The Bombay Salesian Society's

Don Bosco Institute of Technology

Kurla (West), Mumbai 400070

Department of Mechanical Engineering

BE - SEM. VIII - Internal Assessment - I (Syllabus) **14/02/2025**

Academic Year: 2024-2025

Sr No	Name of Faculty	Subject	Subject Code	Date of Exam	Module No.	Detailed Syllabus
1	Prof. Cleta Periera	OPC	MEC801	20/02/2025	Module 1	1.1 Introduction: Production and Operations Function, Production systems, Make to stock, Make to order, Assemble to order and Engineer to order, type of layouts, Phases in OPC like Preplanning, Planning, Action & Control. 1.2 Strategic Planning for Operations and Services: Approaches like Forced Choice model and Operations Model, Quality and Productivity strategy, Technology strategy. Operations Strategies for Services, Types or Service Operations: Quasi manufacturing, Customer as participants, Customer as product, Classification of Services, Service capacity.
					Module 2	2.1 Forecasting:Forecasting and Prediction, Need for forecasting, role of forecasting in OPC, Methods of forecasting, Qualitative methods, Quantitative methods like time series analysis, least square method, moving average method, and exponential smoothing method. Forecasting Error; Mean Absolute Deviation, Forecasting Bias. 2.2 Capacity Planning: Measurement of capacity, Measures of operating capacity, Factors influencing effective capacity, factors favouring over capacity and under capacity, short range, medium range and long range capacity planning. Capacity requirement Planning (CRP) 2.3 Aggregate planning: Concept of aggregate planning, Pure Strategy; Mixed Strategy; Level Strategy, Rough cut capacity planning, Aggregate planning for Services; Optimal Models for Aggregate Planning; Linear Programming; Linear Decision Rules Master Production Schedule
2	Prof. Johnson Varghese	DLOC Gr.5: Composite Materials	MEDLO8051	21/02/2025	Module 1	Classifications based on fibres and matrix, Advantages, Applications, Terminology, Manufacturing Methods: Hand layup, Spray layup, Vacuum bagging, Prepregs, Industrial autoclave, Filament winding, Pultrusion, Resin transfer moulding, Vacuum infusion Processing, Powder metallurgy route for ceramic and metal matrix composites
					Module 2	Hooke's law for different types of materials, Plane stress assumption, Hooke's law for a twodimensional unidirectional lamina, Relationship of compliance and stiffness matrix to engineering elastic constants of a lamina, Hooke's law for a two-dimensional angle lamina, Engineering constants of an angle lamina
3	Dr. Manju Lata	DLOC Gr.5: Smart Materials	MEDLO8052		Module 1	Intoduction of smart material: Overview of the different types of Materials, Smart materials, Smart material ised in structures, Smart material for sensors, actuators controls, memory and energy storage and their inter relationships, concept of High Bandwidth- Low Strain generating Materials (HBLS), and Low Bandwidth High Strain Generating Materials (LBHS), Nano Composite Materials
					Module 3	Overview of following materials 1. Piezoelectric Materials 2. Magneto strictive Materials 3. Shape Memory Alloys 4. Electroactive Polymers

DON BOSCO INSTITUTE OF TECHNOLOGY ENGG. COLLEGE

4	Prof. Mahesh Rajwade	DLOC Gr.6: PDD	MEDLO8061	22/02/2025	Module 1	Need for developing products, The importance of Engineering and Industrial design, The design process, Relevance of product lifecycle issues in design, Societal considerations in Engineering and Industrial Design, Generic product development process, Various phases of product development, Planning for products, Establishing markets - market segments - relevance of market research.
					Module 2	The design processes, Descriptive and prescriptive design models, Concept development & evaluation, Pugh's total design activity model, Concept generation and selection method, Embodiment design, Product architecture, and Steps in developing product architecture.
5	Prof. Nilesh Gaware	DLOC Gr.6-TQM	MEDLO8063		1	Introduction to Quality Management : A) Definitions of Quality, product quality and service quality; the evolution of quality; need for Quality Management, Quality statements and Policy, Customer orientation & satisfaction, Customer complaints, customer retention; Supplier partnership, Supplier rating & selection, CSI, Costs of Quality, Prevention , appraisal and failure aspects , Use of COQ for improving quality and performance, Designing for quality, Quality of design, Quality of conformance. B) Basic concepts of TQM, TQM framework, Contributions of Deming, Juran and Crosby, Juran Triology , PDCA Cycle, Barriers to TQM; TQM principles; Strategic Quality Planning; Quality councils; employee involvement, motivation; Empowerment; Team and Teamwork; recognition and reward, performance appraisal
					2	QC Tools : A) Seven QC Tools: Check Sheet, Histogram, Pareto Chart, Fishbone Diagram, Run Charts, Scatter Diagram, Process Flow Chart.
6A	Prof. Mahesh Rajwade	ILOC : PM	ILO8021	25/02/2025	Module 1	Project Management Foundation: Definition of a project, Project Vs Operations, Necessity of project management, Triple constraints, Project life cycles (typical & atypical) Project phases and stage gate process. Role of project manager, Negotiations and resolving conflicts, Project management in various organization structures.
					Module 2	Initiating Projects: How to get a project started, Selecting project strategically, Project selection models (Numeric /Scoring Models and Non-numeric models),Stages of team development & growth (forming, storming, norming &performing), team dynamics.
					Module3	Networking and Scheduling techniques. PERT, CPM
6C	Dr. Yashesh Ranpur	ILOC : FM	ILO8022		Module 1	Module 1: Overview of Indian Financial System: Characteristics, Components and Functions of Financial System. Financial Instruments: Meaning, Characteristics and Classification of Basic Financial Instruments — Equity Shares, Preference Shares, Bonds-Debentures, Certificates of Deposit, and Treasury Bill
					Module 2	Module 2: Concepts of Returns and Risks: Measurement of Historical Returns and Expected Returns of a Single Security and a Two-security Portfolio; Measurement of Historical Risk and Expected Risk of a Single Security and a Two-security Portfolio.

