

MEERUT INSTITUTE OF TECHNOLOGY, MEERUT

Course Outcomes B.Tech ECE Department

Programme	Semester	Course Code	Course Name	Course Outcomes	
Bachelor of Technology	3rd	BEC301	Electronic Devices	CO 1	To understand the phenomenon of charge carriers and energy bands in semiconductors and solid state devices.
				CO 2	To describe the characteristics of the p-n junction diode and some optoelectronic devices and their application in electronic circuits.
				CO 3	To explain the structure and characteristics of MOSFETs and to analyze the DC bias circuits, small-signal AC circuits with emphasis on single stage MOSFET amplifiers.
				CO 4	To examine the structure and characteristics of BJT and to analyze the DC bias circuits, small-signal AC circuits with emphasis on single stage BJT amplifiers.
				CO 5	To understand the various feedback topologies in electronic circuits and basic principle of oscillation in various sinusoidal oscillators.
Bachelor of Technology	3rd	BEC302	Digital System Design	CO 1	To convert different type of codes and number systems which are used in digital communication and computer systems.
				CO 2	To understand, analyze, and design combinational logic circuits and their various applications also.
				CO 3	To understand, analyze, and design Synchronous Sequential logic circuits and their various applications also.
				CO 4	To understand, analyze, and design Synchronous Sequential logic circuits and their various applications also.
				CO 5	To understand different types of Memory System and Logic families.
Bachelor of Technology	3rd	BEC303	Network Analysis & Synthesis	CO 1	To apply mesh & nodal analysis to complex circuits and express them using Thevenin's and Norton's equivalent forms.
				CO 2	To evaluate the performance of RL, RC, and RLC circuits by the application of Laplace transform.
				CO 3	to apply use graph theory in solving networks.
				CO 4	To analyze the given network using different two port network parameters.
				CO 5	To determine the response of a network using network functions & synthesize network functions.
Bachelor of Technology	3rd	BEC351	Electronic Devices Lab	CO 1	To understand and verify the working of different diodes, transistor amplifiers (BJT & FET), Operational amplifier, Sinusoidal Oscillators, CRO probes and measuring instruments.
				CO 2	To design the circuits with semiconductor devices (Diodes, BJT, and FET etc.), passive components, measuring instruments and power supplies that serve many practical purposes.
				CO 3	To construct, analyze and troubleshoot the designed circuit.
				CO 4	To measure and record the experimental data and analyze the results.
				CO 5	To simulate the electronic circuits using PSPICE simulator software and verify the results physically on bread-boards.
Bachelor of Technology	3rd	BEC352	Digital System Design Lab	CO 1	To understand various digital ICs and their datasheet.
				CO 2	To implement Boolean function using logic gates on bread Board.
				CO 3	To implement various combinational circuits on bread board using different Logic gates ICs
				CO 4	To Verify of state tables of various flip-flops using NAND & NOR gates
				CO 5	To design the 4-bit synchronous and Asynchronous counter
Bachelor of Technology	3rd	BEC353	Network Analysis & Synthesis Lab	CO 1	Understand basics of electrical circuits with nodal and mesh analysis.
				CO 2	Appreciate electrical network theorems.
				CO 3	Analyse RLC circuits.
				CO 4	Determine the stability of an electrical circuit.
				CO 5	Design network filters.
Bachelor of Technology	3rd	BCC301	Cyber Security	CO 1	Understand the basic concepts of cyber security and cybercrimes. K1, K2
				CO 2	Understand the security policies and cyber laws. K1, K2
				CO 3	Understand the tools and methods used in cyber crime K2
				CO 4	Understand the concepts of cyber forensics K1, K2
				CO 5	Understand the cyber security policies and cyber laws
Bachelor of Technology	3rd	BCC351	Mini Project/ Intership	CO 1	To generate a report based on the experiences and projects carried out with the ability to apply knowledge of Mathematics, Science, and Engineering Fundamentals.
				CO 2	To demonstrate competency in relevant engineering fields through problem identification, formulation and solution.
				CO 3	To implement skills in communication, in writing and using multimedia tools.
