

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOME

ODD SEMESTER:

Course Outcomes		BL
Course 1 -RURAL DEVELOPMENT: ADMINISTRATION AND		
S.No.	Course Outcome/ Unit	
1	Students can understand the definitions, concepts and components of Rural Development	K1
2	Students will know the importance, structure, significance, resources of Indian rural economy	K1,K2
3	Students will have a clear idea about the area development programmes and its impact.	K1
4	Students will be able to acquire knowledge about rural entrepreneurship.	K1
5	Students will be able to understand about the using of different methods for human resource planning	K1,K2

Course Outcomes		BL
Course 2 -Wireless & Mobile Communication(KEC076)		
S.No.	Course Outcome/ Unit	
1	Express the basic knowledge of mobile radio & cellular communication fundamentals and their application to propagation mechanisms, path loss models and multi-path phenomenon.	K1
2	Apply the knowledge of wireless transmission basics to understand the concepts of equalization and multiple access techniques.	K4
3	Apply the knowledge of wireless transmission basics to understand the concepts of equalization and multiple access techniques.	K4
4	Examine the performance of cellular systems being employed such as GSM, CDMA and LTE using various theoretical and mathematical aspects.	K2
5	Express basic knowledge of Mobile Adhoc networks and the existing & upcoming data communication networks in wireless and mobile communication domain.	K1,K2

Course Outcomes		BL
Course 3 -Optical Network (KEC073)		
S.No.	Course Outcome/ Unit	
1	Express the multiplexing techniques, second generation optical networks, optical layer, and optical packet switching.	K1
2	Explain the concept of Principles of operation, Conservation of energy, Isolators and Circulators: Principles of operation.	K1,K2
3	Classify the basics of Multiplexing, SONET/SDH layers, SONET Frame structure, SONET/SDH physical layer, Elements of a SONET/SDH infrastructure.	K2
4	Interpret the knowledge of Routing and wavelength assignment problems, Dimensioning Wavelength Routing Networks, Network Survivability.	K3
5	Analyse the working of OTDM, Synchronization, Header Processing, Buffering, Burst Switching, Deployment Considerations- SONET/SDH core Network.	K2

Course Outcomes		BL
Course 4 -RENEWABLE ENERGY RESOURCES (KOE074)		
S.No.	Course Outcome/ Unit	

1	Identify and assess the energy conservation/saving opportunities in different electric system and understand related legislations.	K1
2	Identify and assess the energy saving behavior of utilities through implementation of DSM and EMIS.	K1
3	Explain energy audit & management and to prepare energy audit report for different energy conservation instances.	K2
4	Illustrate the energy audit for Mechanical Utilities.	K3
5	Describe cost-effective measures towards improving energy efficiency and energy conservation by implementation of energy efficient technologies.	K2

Course Outcomes		BL
Course 5 -Optical System and Networking Lab (KEC753C)		
S.No.	Course Outcome/ Unit	
1	Define the concept of Optical Systems and Networking.	
2	Identify the various types of cables, connectors, routers and switches.	
3	Design the various networking protocols.	
4	Create various fiber optic link.	K3
5	Interpret the basic knowledge of multiplexing and coding-decoding.	K1

Course Outcomes		BL
Course 6 -Integrated Circuit (KEC501)		
S.No.	Course Outcome/ Unit	
1	Explain complete internal analysis of Op-Amp 741-IC.	
2	Examine and design Op-Amp based circuits and basic components of ICs such as various types of filter.	
3	Implement the concept of Op-Amp to design Op-Amp based non- linear applications and wave-shaping circuits.	
4	Analyse and design basic digital IC circuits using CMOS technology.	K2
5	Describe the functioning of application specific ICs such as 555 timer ,VCO IC 566 and PLL.	K1

Course Outcomes		BL
Course 7-Microprocessor & Microcontroller (KEE502)		
S.No.	Course Outcome/ Unit	
1	Demonstrate the basic architecture of 8085.	
2	Illustrate the programming model of microprocessors & write program using 8085 microprocessor.	
3	Demonstrate the basics of 8086 Microprocessor and interface different external Peripheral Devices like timer, USART etc. with Microprocessor (8085/8086).	
4	Compare Microprocessors & Microcontrollers, and comprehend the architecture of 8051 microcontroller	K2
5	Illustrate the programming model of 8051 and implement them to design projects on real time problems.	K2,K3

