SILIGURI INSTITUTE OF TECHNOLOGY

ELECTRONICS & COMMUNICATION ENGINEERING

COURSE OUTCOME

4TH SEMESTER

Course Name: Electromagnetic Theory & Transmission Line

CO1: Describe the basic concept of Vector algebra, Maxwell's equations, and apply them in the problems related to static and time varying EM fields.
CO2: Understand the wave propagation phenomena in different medium like dielectric, conductor and free space.
CO3: Analyze wave propagation in transmission line and to understand the concept of basic transmission line parameters & Smith Chart
CO4: Understand the idea of basic radiating structures, and few primary antennas like, dipole, loop, Yagi Uda and array antennas
CO5: Investigate the basic parameters of different antennas and study the standing wave pattern of transmission line

Course Name: Digital Electronics & Integrated Circuit

CO1: represent numerical values in various number systems and perform number conversions between different number systems
CO2: explain the operation of logic gates (AND, OR, NAND, NOR, XOR, XNOR) , Boolean algebra including algebraic manipulation/simplification, Karnaugh Map simplification and application of DeMorgan's theorems
CO3: analyze and design combinational circuits like decoders, encoders, multiplexers, and de-multiplexers including arithmetic circuits (half adder, full adder)
CO4: analyze and design sequential circuits like flip-flops, registers, counters
CO5: classify the nomenclature and technology in the area of memory devices: ROM, RAM, PROM, PLD, FPGAs, etc.
CO6: Describe the operation and specifications of different logic families, A/D & D/A converters

Course Name: Basic Env. Engg and Elemental Biology

CO1: Describe the basic principles and structure of ecology and environment
CO2: Summarize the problems that mankind is facing or will face in future due to continuous environmental degradation.
CO3: Explain the importance of resources and their conservation for the interest of future generation
CO4: Utilizing basic laws of science and engineering to understand and solve problems related to environment.

Course Name: Technical Report Writing and Language Laboratory

CO1: Develop listening and reading skills for a better comprehensive ability
CO2: Coordinate in a group on contemporary topics to enhance their speaking ability and presentation skills
CO3: Build vocabulary to enhance speaking and writing skills
CO4: Demonstrate proper body language while expressing one's ideas or opinions
CO5: Interpret their views in English so as to overcome stage fear and build self-confidence

Course Name: VALUES AND ETHICS IN PROFESSION

CO1: Recognize the importance of values in human life.
CO2: Understand the professional and ethical responsibility of the workplace
CO3: Implement the engineering solutions in a global and societal context
CO4: Identify the contemporary issues related to human and professional interactions at workplace
CO5: Grade the core values that shape the ethical behaviour of an engineer

Course Name: Physics-II

CO1: Identify the importance of the basic concepts of Physics
CO2: Classify different branches like electromagnetism, classical mechanics and quantum mechanics..
CO3: Utilize theoretical formulation of different physical phenomena in solving problems.
CO4: Analyze the data related to various physical phenomena both quantitatively and qualitatively

6TH SEMESTER

Course Name: Principles of Management

CO1: Recognize the principles and theories of management
CO2: Describe the various functional aspects pertinent to different operational areas of the organization.
CO3: Implement management concepts to resolve complex quantitative and qualitative problems .
CO4: Study the organizational effectiveness and assess the necessary changes required in the existing organizational pattern.

Course Name: Digital Communication

CO1: Describe how to sample and digitized the analog signal
CO2: Understand about Digital Data transmission
CO3: Apply the concept of Eye pattern to analyze ISI analysis
CO4: Analyze about the digital modulation techniques including probability of error
CO5: Generate various types of modulated signals and perform their basic operations and Apply the concept of Symbol error to detect the error in digital data transmission
CO6: Design and implement the PN sequence in communication system

Course Name: Digital Signal Processing

CO1: Describe the fundamental concepts for classification of signals & systems, sampling & reconstruction and signal operations
CO2: Understand the use of transforms used for discrete time signals such as ZT and DFT
CO3: Apply several design techniques for realization of FIR & IIR type digital filters.
CO4: Perform analysis of discrete time signals and systems.
CO5: Design, analyze and implement digital signal processing systems such as digital filters.

