



Department of Electronics & Communication Engineering

Vision of the Department: To be recognized as a Center of Excellence in Electronics and Communication Engineering by providing valuable resources to the students for the purpose of nurturing their knowledge and skills to serve the nation by solving the technological problems of modern society in the field of Electronics and Communication.

SENSOR AND INSTRUMENTATION (KOE-034)

Year of Study: 2020-21

CO1	Apply the use of sensors for measurement of displacement, force and pressure.	K3
CO2	Examine and design Op-Amp based circuits and basic components of ICs such as various types of filter.	K3
CO3	Implement the concept of Op-Amp to design Op-Amp based non-linear applications and wave shaping circuits.	K2
CO4	Analyse and design basic digital IC circuits using CMOS technology.	K4
CO5	Describe the functioning of application specific ICs such as 555 timer, VCO IC 566 and PLL.	K3

TECHNICAL COMMUNICATION (KAS-301)

Year of Study: 2020-21

CO1	Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.	K2
CO2	Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.	K3
CO3	Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.	K3
CO4	Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.	K4
CO5	It would enable them to evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics.	K4

ELECTRONIC DEVICES (KEC-301)

Year of Study: 2020-21

CO1	Understand the principles of semiconductor Physics.	K2
CO2	Understand and utilize the mathematical models of semiconductor junctions.	K2
CO3	Understand carrier transport in semiconductors and design resistors.	K2
CO4	Utilize the mathematical models of MOS transistors for circuits and systems.	K3
CO5	Analyse and find application of special purpose diodes.	K4

DIGITAL SYSTEM DESIGN (KEC-302)

Year of Study: 2020-21

CO1	Design and analyze combinational logic circuits.	K5
CO2	Design and analyze modular combinational circuits with MUX / DEMUX, Decoder & Encoder.	K5
CO3	Design & analyze synchronous sequential logic circuits.	K5
CO4	Analyze various logic families.	K4
CO5	Design ADC and DAC and implement in amplifier, integrator, etc.	K5



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NETWORK ANALYSIS &SYNTHESIS (KEC-303)

Year of Study: 2020-21

CO1	Understand basics electrical circuits with nodal and mesh analysis.	K2
CO2	Appreciate electrical network theorems.	K3
CO3	Apply Laplace transform for steady state and transient analysis.	K4
CO4	Determine different network functions.	K3
CO5	Appreciate the frequency domain techniques.	K3

ELECTRONICS DEVICES LAB (KEC-351)

Year of Study: 2020-21

CO1	Understand working of basic electronics lab equipment.	K2
CO2	Understand working of PN junction diode and its applications.	K2
CO3	Understand characteristics of Zener diode	K2
CO4	Design a voltage regulator using Zener diode	K5
CO5	Understand working of BJT, FET, MOSFET and apply the concept in designing of amplifiers.	K3

DIGITAL SYSTEM DESIGN LAB (KEC-352)

Year of Study: 2020-21

CO1	Design and analyze combinational logic circuits.	K5
CO2	Design & analyze modular combinational circuits with MUX/DEMUX, decoder, encoder.	K5
CO3	Design & analyze synchronous sequential logic circuits.	K5
CO4	Design & build mini project using digital ICs.	K5

NETWORK ANALYSIS &SYNTHESIS LAB (KEC-353)

Year of Study: 2020-21

CO1	Understand basics of electrical circuits with nodal and mesh analysis.	K2
CO2	Appreciate electrical network theorems.	K3
CO3	Analyse RLC circuits.	K4
CO4	Determine the stability of an electrical circuit.	K3
CO5	Design network filters.	K5

MINI PROJECT OR INTERNSHIP ASSESSMENT (KEC-354)

Year of Study: 2020-21

CO1	Student should be able to manage project as a member of team to use the technique, skill and modern engineering tools and to collect and disseminate information related to selected project	K3
CO2	Students should be able to create solutions to authentic (real world and ill-defined) problems.	K6
CO3	Students should be able to design a system, component or process to meet desired need within realistic constraints.	K5
CO4	Students should be able to develop an action plan to improve presentation skills and have the confidence to make more of an impact on their audience.	K3
CO5	Students will be able to write research-based documents, including journal and conference papers.	K5



