COER
COLLEGE OF ENGINEERING ROORKEE

Department of ELECTRONICS & TELECOMMUNICATION ENGG.

Course Name: Electronic Measurement & Instrumentation

Course Code: BECT-302

Year of Study: 2nd **Semester:** 3rd

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
BECT-302.1	Understand different types of measuring instruments, their construction, operation and characteristics to measure various parameters.	**Understand**	B.L-2
BECT-302.2	Apply the suitable method for measurement of resistance, inductance and capacitance.	**Apply**	B.L-3
BECT-302.3	How to apply different type of A/D, D/A convertor and Display devices	**Apply**	B.L-3
BECT-302.4	Analyze usage of different types of CRO in lab and its calibration & Basic understanding of generating signal and analyzing it.	**Analyze**	B.L-4
BECT-302.5	Understand Biomedical instruments, Recorders and Plotters	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engineering

Course Name: DIGITAL ELECTRONICS **Course Code**: BECT-303

Year of Study: 2nd **Semester: 3rd**

Course Outcomes: The student will be able to:

S.N.	COURSE OUTCOME	Bloom's Taxonomy	Bloom's Level (B.L)
BECT-303.1	Represent numerical values in various number systems and perform conversions from one number system to another.	Apply	BL-3
BECT-303.2	Explain operation of logic gates using IEEE/ANSI standard symbols.	Understand	BL-2
BECT-303.3	Perform various minimization techniques in order to reduce the number of gates required to design any logic.	Apply	BL-3
BECT-303.4	Analyze and design digital combinational & sequential logic circuits.	Analyze	BL-4
BECT-303.5	Explain nomenclature and technology in memory devices & Create state machine diagrams and design the digital system.	Create	BL-6

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of ELECTRONICS & TELECOMMUNICATION ENGG.

Course Name: **ELECTRONIC DEVICES** **Course Code**: BECT-304

Year of Study: 2nd **Semester:** 3rd

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
BECT-304.1	Understand the principles of semiconductor Physics.	**Understand**	B.L-2
BECT-304.2	Understand and utilize the mathematical models of semiconductor junctions.	**Understand**	B.L-2
BECT-304.3	Understand carrier transport in semiconductors.	**Understand**	B.L-2
BECT-304.4	Utilize the mathematical models of MOS transistors for circuits and systems.	**Apply**	B.L-3
BECT-304.5	Analyze and find application of special purpose diodes. Design and analyze of electronic circuits	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & telecommunication Engineering

Course Name: Network Analysis **Course Code**: BECT-305

Year of Study: 2nd **Semester:** 3rd Sem

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
BECT-305.1	Understands basic terminologies used in graph and will be able to solve electrical circuits with Graphs.	**Understand**	B.L-2
BECT-305.2	Understand basic electrical circuits with nodal and mesh analysis, various theorems for solving electrical networks.	**Remember**	B.L-3
BECT-305.3	Identify and analyses the different-different types of parameter in two port network and it's conversion. To apply Laplace transform for steady state and transient analysis.	**Apply**	B.L-1
BECT-305.4	Evaluate frequency response, behavior of different passive elements, different network parameters and enabling the design of complex circuits depending on specifications.	**Evaluate**	B.L-5
BECT-305.5	Understand concepts of pole and zeroes, Properties of LC, RC and RL driving point functions and Synthesis of LC, RC and RL driving point admittance functions.	**Understand**	B.L-2

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Energy & Environment **Course Code**: BCET 401

Year of Study: 2nd **Semester:** 4th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
BCET 401.1	To demonstrate knowledge of new and renewable energy and their relationship with ecology & environment.	**Understand**	B.L-1
BCET 401.2	To describe conventional and non-conventional energy scenario with respect to environment.	**Apply**	B.L-3
BCET 401.3	To analyze Synergy between energy and environment, global environment issues.	**Analyze**	B.L-4
BCET 401.4	To explain the Environmental Pollution and their effects on environment.	**Understand**	B.L-2
BCET 401.5	To apply awareness regarding environmental protection and application of renewable energy	**Evaluate**	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Signals & Systems **Course Code**: BECT 402

Year of Study: 2nd **Semester:** 4th.