6D	Dr. Vinod Gokarna/ Prof. Kartiki Bhave / Prof. Anice Mathews	ILOC : EM	ILO8029		
7A	Prof. Uday Nayak	H&M : AIML - Text, Web and Social Media Analytics	HAIMLC801		
7B	Prof. Prasad Padalkar	H&M : Cybersecurity - Application Security	HCSC801	25/02/2025	
7C	Prof. Mayura Gawane	H&M : Data Science - Text, Web and Social Media Analytics	HDSC801		

Module 1	Introduction and Definition of Environment: Significance of Environment Management for contemporary managers, Career opportunities, Environmental issues relevant to India, Sustainable Development, the Energy scenario
Module 3	Concepts of Ecology: Ecosystems and interdependence between living organisms, habitats, limiting factors, carrying capacity, food chain,
Module 5	Total Quality Environmental Management, ISO-14000, EMS certification
Module 1	**Module 1: Introduction** to Text Mining: Introduction, Algorithms for Text Mining, Future Directions Information Extraction from Text: Named Entity Recognition, Relation Extraction, Unsupervised Information Extraction Text Representation: tokenization, stemming, stop words, NER, N-gram modelling
Module 2	**MODULE 2: Clustering and Classification** Text Clustering: Feature Selection and Transformation Methods, distance based Clustering Algorithms, Word and Phrase based Clustering, Probabilistic document Clustering Text Classification: Feature Selection, Decision tree Classifiers, Rulebased Classifiers, Probabilistic based Classifiers, Proximity based Classifiers. Text Modelling: Bayesian Networks, Hidden Markovian Models, Markov random Fields, Conditional Random Fields
Module 1	**Module 1 : Introduction to Application Security, Threats, and Attacks** Introduction to Web Application Reconnaissance, Finding Subdomains, API Analysis, Identifying Weak Points in Application Architecture Offense: Cross-Site Scripting (XSS), Cross-Site Request Forgery (CSRF), XML External Entity (XXE) Injection, Injection Attacks, Denial of Service (DoS), Cross-Origin Resource Sharing Vulnerabilities
Module 2	**Module 2: Defence and tools** Securing Modern Web Applications, Secure Application Architecture, Reviewing Code for Security, Vulnerability Discovery, Defending Against XSS Attacks, Defending Against CSRF Attacks, Defending Against XXE, Defending Against Injection attacks, Defending Against DoS, Defending against CORS based attacks
Module 1	**MODULE 1: Introduction** Introduction to Text Mining: Introduction, Algorithms for Text Mining, Future Directions Information Extraction from Text: Named Entity Recognition, Relation Extraction, Unsupervised Information Extraction Text Representation: tokenization, stemming, stop words, NER, Ngram modelling
Module 2	**MODULE 2: Clustering and Classification** Text Clustering: Feature Selection and Transformation Methods, distance based Clustering Algorithms, Word and Phrase based Clustering, Probabilistic document Clustering Text Classification: Feature Selection, Decision tree Classifiers, Rulebased Classifiers, Probabilistic based Classifiers, Proximity based Classifiers. Text Modelling: Bayesian Networks, Hidden Markovian Models, Markov random Fields, Conditional Random Fields

Module 3	**MODULE 3: Web-Mi[illegible]:** Introduction to WebMining: Inverted indices and Compression, Latent Semantic Indexing, Web Search, Meta Search: Using Similarity Scores, Rank Positons Web Spamming: Content Spamming, Link Spamming, hiding Techniques, and Combating Spam

Prof. Shreeprasad Manohar
(IA Coordinator)

Prof. Pratibha Dumane
(Dean Academics)

Prof. Swapnil Gujarathi
(HoD - MECH)