				CO 4	To develop the ability to work as an individual and in group with the capacity to be a leader or manager as well as an effective team member.
				CO 5	To learn professional and ethical responsibilities of an engineer.
Bachelor of Technology	3rd	BAS301	Technical Communication	CO 1	Students will be able to UNDERSTAND the nature and objective of Technical Communication relevant for the work place as Engineers.
				CO 2	Students will be able to DEVELOP an understanding of key concepts of writing, designing and speaking.
				CO 3	Students will be able to UTILIZE the technical writing skills for the purposes of Technical Communication and its exposure in various dimensions.
				CO 4	Students will be able to BUILD UP interpersonal communication traits that will make the transition from institution to workplace smoother and help them to excel in their jobs
				CO 5	Students will be able to APPLY technical communication to build their personal brand and handle crisis communication
Bachelor of Technology	4th	BAS403	Math-IV	CO 1	The idea of partial differential equation and its different types of solution.
				CO 2	The concept of method of separation of variables and Fourier transform to solve partial differential equations
				CO 3	The basic ideas of statistics including measures of central tendency, correlation, regression and their properties.
				CO 4	The idea of probability, random variables, discrete and continuous probability distributions and their properties.
				CO 5	The statistical methods of studying data samples, hypothesis testing and statistical quality control.

Bachelor of Technology	4th	BVE401	Universal Human Values & Professional Ethics	CO 1	To understand about the need of value education and harmony in self, family, society and nature.
				CO 2	To apply the understanding of value education to ensure harmony at all the four levels of living.
				CO 3	To analyze about self, feelings in relationship, society and relevance of nature.
				CO 4	To evaluate their participation at all the four levels of living.
				CO 5	To improve their emotional, social and professional competence.
Bachelor of Technology	4th	BEC401	Communication Engineering	CO 1	Analyze and compare different analog modulation schemes for their efficiency and bandwidth.
				CO 2	Analyze the behavior of a communication system in presence of noise.
				CO 3	Investigate pulsed modulation system and analyze their system performance.
				CO 4	Investigate various multiplexing techniques.
				CO 5	Analyze different digital modulation schemes and compute the bit error performance.
Bachelor of Technology	4th	BEC402	Analog Circuit	CO 1	Understand and design of the various amplifiers.
				CO 2	Understand the concept of feedback topologies.
				CO 3	Design the different types of oscillators.
				CO 4	Understand the functioning of OP-AMP and design OP-AMP based circuits.
				CO 5	Apply the concept of Operational amplifier to design linear and non-linear applications
Bachelor of Technology	4th	BEC403	Signal System	CO 1	To understand the concept of continuous time and discrete time signals/ Systems.
				CO 2	To understand the behavior of continuous time and discrete time signals/ systems.
				CO 3	To analyze the behavior of continuous time and discrete time systems.
				CO 4	To analyze signals in complex frequency domain.
				CO 5	To understand Sampling theorem and its implications.
Bachelor of Technology	4th	BEC451	Communication Engg. Lab	CO 1	Analyze and compare different analog modulation schemes for their modulation factor and power.
				CO 2	Study pulse amplitude modulation.
				CO 3	Analyze different digital modulation schemes and can compute the bit error performance.
				CO 4	Study and simulate the Phase shift keying.
				CO 5	Design a front end BPSK modulator and demodulator
Bachelor of Technology	4th	BEC452	Analog Circuit Lab	CO 1	Understand the characteristics of transistors.
				CO 2	Design and analyze various configurations of amplifier circuits.
				CO 3	Design sinusoidal and non-sinusoidal oscillators.
				CO 4	Understand the functioning of OP-AMP and design OP-AMP based circuits.
				CO 5	Design ADC and DAC.
Bachelor of Technology	4th	BEC453	Signal System Lab	CO 1	To understand plotting of basic signals using various operations like amplitude-scaling, time-scaling, etc.
				CO 2	To understand knowledge about Convolution, auto-correlation, cross-correlation of signals
				CO 3	To analyze and plot Fourier series, Fourier transform and z-transform of a given signal.