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level(B.L.)
BECT-402.1	Analyze the signals as Continuous time and Discrete time	**Analyze**	B.L-4
BECT-402.2	Evaluate the spectral characteristics of signals using Fourier analysis.	**Evaluate**	B.L-5
BECT-402.3	Understandings of systems based on their properties and determine the response of LTI system using convolution.	**Understand**	B.L-2
BECT-402.4	Evaluate system properties based on impulse response and Fourier analysis.	**Evaluate**	B.L-5
BECT-402.5	Apply transform techniques to analyze continuous-time and discrete-time signals and systems.	**Apply**	B.L-3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics and communication

Course Name: Analog Communication **Course Code: BECT-403**
Year of Study: 2nd year **Semester: 4th**

Course Outcome: The students will be able to:

	Course Outcome	Bloom's Taxonomy	Bloom's Level (BL)
BECT-403.1	Understand the basic concepts of the analog communication systems.	Understand	BL-2
BECT-403.2	Compute modulation index, bandwidth and power requirements for various analog modulation schemes including AM,FM and PM	Apply	BL-3
BECT-403.3	Analyze various analog continuous wave modulation and demodulation techniques including AM, FM and PM	Analyse	BL_4
BECT-403.4	Analyze various analog pulse modulation and demodulation techniques including AM, FM and PM	Analyse	BL_4
BECT-403.5	Illustrate the influence of noise over analog modulation schemes through random process and noise theory & applications of analog communication techniques	Apply	BL_3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Control System **Course Code**: BEET-404

Year of Study: 2nd **Semester:** 4th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-501.1	Understand the different ways of system representations such as Transfer function representation, Signal flow graph and to assess the system dynamic response.	**Understand**	B.L-2
TEC-501.2	Assess the system performance using time domain analysis and methods for improving it	**Apply**	B.L-3
TEC-501.3	Assess the system performance using frequency domain analysis and techniques for improving the performance.	**Apply**	B.L-3
TEC-501.4	Design various controllers and compensators to improve system performance	**Remember**	B.L-1
TEC-501.5	Test system Controllability and Observability using state space representation and applications of state space representation to various systems.	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department Of Electronics & Telecommunication Engg.

Course Name: **ANALOG CIRCUITS** **Course Code**: BECT 405

Year of Study: IInd **Semester:** IV

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
BECT405 .1	Able to understand Current mirror and current steering circuit used for biasing of various stages in IC 741.	**Understand**	B.L-2
BECT405.2	Analysis of power output & efficiency for class A, B, AB, C Power amplifier, their efficiency and distortion.	**Analyze**	B.L-4
BECT405.3	To learn about DC & AC analysis of Operational amplifier IC741 and the basic functions of Op-Amp.	**Understand**	B.L-2
BECT405.4	Develop skills to construct active filters and their applications.	**Apply**	B.L-3
BECT405.5	To understand & design circuits of different types of multivibrator and waveform generator using Op-Amp & IC555.	**Evaluate**	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: **Automatic Control System** **Course Code**: **TEC-501**

Year of Study: 3rd **Semester:** 5th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-501.1	Understand the basics of control System, Mathematical modelling and representation of the various system.	**Understand**	B.L-2
TEC-501.2	Apply various time domain and frequency domain techniques to assess the system performance	**Apply**	B.L-3
TEC-501.3	Identified the different approaches to improve the stability of non-linear systems.	**Remember**	B.L-1
TEC-501.4	Analyze the performance by selecting a suitable controller and/or a compensator for a specific application	**Analyze**	B.L-4
TEC-501.5	Design P, PI, PID, controllers, tuning rules for PID controllers and introduction to Soft computing techniques in control system.	**Evaluate**	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

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Department of Electronics and Telecommunication Engg.

