | Explain the embedded software development tools. | Understandi |
| C416.6 | Design, implement and test an embedded system. | Creating |

| CO No | Subject: MWELab | TAXONOMY |
|---------------------------|--|-------------|
| Student should be able to | | |
| C417.1 | Describe the Basic microwave bench set up | Understandi |
| 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 |
| C417.6 | Observe VI characteristic of with optical sources | Analyzing |

| CO No | Subject: DSP Lab | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C418.1 | Generate discrete time signals and verify convolution schemes. | Analyzing |
| C418.2 | Simulate frequency analysis of N-point DFT using FFT algorithms | Analyzing |
| C418.3 | Design digital filtering techniques and obtain frequency response. | Evaluating |
| C418.4 | Understand the process of normalization of histogram and cross correlation | Evaluating |
| C418.5 | Apply different masks to extract edges of objects in a given image | Analyzing |
| C418.6 | Analyze Multirate Digital signal processing systems | Analyzing |

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AY: 2019-20

SEM:II

YEAR: IV

COURSE OUTCOMES

| CO No | Subject: Cellular Mobile Communication | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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 |
|---------------------------|---|----------------|
| Student should be able to | | |
| C422.1 | Understand a system, Component or process to meet desired needs in electrical engineering. | Understanding |
| C422.2 | Analyze different signal generators and analyzers | Analyzing |
| C422.3 | Understand the design of oscilloscopes for different applications | Understanding |
| C422.4 | Ability to balance Bridges to find unknown values. | Analyzing |
| C422.5 | Design different transducers for measurement of different parameters. | Creating |
| C422.6 | Design and measure strain, displacement, Velocity, Angular Velocity, temperature, Pressure, Vacuum, and Flow. | Creating |

| CO No | Subject: satellite communication | Taxonomy level |
|---------------------------|---|----------------|
| Student should be able to | | |
| C423.1 | Understanding the basics of satellite communication and its applications, Identifying Orbital mechanisms and launchings | Understanding |
| C423.2 | Developing the satellite subsystems | Applying |



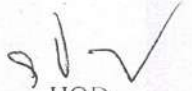
| CO No | Subject: Wireless Sensors and Networks | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| C424.1 | Understanding concepts of WSN to driving applications By enabling technologies and different architectures | Understanding |
| C424.2 | Analyze 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 | Design 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 |
|---------------------------|---|----------------|
| Student should be able to | | |
| C425.1 | Interpret logical progression of the paper and present with suitable presentation | Application |

| Project | | Taxonomy level |
|---------------------------|--|----------------|
| Student should be able to | | |
| 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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