				CO 4	To acquire and understand knowledge about impulse response and step response using MATLAB
				CO 5	To analyze plot of pole-zero diagram & bode diagram using MATLAB.
Bachelor of Technology	4th	BCC402	Python Programming	CO 1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.
				CO 2	Express proficiency in the handling of strings and functions
				CO 3	Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
				CO 4	Identify the commonly used operations involving file systems and regular expressions.
				CO 5	Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python
Bachelor of Technology	5th	BEC501	Integrated Circuit	CO 1	To understand the basic concepts of analog ICs and related circuits.
				CO 2	To understand the basic concepts of digital ICs and related circuits.
				CO 3	To analyze analog and digital circuits.
				CO 4	To design OP-AMP based analog linear integrated circuits.
				CO 5	To design OP-AMP based analog non-linear integrated circuits.
Bachelor of Technology	5th	BEC502	Microprocessor & Microcontroller	CO 1	Demonstrate the basic architecture of 8085.
				CO 2	Illustrate the programming model of microprocessors & write program using 8085 microprocessors
				CO 3	Demonstrate the basics of 8086 Microprocessor and interface different external Peripheral Devices like timer, USART etc. with Microprocessor (8085/8086).
				CO 4	Compare Microprocessors & Microcontrollers, and comprehend the architecture of 8051 microcontroller
				CO 5	Illustrate the programming model of 8051 and implement them to design projects on real time problems.
Bachelor of Technology	5th	BEC503	Digital Signal Processing	CO 1	To understand the basic concepts and terminologies of digital signal processing and filter design.
				CO 2	To apply different transformation tools for the analysis of discrete time signals and systems.
				CO 3	To apply concepts of digital signal processing for finding various parameters and design of different circuits/systems.
				CO 4	To analyze different filters for digital signal processing.
				CO 5	To design different filter structures on the basis of different realization methods.

Bachelor of Technology	5th	BEC054	VLSI Technology	CO 1	Interpret the basics of crystal growth, wafer preparation and wafer cleaning.
				CO 2	Evaluate the process of Epitaxy and oxidation.
				CO 3	Differentiate the lithography, etching and deposition process.
				CO 4	Analyze the process of diffusion and ion implantation
				CO 5	Express the basic process involved in metallization and packaging
Bachelor of Technology	5th	BEC057	Optical Communication	CO 1	To understand the fundamentals of optical fiber communication system and related terminologies.
				CO 2	To calculate various parameters related to optical fiber communication.
				CO 3	To classify the various sources of optical fiber communication.
				CO 4	To apply concepts related to optical sources in solving problems.
				CO 5	To assess the various detectors of optical fiber communication.
Bachelor of Technology	5th	BEC551	Integrated Circuit Lab	CO 1	To study wave shaping circuits to generate different types of waveforms and to perform voltage to current, current to voltage conversion.
				CO 2	To analyze and design different non-linear applications of operational amplifiers such as filters and oscillator etc.
				CO 3	To design astable and monostable multivibrator using 555 timer IC.
				CO 4	To study operational amplifier analog IC-741and to analyze and design different linear applications of operational amplifiers such as integrator, log, antilog amplifiers and voltage comparators.
				CO 5	To determine capture range, lock in range and free running frequency of PLL and will be able to understand and design voltage regulation methods.
Bachelor of Technology	5th	BEC552	Microprocessor & Microcontroller Lab	CO 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.
				CO 2	Examine 8085 & 8086 microprocessor and its interfacing with peripheral devices.
				CO 3	State various conversion techniques using 8085 & 8086 and generate waveforms using 8085.
				CO 4	Implement programming concept of 8051 Microcontroller.
				CO 5	Design concepts to Interface peripheral devices with Microcontroller so as to design Microcontroller based projects.
Bachelor of Technology	5th	BEC553	Digital Signal Processing Lab	CO 1	To study about DSP Processors and architecture of TMS320C6713 DSP processor and Code Composer Studio.
				CO 2	To plot basic signals using MATLAB.
				CO 3	To apply CCS in matrix manipulations.
				CO 4	To calculate 4 point discrete Fourier analysis using MATLAB.