Course Name: Digital signal processing **Course Code: TEC-502**
Year of Study: 3rd year **Semester: 5th**
Course Outcome: The students will be able to:

	Course Outcome	Bloom's Taxonomy	Bloom's Level (BL)
TEC-502.1	Describe the characteristics and transformations of discrete time signals mathematically	Understand	BL-2
TEC-502.2	Apply techniques in time and transform domains to the analysis and design of discrete-time systems;	Apply	BL-3
TEC-502.3	The student will develop an understanding of DTFT, DFT, and FFT.	Understand	BL-2
TEC-502.4	Design Finite Impulse Response (FIR) and Infinite Impulse Response (IIR) filters, and evaluate the performance to meet expected system specifications using MATLAB.	Evaluate	BL_5
TEC-502.5	Understand the various realization techniques & Learn the DSP programming tools and use them for applications	Understand	BL-2

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

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Department of Electronics & Telecommunication Engg.

Course Name: VLSI Technology **Course Code**: TEC 503

Year of Study: 3rd **Semester: 5th**

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-503.1	Analyze the trends in semiconductor technology, and how it impacts scaling and its effect on device density, speed and power consumption.	**Analyze**	B.L-4
TEC-503.2	Apply to learn Layout, Stick diagrams, Fabrication steps	**Apply**	B.L-3
TEC-503.3	Evaluate the various processes needed to fabricate the VLSI devices.	**Evaluate**	B.L-5
TEC-503.4	Understand the static and dynamic behavior of MOSFETs (Metal Oxide Semiconductor Field Effect Transistors) and the secondary effects of the MOS transistor model	**Understand**	B.L-2
TEC-503.5	Analyze the intricacies involved in VLSI circuit fabrication;	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Microprocessors & Controllers **Course Code**: TEC 504

Year of Study: 3rd **Semester:** 5th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC - 504.1	Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance.	Remember	B.L. - 1
TEC - 504.2	Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.	Apply	B.L. - 3
TEC - 504.3	Compare accepted standards and guidelines to select appropriate Microprocessor (8085&8086) and Microcontroller to meet specified performance requirements	Understand	B.L. - 2
TEC - 504.4	Analyze assembly language programs; select appropriate assemble into machine across assembler utility of a microprocessor and microcontroller.	Analyze	B.L. - 4
TEC - 504.5	Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices.	Create	B.L. - 6

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics and Telecommunication Engg.

Course Name: Antenna and Wave Propagation **Course Code: TEC-505**

Year of Study: 3rd year **Semester: 5th**

Course Outcome: The students will be able to:

	Course Outcome	Bloom's Taxonomy	Bloom's Level (BL)
TEC-505.1	Explain the far-field characteristics of a radiator and apply it to wire and loop antenna.	Apply	BL-3
TEC-505.2	Design the electrical properties of an array antenna by controlling the elements of the array.	Create	BL-6
TEC-505.3	Describe various types of antennas and its electrical and mechanical properties.	Understand	BL-2
TEC-505.4	Analyse the various techniques involved in various antenna parameter measurements.	Analyse	BL_4
TEC-505.5	Describe various radio wave propagation mechanisms and its applications.	Understand	BL-2
TEC-505.6	Design the various antenna for different applications	Evaluate	BL-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Concept of programming and OOPS Course Code: TCS-507

Year of Study: 3rd **Semester:** 5th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TCS-507.1	Understand the basic principles of unix operating system and programming features	**Understand**	B.L-2
TCS-507.2	Specify simple abstract data types and design implementations, using abstraction functions to document them.	**Apply**	B.L-3
TCS-507.3	Student analyze Problem solving technique with algorithm and system development methodologies with models and various testing technique	**Analyze**	B.L-4
TCS-507.4	Student analyze features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity	**Analyze**	B.L-4
TCS-507.5	Student apply data base concept and Relational data base model and SQL queries	**Apply**	B.L-3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: MICROWAVE TECHNIQUES **Course Code**: TEC-601