Course Outcomes		BL
Course 8 -Digital Sigal Processing (KEC503)		
S.No.	Course Outcome/ Unit	
1	Design and describe different types of realizations of digital systems (IIR and FIR) and their utilities.	K2

2	Select design parameters of analog IIR digital filters (Butterworth and Chebyshev filters) and implement various methods such as impulse invariant transformation and bilinear transformation of conversion of analog to digital filters.	K3
3	Design FIR filter using various types of window functions.	K3
4	Define the principle of discrete Fourier transform & its various properties and concept of circular and linear convolution. Also, students will be able to define and implement FFT i.e. a fast computation method of DFT.	K1
5	Define the concept of decimation and interpolation. Also, they will be able to implement it in various practical applications.	K1

Course Outcomes		BL
Course 9 -Computer Architecture and Organization (KEC051)		
S.No.	Course Outcome/ Unit	
1	Discuss about the basic concepts of system design methodology and processor level design.	K1
2	Explain the basics of processor and basic formats of data representation.	K1
3	Perform fixed and floating point arithmetic operations.	K2
4	Describe the basic concepts of control design and pipeline performance.	K1
5	Explain the architecture and functionality of central processing unit.	K1

Course Outcomes		BL
Course 10 -Electronics Mesurement & Instrumentation (KEC057)		
S.No.	Course Outcome/ Unit	
1	Classify the Instrumentation and Measurement system and various measurement errors.	K2
2	Analyze and design voltmeter circuits, AC electronic voltmeter, digital frequency meter and current measurement with electronic instruments.	K1,K2
3	Evaluate various resistance and impedance measuring methods using Bridges and Q-meter.	K1
4	Analyze fundamental operation of CRO and some special type of oscilloscopes like DSO, Sampling oscilloscope.	K1
5	Demonstrate calibration method to calibrate various instruments and classify transducers like for force, pressure, motion, temperature measurement etc.	K1,K2

Course Outcomes		BL
Course 11 -Integrated Circuit Lab (KEC551)		
S.No.	Course Outcome/ Unit	
1	Design different non-linear applications of operational amplifiers such as log, antilog amplifiers and voltage comparators.	K3
2	Explain and design different linear applications of operational amplifiers such as filters.	K1
3	Demonstrate the function of waveforms generator using op-Amp.	K1
4	Construct multivibrator and oscillator circuits using IC555 and IC566 and perform measurements of frequency and time.	K4
5	Design and practically demonstrate the applications based on IC555 and IC566.	K4

Course Outcomes		BL
Course 12 -Microprocessor & Microcontroller Lab (KEC552)		
S.No.	Course Outcome/ Unit	

1	Use techniques, skills, modern engineering tools, instrumentation and software/hardware appropriately to list and demonstrate arithmetic and logical operations on 8 bit data using microprocessor 8085.	K1
2	Examine 8085 & 8086 microprocessor and its interfacing with peripheral devices.	K1
3	State various conversion techniques using 8085 & 8086 and generate waveforms using 8085.	K1
4	Implement programming concept of 8051 Microcontroller.	K2
5	Design concepts to Interface peripheral devices with Microcontroller so as to design Microcontroller based projects.	K4

Course Outcomes		BL
Course 13 -Digital Sigal Processing (KEC553)		
S.No.	Course Outcome/ Unit	
1	Create and visualize various discrete/digital signals using MATLAB/Scilab.	K3
2	Implement and test the basic operations of Signal processing.	K2
3	Examine and analyse the spectral parameters of window functions.	K2
4	Design IIR and FIR filters for band pass, band stop, low pass and high pass filters.	K4
5	Design the signal processing algorithms using MATLAB/Scilab.	K4

Course Outcomes		BL
Course 14 -Constitution of India, Lawand Engineering (KNC501)		
S.No.	Course Outcome/ Unit	
1	Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society	K2
2	Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.	K2
3	Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	K2
4	Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.	K2
5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	K2

