The Bombay Salesian Society's

Don Bosco Institute of Technology

Department of Electronics and Telecommunication Engineering

TE Syllabus- Internal Assessment – I

Even Semester-: AY 2024-25

Date: 10/2/2025

Date	Course Code	Course Name	Syllabus
20 February 2025	ECC601	Electromagnetics and Antenna	**Module 1: Introduction to Static Fields** # Coulomb's law, Charge configurations, Electric field intensity, Electric flux density, Gauss's law and applications, Current density, and Continuity equation. # Scalar Electric Potential, Potential gradient, Laplace's and Poison's equations # Biot Savart Law, Ampere Circuit law, Gauss's law for magnetic field **Module 2: Electromagnetic Field and Maxwell's Equations** # Faraday's Law, Displacement current density, Maxwell's equation for time varying filed, # Boundary conditions. # Power in EM Wave: Poynting theorem and Poynting vector
21 February 2025	ECC604	Artificial Neural Network and Fuzzy Logic	**Module 6:** Introduction to Fuzzy Logic, Fuzzy Rules, Fuzzy Properties - Operations, Membership Functions, Fuzzification - Membership Value Assignments using Intuition Method, Defuzzification Methods -- Mean of Maxima and Centroid (Centre of Area) Methods, Fuzzy Inference System with reference to Mamdani Model, Brief Review of Applications of Fuzzy Logic to Speed Control of DC Motor and Washing Machine. **Module 1:** Biological neuron and Artificial neuron, Activation Function, various types of Activation Functions with mathematical equations and diagram, types of Neural Network Architectures.

22 February 2025	ECC602	Computer Communication Networks	**Module 1:** 1.1 Applications of computer networks. Network types: LAN, MAN, and WAN, Network topologies. 1.2 Protocols and standards, need of layered protocol architecture, OSI reference model. 1.3 TCP/IP architecture: protocol suite, comparison of OSI and TCP/IP 1.4 Layer wise network hardware devices (NIC, Repeaters, Hubs, Bridges, Switches, Routers, Gateway and their comparison) 1.5 Addressing: physical / logical /port addressing/socket addressing. **Module2:** 2.1 Guided transmission media: comparison among coaxial, optical fiber and twisted pair cables. 2.2 Unguided transmission media 2.3 Transmission impairments 2.4 Broadband standards: Cable modem, DSL, and HFC **Module 3**:3.1 Data link services: Framing, Flow control, Error control 3.2 ARQ methods: transmission efficiency, Piggybacking 3.3 High Level Data Link Control (HDLC): HDLC configurations, Frame formats, HDLC bit stuffing and de-stuffing, Typical frame exchanges. 3.4 Medium Access Control Protocols: ALOHA, Slotted ALOHA, CSMA, CSMA/CD
24 February 2025	ECC603	Image Processing and Machine Vision	**Module 1: DIGITAL IMAGE FUNDAMENTALS AND POINT PROCESSING** 1.1 Introduction –Steps in Digital Image Processing, concept of spatial and intensity resolution, Relationships between pixels 1.2 Point Processing : Image Negative, Log Transform, Power Law transform,Bit plane slicing, Contrast stretching , Histogram equalization and Histogram Specification **Module 2: IMAGE ENHANCEMENT** 2.1 Spatial Domain filtering : The Mechanics of Spatial Filtering,Smoothing Spatial Filters-Linear Filters-Averaging filter, Order-Statistic Filters- Median filter, Application of Median filtering for Noise removal 2.2 Frequency Domain Filtering:Introduction to 2-D DFT and its application in frequency domain filtering,Wavelet transform, Haar transformSharpening Spatial Filters- The Laplacian, Unsharp Masking and Highboost Filtering, Using First-Order Derivatives — The Gradient- Sobel, Prewitt and Roberts 2.3 Frequency Domain Filtering Fundamentals, Fourier Spectrum and Phase angle ,Steps for Filtering in the Frequency Domain, Correspondence Between Filtering in the Spatial and Frequency Domains, Frequency domain Image Smoothing and sharpening filter - Ideal, Butterworth , Gaussian.

25 February 2025	ECCDLO6016	Radar Engineering(DLO)	**Module 1: Introduction to Radar & Radar Equation** # Basics of Radar, Block Diagram # Concepts of PRF, Radar Equation - simple - detection of signal in noise - SNR # Probability of detection & false alarm, RCS - simple-complex targets. **Module 2: Introduction to Radar & Radar Equation** # Introduction to Doppler and MTI radar, Doppler frequency shift # Simple CW Doppler radar, MTI radar block diagram # Delay Line Cancelers # Pulse Doppler Radar
	ECCDLO6014	Database Management System(DLO)	**Module 1: Introduction to DBMS -** Introduction to databases, History of database system, Benefits of Database system over traditional file system, relational databases, Three tier database architecture, Data independence. **Module 2: Data Models -** The importance of data models, Introduction to various data models (hierarchical, Network,Relational, Entity relationship and object model), Basic building blocks, Business rules, Degrees of data abstraction. **Module 3:Database Design, ER-Diagram -** Overview, ER-Model and its Constraints, ER-Diagrams,ERD Issues, weak entity sets, Codd's rules.
	HAIMLC601	Game Theory using AI ML	Introduction, The theory of rational choice, Games with Perfect Information, Nash Equilibrium: Theory, Prisoner's Dilemma, Stag Hunt, Matching pennies, BOS, Multi NE.Bayesian Games, Introduction, Motivational examples, General definitions, two examples concerning information
	HCSC601	Digital Forensic	**Module 1: Introduction to Cybercrime and Computer-crime -** 1.1 Definition and classification of cybercrimes, 1.2 Definition and classification of computer crimes, 1.3 Prevention of Cybercrime **Module 2: Introduction to Digital Forensics and Digital Evidences -** 2.1 Introduction to Digital Forensics, 2.2 Introduction to Digital Evidences, 2.3 Digital Investigation Process Models
	HDSC601	Statistical Learning for Data Science	Module 1 - 1.1 Data and Statistics and 1.3 Descriptive Statistics - Numerical Measures and Module 2 - 2.1 Probability and 2.2 Discrete Probability Distribution

11/2/2025 11/2/2025

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