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PYTHON PROGRAMMING (KNC-302)

Year of Study: 2020-21

CO1	To read and write simple Python programs	K2
CO2	To develop Python programs with conditionals and loops	K5
CO3	To define Python functions and to use Python data structures -- lists, tuples, dictionaries	K3
CO4	To do input/output with files in Python	K3
CO5	To do searching ,sorting and merging in Python	K4

MATHEMATICS IV (KAS-402)

Year of Study: 2020-21

CO1	Remember the concept of partial differential equation and to solve partial differential equations.	K3
CO2	Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations.	K4
CO3	Understand the concept of correlation, moments, skewness and kurtosis and curve fitting.	K2
CO4	Remember the concept of probability to evaluate probability distributions.	K5
CO5	Apply the concept of hypothesis testing and statistical quality control to create control charts.	K6

UNIVERSAL HUMAN VALUES & PROFESSIONAL ETHICS (RVE-401)

Year of Study: 2020-21

CO1	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
CO2	Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.	K3
CO3	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
CO4	Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.	K2
CO5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	K3

COMMUNICATION ENGINEERING (KEC-401)

Year of Study: 2020-21

CO1	Analyze and compare different analog modulation schemes for their efficiency and bandwidth.	K4
CO2	Analyze the behavior of a communication system in presence of noise.	K4
CO3	Investigate pulsed modulation system and analyze their system performance.	K4
CO4	Investigate various multiplexing techniques.	K3
CO5	Analyze different digital modulation schemes and compute the bit error performance	K4



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ANALOG CIRCUITS (KEC-402)

Year of Study: 2020-21

CO1	Understand the characteristics of diodes and transistors.	K2
CO2	Design and analyze various rectifier and amplifier circuits.	K5
CO3	Design sinusoidal and non-sinusoidal oscillators.	K5
CO4	Understand the functioning of OP-AMP and design OP-AMP based circuits.	K5
CO5	Design LPF, HPF, BPF, BSF.	K5

SIGNAL SYSTEM (KEC-403)

Year of Study: 2020-21

CO1	Analyze different types of signals.	K4
CO2	Analyze linear shift-invariant (LSI) systems.	K4
CO3	Represent continuous and discrete systems in time and frequency domain using Fourier series and transform.	K3
CO4	Analyze discrete time signals in z-domain.	K4
CO5	Study sampling and reconstruction of a signal.	K2

COMMUNICATION ENGINEERING LAB (KEC-451)

Year of Study: 2020-21

CO1	Analyze and compare different analog modulation schemes for their modulation factor and power.	K4
CO2	Study pulse amplitude modulation.	K2
CO3	Analyze different digital modulation schemes and can compute the bit error performance.	K4
CO4	Study and simulate the Phase shift keying.	K3
CO5	Design a front end BPSK modulator and demodulator.	K5

ANALOG CIRCUITS LAB (KEC-452)

Year of Study: 2020-21

CO1	Understand the characteristics of transistors.	K2
CO2	Design and analyze various configurations of amplifier circuits.	K5
CO3	Design sinusoidal and non-sinusoidal oscillators.	K5
CO4	Understand the functioning of OP-AMP and design OP-AMP based circuits.	K5
CO5	Design ADC and DAC.	K5

SIGNAL SYSTEM LAB (KEC-453)

Year of Study: 2020-21

CO1	Understand the basics operation of MATLAB frequency response of the system.	K2
CO2	Analysis the time domain and frequency domain signals diagrams and bode diagram.	K4
CO3	Implement the concept of Fourier series and Fourier transforms.	K3
CO4	Find the stability of system using pole-zero	K4
CO5	Design frequency response of the system.	K5



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COMPUTER SYSTEM SECURITY (KNC-401)

Year of Study: 2020-21

CO1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats.	K4
CO2	To discover cyber-attack scenarios to web browsers and web servers and to explain how to mitigate such threats.	K4
CO3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K4
CO4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.	K3
CO5	To articulate the well-known cyber-attack incidents, explain the attack scenarios, and explain mitigation techniques.	K3