Course Outcomes		BL
Course 16 -Universal Human Values (KVE301)		
S.No.	Course Outcome/ Unit	
1	To acquaint the students with legacies of constitutional development in India and help those to understand the most diversified legal document of India and philosophy behind it.	K2
2	To make students aware of the theoretical and functional aspects of the Indian Parliamentary System.	K2
3	To channelize students' thinking towards basic understanding of the legal concepts and its implications for engineers.	K2
4	To acquaint students with latest intellectual property rights and innovation environment with related regulatory framework.	K2
5	To make students learn about role of engineering in business organizations and e-governance.	K3

Course Outcomes		BL
Course 17 -Electronic Device (KEC301)		
S.No.	Course Outcome/ Unit	
1	Understand the principles of semiconductor Physics.	
2	Understand and utilize the mathematical models of semiconductor junctions.	K1
3	Understand carrier transport in semiconductors and design resistors.	K2,K3
4	Utilize the mathematical models of MOS transistors for circuits and systems.	K1
5	Analyse and find application of special purpose diodes.	K2

Course Outcomes		BL
Course 18 -Digital Sysytem Design (KEC302)		
S.No.	Course Outcome/ Unit	
1	Design and analyze combinational logic circuits.	K3
2	Design and analyze modular combinational circuits with MUX / DEMUX, Decoder & Encoder	K3
3	Design & analyze synchronous sequential logic circuits	K3
4	Analyze various logic families.	K2
5	Design ADC and DAC and implement in amplifier, integrator, etc.	K3

Course Outcomes		BL
Course 19 -Network Anaysis and Synthesis (KEC303)		
S.No.	Course Outcome/ Unit	
1	Understand basics electrical circuits with nodal and mesh analysis.	K1
2	Appreciate electrical network theorems.	K1,K2
3	Apply Laplace transform for steady state and transient analysis.	K2
4	Determine different network functions.	K2
5	Appreciate the frequency domain techniques.	K2

Course Outcomes		BL
Course 20 -Electronic Device Lab (KEC351)		
S.No.	Course Outcome/ Unit	
1	Understand working of basic electronics lab equipment.	K1
2	Understand working of PN junction diode and its applications.	K1
3	Understand characteristics of Zener diode.	K1
4	Design a voltage regulator using Zener diode.	K3
5	Understand working of BJT, FET, MOSFET and apply the concept in designing of amplifiers.	K2

Course Outcomes		BL
Course 21 -Digital Sysytem Design Lab (KEC352)		
S.No.	Course Outcome/ Unit	
1	Design and analyze combinational logic circuits.	K3
2	Design & analyze modular combinational circuits with MUX/DEMUX, decoder, encoder.	K3
3	Design & analyze synchronous sequential logic circuits.	K3
4	Design & build mini project using digital ICs.	K4

Course Outcomes		BL
Course 22 -Network Anaysis and Synthesis Lab (KEC353)		
S.No.	Course Outcome/ Unit	
1	Understand basics of electrical circuits with nodal and mesh analysis.	K1

2	Appreciate electrical network theorems.	K2
3	Analyse RLC circuits.	K2
4	Determine the stability of an electrical circuit.	K1
5	Design network filters.	K3

Course Outcomes		BL
Course 23 -Computer System Security (KNC301)		
S.No.	Course Outcome/ Unit	
1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats	K1 & K2
2	To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats	K2
3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K3
4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios	K4
5	To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.	K5 & K6

EVEN SEMESTER:

Course Outcomes		BL
Course 2 - INTRODUCTION TO SMART GRID (KOE084)		
S.No.	Course Outcome/ Unit	
1	This course provides a platform for brief understanding of smart features of an electric grid.	K2
2	This course provides knowledge about smart power grids, design criteria and technology.	K3
3	This course provides knowledge about information processing and communications to the power grid.	K2
4	This course provides a platform to know about the act of micro grid and And proper distribution of energy resources.	K2
5	This course provide how to manage power quality and also enhance the real time monitoring of the power quality.	K2

Course Outcomes		BL
Course 4 - Digital Comunication (KEC601)		
S.No.	Course Outcome/ Unit	
1	To formulate basic statistics involved in communication theory.	K1
2	To demonstrate the concepts involved in digital communication.	K1
3	To explain the concepts of digital modulation schemes.	K2
4	To analyze the performance of digital communication systems.	K2
5	To apply the concept of information theory in digital systems.	K3