				CO 5	To implement 8 point FFT algorithm using MATLAB.
Bachelor of Technology	5th	BEC 554	Mini Project/ intership	CO 1	To generate a report based on the experiences and projects carried out with the ability to apply knowledge of Mathematics, Science, and Engineering Fundamentals.
				CO 2	To demonstrate competency in relevant engineering fields through problem identification, formulation and solution.
				CO 3	To implement skills in communication, in writing and using multimedia tools.
				CO 4	To develop the ability to work as an individual and in group with the capacity to be a leader or manager as well as an effective team member.
				CO 5	To learn professional and ethical responsibilities of an engineer.
Bachelor of Technology	5th	BNC 501	Constitution of india, law and Engineering	CO 1	Identify and explore the basic features and modalities about Indian constitution.
				CO 2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.
				CO 3	Differentiate different aspects of Indian Legal System and its related bodies.
				CO 4	Discover and apply different laws and regulations related to engineering practices.
				CO 5	Correlate role of engineers with different organizations and governance models
Bachelor of Technology	6th	BEC- 601	Digital Communication	CO 1	To understand basic concepts and terminologies of digital communication systems
				CO 2	To apply concepts of baseband, pass band digital modulation schemes in finding different parameters and performances
				CO 3	To apply fundamentals of probability theory and random process in solving different problems related to digital communications
				CO 4	To analyze baseband, pass band digital modulation schemes and corresponding performances
				CO 5	To evaluate the performances of baseband, pass band digital communication systems in noisy environment
Bachelor of Technology	6th	BEC- 602	Control System	CO 1	To understand basic concepts of a control system.
				CO 2	To develop the mathematical model of various physical systems.
				CO 3	To carry out the time domain analysis of first and higher order systems.
				CO 4	To evaluate the stability of linear control systems using Routh Hurwitz Criteria and Root Locus Technique.
				CO 5	To evaluate the stability of linear control systems using different frequency domain techniques like Nyquist criteria and Bode plots.
Bachelor of Technology	6th	BEC- 603	Antenna and Wave Propagation	CO 1	To understand the basics of antenna and their parameters.
				CO 2	To classify different types of antenna and their parameters.
				CO 3	To analyze basic propagation models and propagation mechanism for EM waves.
				CO 4	To evaluate performance of antennas.
				CO 5	To assess designed antenna w.r.t existing criteria.
Bachelor of Technology	6th	BEC- 061	Satellite Communication	CO 1	Define and list the benefits of satellite communication.
				CO 2	Demonstrate orbital mechanics principles of satellite communication systems and solve problems related to it.
				CO 3	Describe a satellite link and identify ways to improve the link performance.
				CO 4	Classify new technologies of satellite communication systems as per given specifications.
				CO 5	Examine advanced technologies of satellite launching and describe the Indian satellite system.
Bachelor of Technology	6th	BEC- 651	Digital Communication LAB	CO 1	To plot a triangular and square wave using Fundamental frequency and its harmonics.
				CO 2	To understand various baseband digital modulation and demodulation techniques such as PCM and Delta Modulation.
				CO 3	To understand the line coding fundamentals i.e. coding and decoding of NRZ and Manchester formats.
				CO 4	To understand various pass band digital modulation and demodulation techniques such as ASK, FSK & PSK.
				CO 5	To understand and perform QPSK, DPSK, 8PSK and 16PSK Techniques and convolutional coding using MATLAB.
Bachelor of Technology	6th	BEC- 652	Control System LAB	CO 1	To understand control Tool box in MATLAB.
				CO 2	To determine various mathematical operations using MATLAB.
				CO 3	To analyze a system in time domain using MATLAB.
				CO 4	To analyze a system in frequency domain using MATLAB
				CO 5	To determine the State Space representation of the given transfer function.

Bachelor of Technology	6th	BEC- 653	Antenna & wave Propagation LAB	CO 1	To understand practical performance of the operational features of various analog and digital test and measurement equipments.
				CO 2	To analysis various standard bridges for measurement of unknown resistance, inductance and capacitance, Q factor.
				CO 3	To measure true RMS value using analog meter using digital Multimeters.