Year of Study: 2019-20 **Semester: 6th**

Course Outcomes: The student will be able to:

	COURSE OUTCOME	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-601.1	Know about the microwave frequencies and the waveguides that are used in communication.	Understand	BL-2
TEC-601.2	Understand the operation and working of the various tubes or sources for the transmission of the microwave frequencies.	Understand	BL-2
TEC-601.3	Understand and Analyze various parameters and characteristics of the various waveguide components.	Analyze	BL-4
TEC-601.4	Analyze the difference between the conventional tubes and the microwave tubes for the transmission of the EM waves.	Analyze	BL-4
TEC-601.5	Acquire knowledge about the measurements to be done at microwaves. Design and simulate waveguide components for various applications.	Evaluate	BL-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department - Electronics & Telecommunication Engg.

Course Name: VLSI Circuit Design **Course Code**: TEC 602

Year of Study: 3rd **Semester: 6th**

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-602.1	Illustrate circuit diagrams, stick diagrams and layouts for nMOS, CMOS and BiCMOS circuits. Explain design rules. Compare different technologies.	**Understand**	B.L-2
TEC-602.2	Apply mathematical methods and circuit analysis models in analysis of CMOS digital electronics circuits, including logic components and their interconnection.	**Apply**	B.L-3
TEC-602.3	Identify the interactions between process parameters, device structures, circuit performance, and system design.	**Remember**	B.L-1
TEC-602.4	Analyze performance issues and the inherent trade-offs involved in system design (i.e. power vs. speed).	**Analyze**	B.L-4
TEC-602.5	Design moderately complex project involved with data path operators, data registers, serial/parallel conversion, clocking/timing details and feedback.	**Evaluate**	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
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Department of Electronics & Telecommunication Engg.

Course Name: Telecommunication Switching **Course Code**: TEC-603

Year of Study: 3rd **Semester: 6th**

Course Outcomes: The student will be able to:

S.N.	COURSE OUTCOME	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-603.1	Explain the need for switching systems and their evolution from analog to digital.	Understand	BL-2
TEC-603.2	Explain and Discuss the Public Switched Telephone Network.	Analyze	BL-4
TEC-603.3	Define private networks & integrated networks.	Analyze	BL-4
TEC-603.4	Classify and compare the different type of networks.	Evaluate	BL-5
TEC-603.5	Illustrate the cellular telephone system.	Apply	BL-3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of ELECTRONICS & TELECOMMUNICATION Engg.

Course Name: DIGITAL COMMUNICATION **Course Code**: TEC 604

Year of Study: 3rd **Semester:** 6th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-604.1	Understand the basics of information theory, source coding techniques and calculate Entropy of source.	**Evaluate**	B.L-5
TEC-604.2	Learn the generation and detection of Digital base band system. Describe and determine the performance of line codes and methods to mitigate inter symbol interference.	**Apply**	B.L-3
TEC-604.3	Understand the generation, detection signal space diagram, spectrum, bandwidth efficiency, and probability of error analysis of different band pass modulation techniques.	**Understand**	B.L-2
TEC-604.4	Learn the generation and detection of advanced modulation techniques.	**Remember**	B.L-1
TEC-604.5	Describe and determine the performance of different error control coding schemes for the reliable transmission of digital representation of signals and information over the channel.	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: **Data structure using C++** **Course Code**: TCS-607

Year of Study: 3rd **Semester:** 6th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TCS-607.1	Students develop knowledge of basic data structures for storage and retrieval of ordered or unordered data. Data structures include: arrays, linked lists, binary trees, heaps, and hash tables.	**Understand**	B.L-2
TCS-607.2	Students learn to analyze and compare algorithms for efficiency using notation.	**Analyze**	B.L-4
TCS-607.3	Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.	**Apply**	B.L-3
TCS-607.4	Students will be able to implement Linear and Non-Linear data structures. like TREE, GRAPH, STACK, QUEUE and perform various operation	**Analyze**	B.L-4
TCS-607.5	Students implement projects requiring the implementation of the above data structures	**Analyze**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of: Electronics & Telecommunication Engg.