Course Outcomes		BL
Course 5 - Control System (KEC602)		
S.No.	Course Outcome/ Unit	
1	Describe the basics of control systems along with different types of feedback and its effect. Additionally they will also be able to explain the techniques such as block diagrams reduction, signal flow graph and modelling of various physical systems along with modelling of DC servomotor.	K2
2	Explain the concept of state variables for the representation of LTI system.	K2

3	Interpret the time domain response analysis for various types of inputs along with the time domain specifications.	K2
4	Distinguish the concepts of absolute and relative stability for continuous data systems along with different methods.	K2
5	Interpret the concept of frequency domain response analysis and their specifications.	K1,K2

Course Outcomes		BL
Course 6 - Antenna and Wave Propagation (KEC603)		
S.No.	Course Outcome/ Unit	
1	Identify different coordinate systems and their applications in electromagnetic field theory to establish a relation between any two systems using the vector calculus.	K2
2	Explain the concept of static electric field, current and properties of conductors.	K1
3	Express the basic concepts of ground, space, sky wave propagation mechanism.	K2
4	Demonstrate the knowledge of antenna fundamentals and radiation mechanism of the antenna.	K3
5	Analyze and design different types of basic antennas.	K2

Course Outcomes		BL
Course 7 - Data Communication Network (KEC063)		
S.No.	Course Outcome/ Unit	
1	Identify the issues and challenges in the architecture of a network.	K1
2	Analyze the services and features of various protocol layers in data layer.	K2
3	Demonstrate the knowledge of multiple access to design a access technique for a particular application.	K2
4	Realize protocols at different layers of a network hierarchy.	K2
5	Recognize security issues in a network and various application of application layer.	K2

Course Outcomes		BL
Course 8 - IDEA TO BUSINESS MODEL (KOE060)		
S.No.	Course Outcome/ Unit	
1	This course can motivate students to have an overall idea how to start and sustain a business enterprise.	K1
2	The students will learn basics of choosing an idea of a business model.	K1
3	The core areas of choosing a business model are encompassed with Entrepreneurship development, PPC & communication system. The students will thus develop basic competencies how to run a business enterprise.	K1 & K2

Course Outcomes		BL
Course 9 - Digital Cominication Lab (KEC651)		
S.No.	Course Outcome/ Unit	
1	To formulate basic concepts of pulse shaping in digital communication.	K1
2	To identify different line coding techniques and demonstrate the concepts.	K1,K2
3	To design equipments related to digital modulation and demodulation schemes.	K3
4	To analyze the performance of various digital communication systems and evaluate the key parameters.	K2
5	To conceptualize error detection & correction using different coding schemes in digital communication.	K1,K2

Course Outcomes		BL
Course 10 - Control System Lab (KEC652)		
S.No.	Course Outcome/ Unit	
1	Classify different tools in MATLAB along with the basic matrix operations used in MATLAB.	K1
2	Evaluate the poles and zeros on s-plane along with transfer function of a given system.	K1
3	Construct state space model of a linear continuous system.	K2
4	Appraise the steady state error of a given transfer function.	K2
5	Evaluate the various specifications of time domain response of a given system.	K3
6	Examine the relative stability of a given transfer function using various methods such as root locus, Bode plot and Nyquist plot.	K2

Course Outcomes		BL
Course 11 - Measurement & Instrumentation Lab (KEC652)		
S.No.	Course Outcome/ Unit	
1	Measure the unknown resistance, capacitance and inductance using LCR Bridge, Kelvin double bridge, Schering bridge, Hay's bridge, De sauty bridge.	K1
2	Practically demonstrate the different types of transducers like J-type, K-type, PT -100 and RTD.	K1
3	Interpret frequency and phase difference from Lissajous figure.	K1
4	Interpret hybrid parameters of transistor and demonstrate different transducer like LDR and LVDT.	K1
5	Demonstrate Experiment using PLC Trainer Kits	K2

Course Outcomes		BL
Course 12 - Indian Tradition, Culture and Society (KNC602)		
S.No.	Course Outcome/ Unit	
1	The course aims at imparting basic principles of thought process, reasoning and inference to identify the roots and details of some of the contemporary issues faced by our nation and try to locate possible solutions to these challenges by digging deep into our past.	K2
2	To enable the students to understand the importance of our surroundings and encourage the students to contribute towards sustainable development.	K3
3	To sensitize students towards issues related to 'Indian' culture, tradition and its composite character.	K2
4	To make students aware of holistic life styles of Yogic-science and wisdom capsules in Sanskrit literature that are important in modern society with rapid technological advancements and societal disruptions.	K1
5	To acquaint students with Indian Knowledge System, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic health care system.	K1