Course Name: Information Theory and coding

CO1: Understand and explain the basic concepts of information theory, entropy, source coding, channel and channel capacity, channel coding and relation among them
CO2: Construct various error control code properties and Apply linear block codes for error detection and correction
CO3: Apply convolution codes for performance analysis & Implement cyclic codes for error detection and correction
CO4: Construct Galois field and BCH code for Channel performance improvement against burst errors

<div align="center">**Course Name: Telecommunication Systems**</div>

CO1: Describe the historical processes in Telecommunication Switching
CO2: Understand various switching systems, signaling techniques, Traffic Engineering, Numbering Plan, Charging plan.
CO3: Develop the knowledge of ISDN, Modem and Modern Telephony

<div align="center">**Course Name: Object Oriented Programming**</div>

CO1: Recognize the fundamental concepts of Object Oriented Programming.
CO2: Compare OOP and other conventional programming languages and explain different forms of implementation of object oriented concept.
CO3: Implement programs through JAVA utilizing the concepts of object oriented programming
CO4: Execute applet and event-handling mechanisms through programs.

<div align="center">**Course Name: Seminar**</div>

CO1: Develop idea on preparing lectures, projects, workshops, technical writings , symposia, case studies etc.
CO2: Deliver presentation with the help of software skill or ICT.
CO3: Develop delivering skill of knowledge to become extrovert in nature & to maintain better interpersonal relationship on the job and off the job.
CO4: Gain knowledge about recent trends, issues and developments in electronics communication system & technology & evolve as a self-learner.

<div align="center"># 8TH SEMESTER</div>

<div align="center">**Course Name: Materials Science & Enginnering**</div>

CO1: Remember basic knowledge and theories related with crystal structure and different properties of materials
CO2: Explain the origin and basic theories related with the dielectric, magnetic, superconducting and optical properties of different materials
CO3: Explain the basic theories of material science to analyze the use of different materials in optical communication and data storage
CO4: Analyze the use materials used in display devices and the use of advanced materials in electronic devices.

<div align="center">**Course Name: DESIGN LAB**</div>

CO1: To draw schematic, design a layoutand form practical circuits using different electronic components
CO2: To test, check and troubleshoot those circuits for the enhancement of technical understanding of different electronic devices.
CO3: To identify various aspects like time, cost trade-offs analysis, resource allocation and levelling for designing and testing of electronic circuits

<div align="center">**Course Name: Project Part –II**</div>

CO1: Remember the basic theories related with the design of electrical and electronic circuits.
CO2: Discuss and understand the basic theories to design simple and complex electronic circuits for real life problems.
CO3: Design, construct and troubleshoot and create different electronic circuit based projects thus improving their technical and employability skills. .
CO4: Analyze and Simulate a sequential machine for a system or process appropriate for required accuracy.
CO5: Students will work in groups to create and solve the problems with electronic circuits thereby enhancing their communication and interpersonal skills.
CO6: Justify a specific project for a specific purpose or application.

Course Name: Digital Image Processing

CO1: To recall, identify, compare and explain the fundamentals of Digital Image Processing.
CO2: To determine, describe, explain and implement the different techniques of image processing like denoising, compression, representations of digital images
CO3: To employ, modify, study and find the mathematical treatments of Digital Image Processing.
CO4: To be able to explain, resolve and justify the various algorithms.
CO5: To propose and design various new application based concepts

Course Name: RENEWABLE ENERGY

CO1: Describe about different Renewable and Non Renewable Energy Source

CO2: Recognize energy Scenario and the environmental aspects related to the utilization of energy sources

CO3: Explain the Working Principle of Solar cell ,Solar collector and different Solar thermal application and Calculate the Solar radiation
CO4: Calculate the efficiency of Wind turbine and Explain the working principle of Wind power generation .
CO5: Explain the working principle of Hydel , ocean ,Tidal ,Biomass and Geothermal power generation
CO6: Explain the working Principle of Fuel cell and Magneto hydro dynamic generation

Course Name: Organisational Behaviour

CO1: Recognize the principles and fundamental theories of organizational behaviour
CO2: Understand human behaviour in the workplace from an individual, group and organizational perspective
CO3: Apply the essential theories and concepts to address relevant management issues