INTEGRATED CIRCUITS (KEC-501)

Year of Study: 2020-21

CO1	Explain complete internal analysis of Op-Amp 741-IC.	K2
CO2	Examine and design Op-Amp based circuits and basic components of ICs such as various types of filter.	K3
CO3	Implement the concept of Op-Amp to design Op-Amp based non-linear applications and wave shaping circuits.	K3
CO4	Analyse and design basic digital IC circuits using CMOS technology.	K3
CO5	Describe the functioning of application specific ICs such as 555 timer, VCO IC 566 and PLL.	K2

MICROPROCESSOR & MICROCONTROLLER (KEC-502)

Year of Study: 2020-21

CO1	Demonstrate the basic architecture of 8085.	K2
CO2	Illustrate the programming model of microprocessors & write program using 8085 microprocessor.	K2
CO3	Demonstrate the basics of 8086 Microprocessor and interface different external Peripheral Devices like timer, USART etc. with Microprocessor (8085/8086).	K2
CO4	Compare Microprocessors & Microcontrollers, and comprehend the architecture of 8051 microcontroller	K2
CO5	Illustrate the programming model of 8051 and implement them to design projects on real time problems	K3

DIGITAL SIGNAL PROCESSING (KEC-503)

Year of Study: 2020-21

CO1	Design and describe different types of realizations of digital systems (IIR and FIR) and their utilities.	K4
CO2	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.	K4
CO3	Design FIR filter using various types of window functions.	K4
CO4	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.	K3
CO5	Define the concept of decimation and interpolation. Also, they will be able to implement it in various practical applications.	K2



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VLSI TECHNOLOGY (KEC-053)

Year of Study: 2020-21

CO1	Interpret the basics of crystal growth, wafer preparation and wafer cleaning.	K2
CO2	Evaluate the process of Epitaxy and oxidation.	K3
CO3	Differentiate the lithography, etching and deposition process.	K2
CO4	Analyze the process of diffusion and ion implantation.	K4
CO5	Express the basic process involved in metallization and packaging.	K2

ELECTRONIC INSTRUMENTATION AND MEASUREMENTS (KEC-057)

Year of Study: 2020-21

CO1	Classify the Instrumentation and Measurement system and various measurement errors.	K2
CO2	Analyze and design voltmeter circuits, AC electronic voltmeter, digital frequency meter and current measurement with electronic instruments.	K4
CO3	Evaluate various resistance and impedance measuring methods using Bridges and Q-meter.	K5
CO4	Analyze fundamental operation of CRO and some special type of oscilloscopes like DSO, Sampling oscilloscope.	K4
CO5	Demonstrate calibration method to calibrate various instruments and classify transducers like for force, pressure, motion, temperature measurement etc.	K2

OPTICAL COMMUNICATION (KEC-058)

Year of Study: 2020-21

CO1	Define and explain the basic concepts and theory of optical communication.	K2
CO2	Describe the signal losses with their computation and dispersion mechanism occurring inside the optical fiber cable.	K2
CO3	Differentiate the optical sources used in optical communication with their comparative study.	K2
CO4	Identify different optical components on receiver side; assemble them to solve real world problems related to optical communication systems.	K2
CO5	Evaluate the performance of an optical receiver to get idea about power budget and ultimately be an engineer with adequate knowledge in optical domain.	K5

INTEGRATED CIRCUITS LAB (KEC-551)

Year of Study: 2020-21

CO1	Design different non-linear applications of operational amplifiers such as log, antilog amplifiers and voltage comparators.	K4
CO2	Explain and design different linear applications of operational amplifiers such as filters.	K4
CO3	Demonstrate the function of waveforms generator using op-Amp.	K2
CO4	Construct multivibrator and oscillator circuits using IC555 and IC566 and perform measurements of frequency and time.	K4
CO5	Design and practically demonstrate the applications based on IC555 and IC566	K4



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MICROPROCESSOR & MICROCONTROLLER LAB (KEC-552)

