The Bombay Salesian Society's
Don Bosco Institute of Technology, Mumbai
(An Autonomous Institute Affiliated to University of Mumbai)
Department of Electronics and Telecommunication Engineering

Syllabus for Internal Assessment 2 (IA-2) for EVEN Semester of AY 2025-26

Date: 18 May to 22 May 2026

TE – SEMESTER VI			
Course Code	**Course Name**	**Faculty Incharge**	**Syllabus Content**
ECC601	Electromagnetics and Antenna	Prof. Freda Carvalho	Module 3 : Basic of Antennas 3.1 Basic concepts: Radiation mechanism, Near field and far field radiation, retarded potential 3.2 Antenna Parameters: Isotropic antenna, Radiation pattern, radiation intensity, Beamwidth, directivity, Gain, beam efficiency, bandwidth, polarization, Input impedance, Antenna efficiency, Radiation resistance, Loss resistance, aperture concept, FRII's transmission formula 3.3 Wire Elements: Infinitesimal dipole Module 4 : Antenna Arrays 4.1 Linear arrays of two isotropic point sources, linear arrays of N elements, Principle of pattern multiplication 4.2 Introduction to Planner and circular arrays Module 5 : Types of Antennas 5.3 Patch Antenna: Microstrip antenna, Feeding Techniques, Introduction to design of Microstrip antenna (Rectangular and circular patch)
ECC602	Computer Communication Networks	Prof. Namita Agarwal	Module 4: Network layer 4.1 Introduction to telephone networks and circuit switching principles.4.2 Introduction to data networks and packet switching principles.4.3 Network layer services and functions.4.4 Internet Protocol: Principles of Internetworking, requirements, IPv4 packet, IPv4addressing (classful and classless (CIDR))4.5 Routing in Packet Switching Networks: Characteristics, Routing strategies4.6 Routing Algorithms: Link state Routing, Distance vector Routing and Path vectorrouting4.7 Subnetting, supernetting, VLSM, and NAT4.8 Introduction to ICMP, ARP, RARP4.9 IPv6 (IPv6 Datagram format, comparison with IPv4, and transition from IPv4 toIPv6).4.10 Quality of serviceModule 5: Transport Layer5.1 Connectionless and Connection–oriented services at the transport layer, TransmissionControl Protocol (TCP): TCP Services, TCP Segment, TCP three-way handshake5.2 User Datagram Protocol (UDP), UDP Services, UDP Datagram5.3 TCP and UDP checksum calculation5.4 Flow control, error control and congestion controlModule-6-Application Layer6.1-Introduction to Application Layer Protocols: HTTP, DNS, DHCP.
ECC603	Image Processing and Machine Vision	Prof. Sonal Patil	Module 4: Image Segmentation: 4.1 Point, Line, and Edge Detection: Detection of Isolated Points, Line detection, edge models, Canny's edge detection algorithm , Edge linking : Local processing and boundary detection using regional processing (polygonal fitting) 4.2 Thresholding : Foundation, Role of illumination and reflectance, Basic global thresholding 4.3 Region Based segmentation: Region Growing, Region Splitting and merging Module 5: Introduction to Machine Vision and Descriptors 5.1 Principle of machine vision , real world applications, chain code, simple geometric border representation, Fourier Transform of boundaries, Boundary description using segment sequences 5.2 Introduction to Texture, co-occurrence matrix Module 6:Machine Vision Algorithms 6.1 Knowledge representation, Classification Principles, Classifier setting, Classifier Learning, Confusion Matrix 6.2 K-means clustering algorithm, Introduction, bays decision theory continuous case, two category classification, Bayesian classifier ,Support vector machine

ECC604	Artificial Neural Network and Fuzzy Logic	Prof. Pratibha Dumane	Module 2: Perceptron - Single Layer Perceptron, Multilayer Perceptron and their Architecture. Error Functions:, Gradient Descent, Error back propagation, Stopping Criterions for Training. Module 3: Competitive Learning Network, KSOM, K-Means Clustering Algorithm. Module 4: Basic concept of Machine Learning, Support Vector Machine (SVM) - Introduction and SVM based Binary Classifier
ECCDLO6014	Database Management System	Dr. Madhavi S. Pednekar	Module 4.3 Normalization methods: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF Module 5: Constraints, Views and SQL - Constrains, Triggers, SQL and Views. Module 6 Transaction Management and Concurrency Control
HAIMLC601	H&M: Game Theory using AI ML	Prof. Udaychandra A. Nayak	Module 3: Introduction to AI & Problem Solving 3.1 Definitions Foundation and History of AI, Evolution of AI - Applications of AI, Classification of AI systems with respect to environment. Artificial Intelligence vs Machine learning, 3.2 Heuristic Search Techniques: Generate-and-Test; Hill Climbing; Properties of A* algorithm, Best first Search; Problem Reduction. 3.3 Beyond Classical Search: Local search algorithms and optimization problem, local search in continuous spaces, searching with nondeterministic action and partial observation, online search agent and unknown environments. Module 4: Knowledge and Reasoning 4.1 Knowledge and Reasoning: Building a Knowledge Base: Propositional logic, first order Logic, situation calculus. Theorem Proving in First Order Logic, Planning, partial order planning. Uncertain Knowledge and Reasoning, Probabilities, 4.2 Bayesian Networks. Probabilistic reasoning over time: time and uncertainty, hidden Markova models, Kalman filter, dynamic bayesian network, keeping track of many objects Module 5: Introduction to ML 5.1 Introduction to Machine Learning, Examples of Machine Learning Applications, Learning Types, Supervised Learning -Learning a Class from Examples, Vapnik- Chervonenkis (VC) Dimension, Probably Approximately Correct (PAC) Learning, Noise, Learning Multiple Classes, Regression, Model Selection and Generalization, Dimensions of a Supervised Machine Learning Algorithm 5.2 Introduction, Linear Regression Models and Least Squares, Subset Selection, Shrinkage Methods, Logistic Regression- Fitting Logistic Regression Models, Quadratic Approximations and Inference, L1 Regularized Logistic Regression, SVM-Introduction to SVM, The Support Vector Classifier, Support Vector Machines and Kernels- Computing the SVM for Classification.

Dr. Sonal Patil
IA Coordinator

Dr. Madhavi S. Pednekar
Head of Department (EXTC)