				CO 4	To study of characteristics of different types of transducers, generation of waveforms and calibration procedures.
				CO 5	To use Resistance temperature detector (RTD) for measurement of temperature.
Bachelor of Technology	6th	BOE-060	Idea to Business Model	CO 1	Enhance creative knowledge of students regarding selection of a business idea and it's implementation process
				CO 2	Acquire knowledge on entrepreneurship development, its Pro's and con's.
				CO 3	Acquire basic knowledge on how to become an Entrepreneur.
				CO 4	Develop knowledge on Production systems and it's sustainability through production, planning and control (PPC)
				CO 5	Develop appropriate business model and apply in a better way.
Bachelor of Technology	7th	KHU 702	Rural Development Administration And Planning	CO 1	Students can understand the definitions, concepts and components of Rural Development
				CO 2	Students will know the importance, structure, significance, resources of Indian rural economy.
				CO 3	Students will have a clear idea about the area development programmes and its impact.
				CO 4	Students will be able to acquire knowledge about rural entrepreneurship.
				CO 5	Students will be able to understand about the using of different methods for human resource planning
Bachelor of Technology	7th	KEC073	Optical Network	CO 1	To define basic concepts about the generation, multiplexing and switching techniques of Optical Networks and Non linear effects encountered during transmission.
				CO 2	To classify ideas or concepts about different components and their principle of operation, grating techniques, cross talk problem and its reduction.
				CO 3	To use information to operate SONET and SDH optical networks, ATM, IP, WDM, optical amplifiers, optical ADD/DROP MUX.
				CO 4	To draw connection among ideas to relate WDM Network cost trade off, network survivability, layer protection and overview of HFC, FTTC and PON evolution.
				CO 5	To justify a stand or defend to select optical switching, OTDM and deployment consideration of networks.
Bachelor of Technology	7th	KEC076	Wireless & Mobile Communication	CO 1	To understand the basic concepts of wireless & mobile communication and related terminologies.
				CO 2	To examine different models of channels and equalizers used in WMC.
				CO 3	To explain & differentiate the concepts of spread spectrum modulation
				CO 4	To apprise the concepts of different multiplexing and accessing Techniques used in WMC.
				CO 5	To develop the different concepts of WMC systems for solving related problems.
Bachelor of Technology	7th	KEC751C	Optical System & Networking Lab	CO 1	To remember the difference between analog and digital link.
				CO 2	To understand the different losses in optical fiber communications.
				CO 3	To understand Time Division Multiplexing and role of coding / decoding in framing.
				CO 4	To analyze radiation pattern of Light emitting diode (LED)
				CO 5	To analyze modulation and demodulation of analog/ digital signal in optical fiber.
Bachelor of Technology	7th	KEC752	Mini Project or Internship Assessment	CO 1	To generate a report based on the experiences and projects carried out with the ability to apply knowledge of Mathematics, Science, and Engineering Fundamentals.
				CO 2	To demonstrate competency in relevant engineering fields through problem identification, formulation and solution.
				CO 3	To implement skills in communication, in writing and using multimedia tools.
				CO 4	To develop the ability to work as an individual and in group with the capacity to be a leader or manager as well as an effective team member.
				CO 5	To learn professional and ethical responsibilities of an engineer.
Bachelor of Technology	7th	KEC753	Project-I	CO 1	To apply knowledge gained during II,III and IV year for project development.
				CO 2	To design software for making new project related to electronics and communication.
				CO 3	To Design new project using tools and kits.
				CO 4	To develop and fabricate new project.
				CO 5	To analyze, communicate and present the project.
Bachelor of Technology	8th	KOE-083	ENTREPRENEURSHIP DEVELOPMENT	CO 1	To summarize the different methods to assess the attractiveness of business opportunities.
				CO 2	To explain the various characteristics for an attractive business opportunity and common pitfalls during the entrepreneurial process.
				CO 3	To design, organize, and lead a team with the goal of bringing new products and services to market.
				CO 4	To write report on a business plan of a new venture of product and service industry.
				CO 5	To analyze the concepts of systematic process to select and screen a business idea and assess its viability.