Year of Study: 2020-21

CO1	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.	K2
CO2	Examine 8085 & 8086 microprocessor and its interfacing with peripheral devices.	K2
CO3	State various conversion techniques using 8085 & 8086 and generate waveforms using 8085.	K2
CO4	Implement programming concept of 8051 Microcontroller.	K3
CO5	Design concepts to Interface peripheral devices with Microcontroller so as to design Microcontroller based projects.	K4

DIGITAL SIGNAL PROCESSING LAB (KEC-553)

Year of Study: 2020-21

CO1	Create and visualize various discrete/digital signals using MATLAB/Scilab.	K3
CO2	Implement and test the basic operations of Signal processing.	K3
CO3	Examine and analyse the spectral parameters of window functions.	K4
CO4	Design IIR and FIR filters for band pass, band stop, low pass and high pass filters.	K4
CO5	Design the signal processing algorithms using MATLAB/Scilab.	K4

DIGITAL COMMUNICATION (KEC-601)

Year of Study: 2020-21

CO1	To formulate basic statistics involved in communication theory.	K2
CO2	To demonstrate the concepts involved in digital communication.	K2
CO3	To explain the concepts of digital modulation schemes.	K2
CO4	To analyze the performance of digital communication systems.	K4
CO5	To apply the concept of information theory in digital systems.	K3

CONTROL SYSTEM (KEC-602)

Year of Study: 2020-21

CO1	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
CO2	Explain the concept of state variables for the representation of LTI system.	K2
CO3	Interpret the time domain response analysis for various types of inputs along with the time domain specifications.	K3
CO4	Distinguish the concepts of absolute and relative stability for continuous data systems along with different methods.	K2
CO5	Interpret the concept of frequency domain response analysis and their specifications.	K3



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ELECTROMAGNETIC FIELD THEORY AND ANTENNA (KEC-603)

Year of Study: 2020-21

CO1	Identify different coordinate systems and their applications in electromagnetic field theory to establish a relation between any two systems using the vector calculus.	K2
CO2	Explain the concept of static electric field, current and properties of conductors.	K2
CO3	Express the basic concepts of ground, space, sky wave propagation mechanism.	K2
CO4	Demonstrate the knowledge of antenna fundamentals and radiation mechanism of the antenna.	K3
CO5	Analyze and design different types of basic antennas.	K4

MICROCONTROLLER & EMBEDDED SYSTEMS (KEC-061)

Year of Study: 2020-21

CO1	Explain the advance concept of 8051 architectures and AVR family architecture and compare them for different applications.	K2
CO2	To demonstrate the basics of MSP430x5x Microcontroller.	K2
CO3	To execute the I/O interfacing and peripheral devices associated with Microcontroller SoC (system on chip).	K3
CO4	Evaluate the data transfer information through serial & parallel ports and implement its interfacing with MSP430.	K5
CO5	Demonstrate the basics of IoT, WSN and its application sectors and design IoT based projects using MSP430 microcontroller.	K4

DIGITAL COMMUNICATION LAB (KEC-651)

Year of Study: 2020-21

CO1	To formulate basic concepts of pulse shaping in digital communication.	K2
CO2	To identify different line coding techniques and demonstrate the concepts.	K3
CO3	To design equipment related to digital modulation and demodulation schemes.	K4
CO4	To analyze the performance of various digital communication systems and evaluate the key parameters.	K4
CO5	To conceptualize error detection & correction using different coding schemes in digital communication.	K3

CONTROL SYSTEM LAB (KEC-652)

Year of Study: 2020-21

CO1	Classify different tools in MATLAB along with the basic matrix operations used in MATLAB.	K2
CO2	Evaluate the poles and zeros on s-plane along with transfer function of a given system.	K3
CO3	Construct state space model of a linear continuous system.	K5
CO4	Evaluate the various specifications of time domain response of a given system.	K4
CO5	Appraise the steady state error of a given transfer function.	K3
CO6	Examine the relative stability of a given transfer function using various methods such as root locus, Bode plot and Nyquist plot.	K4



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CAD FOR ELECTRONICS LAB (KEC-653B)