Course Name: Optical Fiber Communication System Course Code: TEC-701

Year of Study: 4th **Semester:** 7th.

Course Outcomes: The student will be able to:

	Course Outcomes	**Bloom's Taxonomy**	**Bloom's Level (B.L)**
TEC-701.1	Identify and characterize different components of an optical fiber communication system.	**Remember**	B.L-1
TEC -701.2	Classify various propagation modes in optical fiber, explain attenuation, Signal Degradation and Pulse Broadening in optical fiber.	**Understand**	B.L-2
TEC -701.3	Define optical sources and detectors. Describe LED, laser diodes, PIN diodes and photo diodes.	**Evaluate**	B.L-5
TEC -701.4	Analyze optical transmitters and receivers, operating principle of LED and Laser diodes.	**Analyze**	B.L-4
TEC -701.5	Calculate receiver Sensitivity and power budget. Model optical receiver. Compare various photo detectors. Explain WDM concepts and principles, SONET/SDH networks.	**Apply**	B.L-3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COLLEGE OF ENGINEERING ROORKEE

Department Electronics & Telecommunication Engg.

Course Name: WIRELESS COMMUNICATION **Course Code**: TEC-702

Year of Study: 4th **Semester: 7th**

Course Outcomes: The student will be able to:

	COURSE OUTCOME	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-702.1	Understand the transmission of voice and data through various networks.	Understand	BL-2
TEC-702.2	Discuss the cellular system design and technical challenges.	Understand	BL-2
TEC-702.3	Analyze the Mobile radio propagation, fading, diversity concepts and the channel modeling.	Analyze	BL-4
TEC-702.4	Analyze the design parameters, link design, smart antenna, beam forming and MIMO systems.	Analyze	BL-4
TEC-702.5	Analyze Multiuser Systems, CDMA, WCDMA network planning and OFDM Concepts.	Analyze	BL-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department - Electronics & Telecommunication Engg.

Course Name: **Satellite and Communication** **Course Code: TEC 703**

Year of Study: **4th** **Semester: 7th**

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L)
TEC-703.1	Understanding the basics of satellite communication	**Understand**	B.L-2
TEC-703.2	Analyzes link budget of satellite signal for proper communication.	**Analyze**	B.L-4
TEC-703.3	Apply the Use of system for the benefit of society	**Apply**	B.L-3
TEC-703.4	Understanding the use the different application of satellite communication	**Understand**	B.L-2
TEC-703.5	Evaluate system properties based link budget of satellite signal.	**Evaluate**	B.L-4

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Principles of secure communication **Course Code**: TEC 013

Year of Study: 4th **Semester:** 7th

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level (B.L.)
TEC 013.1	Understand the benefits of Spread Spectrum systems in CDMA applications for mobile communications.	Understand	B.L-2
TEC 013.2	Analyze the concepts underlying spread spectrum techniques, providing students with computer exercises to simulate, to process, and to analyze multicarrier communication techniques	Analyze	B.L-4
TEC 013.3	Understand mathematical foundation required for various cryptographic algorithms.	Understand	B.L-2
TEC 013.4	Evaluate the basic concept of cryptography and network security models by understanding various types of ciphers, DES, AES, message authentication, digital signature systems.	Evaluate	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

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Department Of Electronics & Telecommunication Engg.

Course Name: Human Resource management **Course Code**: TOE 013

Year of Study: 4th **Semester:** 7th.