Course Outcomes		BL
Course 13 - Math-IV (KAS402)		
S.No.	Course Outcome/ Unit	
1	Apply different coordinate systems and their application in electromagnetic field theory, establish a relation between any two systems and also understand the vector calculus.	K_3

2	Understand the concept of static electric field. Understand the concept of current and properties of conductors. Establish boundary conditions and to calculate capacitances of different types of capacitors	K ₄
3	Understand the concept of static magnetic field, magnetic scalar and vector potential	K ₄
4	Understand the forces due to magnetic field, magnetization, magnetic boundary conditions and inductors.	K ₄
5	Understand displacement current, time varying fields, propagation and reflection of EM waves and transmission lines.	K ₃

Course Outcomes		BL
Course 14 - Technical Communication (KAS401)		
S.No.	Course Outcome/ Unit	
1	Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers	K2
2	Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.	K2
3	Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.	K2
4	Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.	K4
5	It would enable them to evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics.	K4

Course Outcomes		BL
Course 15 - Communication Engineering (KEC401)		
S.No.	Course Outcome/ Unit	
1	Analyze and compare different analog modulation schemes for their efficiency and bandwidth.	K1,K1
2	Analyze the behavior of a communication system in presence of noise.	K2
3	Investigate pulsed modulation system and analyze their system performance.	K2
4	Investigate various multiplexing techniques.	K2
5	Analyze different digital modulation schemes and compute the bit error performance.	K2

Course Outcomes		BL
Course 16 - Analog Circuits (KEC402)		
S.No.	Course Outcome/ Unit	
1	Understand the characteristics of diodes and transistors.	K1
2	Design and analyze various rectifier and amplifier circuits.	K2,K3
3	Design sinusoidal and non-sinusoidal oscillators.	K3
4	Understand the functioning of OP-AMP and design OP-AMP based circuits.	K1
5	Design LPF, HPF, BPF, BSF.	K2

Course Outcomes		BL
Course 17 - Signal System (KEC403)		
S.No.	Course Outcome/ Unit	
1	Analyze different types of signals.	K2
2	Analyze linear shift-invariant (LSI) systems.	K2
3	Represent continuous and discrete systems in time and frequency domain using Fourier series and transform.	K1
4	Analyze discrete time signals in z-domain.	K2
5	Study sampling and reconstruction of a signal.	K1

Course Outcomes		BL
Course 18 - Communication Engineering Lab (KEC451)		
S.No.	Course Outcome/ Unit	
1	Analyze and compare different analog modulation schemes for their modulation factor and power.	K2
2	Study pulse amplitude modulation.	K2
3	Analyze different digital modulation schemes and can compute the bit error performance.	K2
4	Study and simulate the Phase shift keying.	K1
5	Design a front end BPSK modulator and demodulator.	K3

Course Outcomes		BL
Course 19 -Analog Circuits Lab (KEC452)		
S.No.	Course Outcome/ Unit	
1	Understand the characteristics of transistors.	K1
2	Design and analyze various configurations of amplifier circuits.	K3
3	Design sinusoidal and non-sinusoidal oscillators.	K3
4	Understand the functioning of OP-AMP and design OP-AMP based circuits.	K2
5	Design ADC and DAC.	K3

Course Outcomes		BL
Course 20 -Signal System Lab (KEC453)		
S.No.	Course Outcome/ Unit	
1	Understand the basics operation of MATLAB.	K1
2	Analysis the time domain and frequency domain signals.	K2
3	Implement the concept of Fourier series and Fourier transforms.	K2
4	Find the stability of system using pole-zero diagrams and bode diagram.	K2
5	Design frequency response of the system.	K2,K3

Course Outcomes		BL
Course 21 -Python Programming (KNC402)		
S.No.	Course Outcome/ Unit	
1	To read and write simple Python programs.	K1,L2
2	To develop Python programs with conditionals and loops.	K1,K4
3	To define Python functions and to use Python data structures -- lists, tuples, dictionaries	K3
4	To do input/output with files in Python	K2
5	To do searching ,sorting and merging in Python	K2,K4