Year of Study: 2020-21

CO1	Design and analyze the performance of different type of inverters.	K4
CO2	Design and analyze the performance of the basic logic gates using CMOS inverter circuit.	K4
CO3	Design and analyze the performance of the memory based digital circuits using CMOS inverter circuit.	K4
CO4	Analyze the performance of the different configuration of MOS amplifier circuits.	K4

CLOUD COMPUTING (ROE-073)

Year of Study: 2020-21

CO1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.	K2
CO2	Learn the key and enabling technologies that help in the development of cloud.	K2
CO3	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.	K3
CO4	Explain the core issues of cloud computing such as resource management and security.	K2
CO5	To appreciate the emergence of cloud as the next generation computing paradigm.	K2

UNDERSTANDING THE HUMAN BEING COMPREHENSIVELY – HUMAN ASPIRATIONS AND ITS FULFILLMENT (ROE-074)

Year of Study: 2020-21

CO1	To discuss a holistic vision towards life through Self Exploration and to appreciate the essential complementarities between Values & Skills ensuring sustained happiness and prosperity, the core aspirations of all human beings.	K2
CO2	To understand human being as a co-existence of the sentient “I” and the material “Body” and the correct appraisal of Physical Needs and the meaning of prosperity in detail.	K2
CO3	To interpret 9 feelings (values) in relationship to ensure justice and to make programmes to achieve comprehensive human goals like- Education-Right Understanding, Health-Education, Justice-Preservation, Production-Work and Exchange-Storage, leading towards an Undivided Society (“Akhand Samaj”).	K3
CO4	To relate and visualize interconnectedness and mutual fulfillment among the four orders of nature, recyclability and self-regulation in nature.	K3
CO5	To acquire competence in professional ethics. Ability to identify and develop more people and eco-friendly appropriate technologies and management patterns.	K2

INFORMATION THEORY & CODING (REC-071)

Year of Study: 2020-21

CO1	Model the Entropy, Joint Entropy and Conditional Entropy, Relative Entropy and Mutual Information, Relationship Between Entropy and Mutual Information.	K2
CO2	Design Data Compression, Examples of Codes, Kraft Inequality, Optimal Codes, Bounds on the Optimal Code Length.	K5
CO3	Identify the Examples of Channel Capacity, Symmetric Channels, Properties of Channel Capacity, Preview of the Channel Coding Theorem.	K4
CO4	Analyse Introduction to block codes, Single-parity-check codes, Product codes, Repetition codes, Hamming codes.	K4
CO5	Design Generator matrices for convolutional codes, Generator polynomials for convolutional codes.	K5



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OPTICAL COMMUNICATION (REC-075)

Year of Study: 2020-21

CO1	Familiarize with basic concepts and theory of Optical Communication.	K2
CO2	Demonstrate OPCOMM components, assemble them and solve problems on Optical Communication system.	K5
CO3	Able to design, implements, analyse and maintains optical communication system.	K4
CO4	Gain knowledge of different source of light as well as receiver and their comparative study.	K4
CO5	To get idea about power budget and ultimately be an engineer with adequate knowledge in optical domain.	K5

DATA COMMUNICATION NETWORKS (REC-701)

Year of Study: 2020-21

CO1	Identify the issues and challenges in the architecture of a network.	K2
CO2	Understand the ISO/OSI seven layers in a network.	K2
CO3	Realize protocols at different layers of a network hierarchy	K4
CO4	Recognize security issues in a network.	K4

VLSI DESIGN (REC-702)

Year of Study: 2020-21

CO1	Model the behaviour of a MOS Transistor	K3
CO2	Design combinational and sequential circuits using CMOS gates	K5
CO3	Identify the sources of power dissipation in a CMOS circuit.	K4
CO4	Analyse SRAM cell and memory arrays	K4

OPTICAL COMMUNICATION LAB (REC-751)

Year of Study: 2020-21

CO1	Ability to identify and study different types of types of cables, connectors and different commands in networking.	K2
CO2	Able to make subnet and configure router and DHCP servers.	K4
CO3	Able to configure VLAN.	K4
CO4	Able to setup fiber optic analog link & able to understand characteristic parameter in fiber and losses in optical fiber.	K4
CO5	Understanding of multiplexing, encoding technique.	K2