Course Outcomes: The student will be able to:

	Course Outcomes	**Bloom's Taxonomy**	**Bloom's Level (B.L)**
TOE 013.1	To develop the understanding of the concept of human resource management and to understand its relevance in organizations.		B.L. - 5
TOE 013.2	To develop necessary skill set for application of various HR issues.	Create	B.L. - 6
TOE 013.3	To analyze the strategic issues and strategies required to select and develop manpower resources.	Analyze	B.L. - 4
TOE 013.4	To integrate the knowledge of HR concepts to take correct business decisions.	Apply	B.L. - 3
TOE 013.5	Develop Competency to recruit, train, and appraise the performance of employees.	Evaluate	B.L. - 5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze, 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Digital Image Processing **Course Code**: TEC 024

Year of Study: 4th **Semester:** 8th.

Course Outcomes: The student will be able to:

	Course Outcomes	Bloom's Taxonomy	Bloom's Level(B.L.)
TEC-024.1	Evaluate theoretical aspect and models in Image Processing.	**Evaluate**	B.L-5
TEC-024.2	Analyze 2D signals in frequency domain through image transforms.	**Analyze**	B.L-4
TEC-024.3	Apply quantitative models of image and video processing for various engineering applications and develop innovative design for practical applications in various fields.	**Apply**	B.L-3
TEC-024.4	Create innovative design for practical applications in various fields.	**Create**	B.L-6
TEC-024.5	Remember different methods, models for video processing and motion estimation.	**Remember**	B.L-1

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COLLEGE OF ENGINEERING ROORKEE

Department of Electronics and communication Engg.

Course Name: Radar and Navigation **Course Code: TEC-801**
Year of Study: 4th year **Semester: 8th**

Course Outcome: The students will be able to:

	Course Outcome	Bloom's Taxonomy	Bloom's Level (BL)
TEC-801.1	Acquired knowledge about Radar and Radar Equations.	Understand	BL-2
TEC-801.2	Ability to work using Detection of Signals in Noise and Radio Direction Finding.	Apply	BL-3
TEC-801.3	To understand the detection fundamentals.	Understand	BL-2
TEC-801.4	To understand the operation of continuous wave Radar	Understand	BL-2
TEC-801.5	Ability to work using Instrument Landing System with Satellite Navigation System	Apply	BL_3

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

COER
COLLEGE OF ENGINEERING ROORKEE

Department of Electronics & Telecommunication Engg.

Course Name: Data Communication & Network **Course Code**: TEC 802

Year of Study: 4th **Semester: 8th**

Course Outcomes: The student will be able to:

	Course Outcomes	**Bloom's Taxonomy**	**Bloom's Level (B.L)**
TEC-802.1	Understand the knowledge and ability to identify the different types of network topologies and protocols.	**Understand**	B.L-2
TEC-802.2	Remember the layers of the OSI model and TCP/IP. Explain the function(s) of each.	**Remember**	B.L-1
TEC-802.3	Analyze the different internetworking devices and their functions and explain the role of protocols in networking.	**Analyze**	B.L-4
TEC-802.4	Apply subnet masks and addresses to fulfill network requirements	**Apply**	B.L-3
TEC-802.5	Evaluate the basic protocols of computer networks, and how they can be used to assist in network design and implementation.	**Evaluate**	B.L-5

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)

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Department of Electronics & Telecommunication Engg.

Course Name: Optical Networks **Course Code**: TEC-032
Year of Study: 4th **Semester: 8th**

Course Outcomes: The student will be able to:

	COURSE OUTCOME	Bloom's Taxonomy	Bloom's Level (B.L)
TEC 032.1	Apply knowledge of optical fibers in high speed data transmission medium applications.	Apply	BL-3
TEC 032.2	Explain the working of various Components used in Optical Network Design	Understand	BL-2
TEC 032.3	Implement various Network protection Schemes.	Create	BL-6
TEC 032.4	Analyze and Design Optical Link budget.	Analyze	BL-4
TEC 032.5	Explain Frame structures used in SONET, IP and ATM networks	Remember	BL-1

B.L – Bloom's Taxonomy Levels

(1- Understand, 2 – Apply, 3 – Analyze , 4 – Evaluate, 5 - Create)