ELECTRONIC CIRCUIT DESIGN LAB (REC-752)

Year of Study: 2020-21

CO1	Understand Universal op-amp based biquad.	K2
CO2	Identify amplitude control or stabilization applied to any sinusoidal oscillators and Op-amp/ OTA based function generator.	K3
CO3	Design log/antilog circuits and identify applications of analog multiplier/ divider.	K5
CO4	Understand digital system design and its hardware implementation using TTL/ CMOS ICs and any circuit idea (not studied in the course) using 555 Timer in conjunction with any other ICs.	K3
CO5	Design the circuit, Make hardware and measure various parameters and Simulation in Spice of the designed circuit.	K5



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INDUSTRIAL TRAINING VIVA-VOCE (REC-753)

Year of Study: 2020-21

CO1	The Industrial interaction is to help students gain first hand information regarding functioning of the Industry Which presents the students with opportunities to plan, organize and engage in active learning experiences both inside and outside the classroom.	K2
CO2	It helps to bridge the gap between classroom and the real field world.	K3
CO3	Students are benefited to learn about “real life” examples of business and engineering management.	K2
CO4	Industrial interaction makes students understand the subject to its core and its deeper practical experiences in real field situation.	K3
CO5	Interaction to manufacturing firms are useful for students. to understand the nuances and realities of the shop floor, which in itself is a rare exposure. By visiting the shop floor they get to understand the risky conditions in which workers work, the people management challenges involved in managing workers apart from getting hands-on technical knowledge.	K4

PROJECT-I (REC-754)

Year of Study: 2020-21

CO1	Student should be able to manage project as a member of team to use the technique, skill and modern engineering tools and to collect and disseminate information related to selected project	K4
CO2	Students should be able to create solutions to authentic (real world and ill-defined) problems.	K6
CO3	Students should be able to design a system, component or process to meet desired need within realistic constraints.	K5
CO4	Students should be able to develop an action plan to improve presentation skills and have the confidence to make more of an impact on their audience.	K4
CO5	Students will be able to write research-based documents, including journal and conference papers.	K4

ELECTRONICS SWITCHING (REC-080)

Year of Study: 2020-21

CO1	Describe and apply fundamentals of telecommunication systems and associated technologies.	K3
CO2	Solve problems and design simple systems related to tele-traffic and trunking efficiency.	K5
CO3	Understand and explain the reasons for switching, and the relative merits of the possible switching modes, e.g. packet and circuit switching.	K4
CO4	Understand the principles of the internal design and operation of telecommunication switches, and the essence of the key signaling systems that are used in telecommunication networks.	K2

WIRELESS & MOBILE COMMUNICATION (REC-085)

Year of Study: 2020-21

CO1	Familiarize with various generations of mobile communications.	K2
CO2	Understand the concept of cellular communication.	K2
CO3	Understand the basics of wireless communication	K2
CO4	Understand GSM mobile communication standard, its architecture, logical channels, advantages and limitations.	K4
CO5	Gain knowledge of IS-95 CDMA mobile communication standard, its architecture, logical channels, advantages and limitations	K4
CO6	Gain knowledge of 3G mobile standards and their comparison with 2G technologies.	K4



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GD & SEMINAR (REC-851)

Year of Study: 2020-21

CO1	Able to identified important concepts from the readings and provided depth in coverage of the topic.	K2
CO2	Able to work in a group.	K2
CO3	Developed effective group communication and presentation skills.	K3
CO4	Developed self-management & reflection skills.	K3
CO5	Able to write technical documents and give oral presentation.	K4

MAJOR PROJECT (REC-852)

Year of Study: 2020-21

CO1	Student should be able to manage project as a member of team to use the technique, skill and modern engineering tools and to collect and disseminate information related to selected project.	K4
CO2	Students should be able to create solutions to authentic (real world and ill-defined) problems.	K6
CO3	Students should be able to design a system, component or process to meet desired need within realistic constraints.	K5
CO4	Students should be able to develop an action plan to improve presentation skills and have the confidence to make more of an impact on their audience.	K4
CO5	Students will be able to write research-based documents, including journal and conference papers.	K4