

## Curriculum for Master of Textile Management Programme

### (i) Compulsory Courses

Course No.	Course Title	Credit Hours
EM-501	Organisational Systems	3
EM-502	Accounting and Financial Management	3
EM-503	Strategic Planning and Decision Making	3
EM-504	Project Management Framework and Tools	3
EM-505	Operations Research	3

### (ii) Common Electives

Course No.	Course Title	Credit Hours
EM-511	Total Quality Management	3
EM-512	Project Evaluation and Feasibility Analysis	3
EM-513	Research Methods in Engineering Management	3

### (iii) Elective Courses of Textile Management

Course No.	Course Title	Credit Hours
TE-505	Advanced Statistics	3
TE-516	Supply Chain Design and Management	3
TE-551	Apparel and Merchandising Management	3
TE-552	Textile Computer Integrated Enterprise	3
TE-553	Textile Brand Management and Marketing	3
TE-554	Health Safety and Environmental Management	3
IM-503	Maintenance Management	3
TE-600	Independent Study Project	6
TE-601	Dissertation	9

#### **EM-501      Organisational Systems**

Definitions of management; Evolution of management thought, classical, quantitative and behavioural schools; interactions between organisations and their environments. The planning process; strategic and tactical planning, developing planning premises, nature of managerial decision making quantitative aids, management by objectives. Organisational structures; behaviour of the individual, work group and organisation; coordination and spans of control, the informal organisation; authority delegation and decentralisation, group and committees, managing organisational change and conflict. Motivation, performance and satisfaction; building a high-performance team; leadership, interpersonal and organizational communication, staffing and personal function. The control process; budgetary and non-budgetary methods or control: team performance measurement and improvement strategies. Use of management information systems.

## **EM-502      Accounting and Financial Management**

Foundations of finance with applications in corporate finance and investment management. Major financial decisions made by corporate managers and investors with focus on process valuation. Criteria for investment decisions, valuation of financial assets and liabilities, relationships between risks and return, market efficiency, and the valuation of derivative securities. Major corporate financial instruments including debt, equity and convertible securities. Analysis and projection of financial statements, cost elements in pricing, cost control and design of accounting systems.

## **EM-504      Project Management Framework and Tools**

Role of projects in organization's competitive strategy; Standard methodologies for managing projects life cycle; Design-implementation interface; Estimating: preliminary and detailed; Contractual risk allocation; Scheduling: PBS; WBS; Integration of scope, time, resource and cost dimension of a project: Evaluation of labor, material, equipment, and subcontract resources; Scheduling techniques including CPM/ PERT, GERT, critical chain; Solving real-world project schedules; Monte Carlo simulation; Cost budgeting; Cost baseline; Cash flow analysis; Earned value analysis; Cost control; Proposal presentation; Application of software for project management (MS Project, Primavera Project Planner-P3),

## **EM-503      Strategic Planning and Decision Making**

Critical issues in shaping the competitive strategy for engineering-driven companies in a turbulent business environment: corporate mission; key result areas and situational analysis including strengths, weaknesses, opportunities and threats; identifying planning assumptions, critical issues, setting objectives, formulating strategy. Managing technology as a strategic resource of the firm; understanding of the process. roles and rewards of technological innovation; integrating the strategic relationship of technology with strategic planning, marketing, finance, engineering and manufacturing; government, societal and international issues; issues pertaining to cultural diversity and ethical concerns. Subjective, judgmental and expert decisions; conflict resolution in strategic decisions involving technological alternatives; hierarchical decision modeling; individual and aggregate decisions; decision discrepancies and evaluation of group disagreements.

## **EM-505      Operations Research**

Deterministic modelling; Linear programming; The Simplex method; Multiple objective linear optimisation; Duality and sensitivity analysis; Post optimality analysis from the viewpoint of technology management: Transportation, trans-shipment, and assignment problems; Problem formulation; Goal programming; Network analysis; Dynamic programming; Integer programming and nonlinear programming, Probabilistic modelling: Markov chains; Queuing theory and applications; Inventory theory; Forecasting; Design analysis and simulation: Pareto optimality and trade off curves.

**TS-551            Apparel and Merchandising Management**

Concepts and practices for the production of apparel items, garment manufacturing, development of basic fit blocks by using pattern engineering techniques, organisational ergonomics, resource allocation. Production planning and management of apparel industry.

Context of Merchandising, nature and timing of Merchandising, responsibilities. Product quality and performance standards, determining product costs.

**TE-516            Supply Chain Design and Management**

A broad view of management systems for inbound and outbound logistics planning, inventory control, transportation planning and facilities location decisions.

Key supply chain processes with particular reference to the textile and garment industry and the role of benchmarking in process improvements across the supply chain. Tools and techniques for process mapping.

Supply chain strategy for in-sourcing, out-sourcing and vertical integration. Computer software for the planning, design and coordination aspects of the supply chain.

**TS-552            Textile Computer Integrated Enterprise**

Philosophy and strategy of enterprise integration for textile manufacturing. IT infrastructure for textile and apparel industries. Overview of enabling technologies (CAD/CAM; material handling systems; data acquisition and control, Web, automation and robotics). Logistics and warehousing systems; product tracking.

Application of E-commerce and ERP system in Textile. Information System Planning and Development (SDLC). Moral and ethical dimensions of information system. Business Intelligence and Knowledge management, IT disaster management.

**TE-553            Textile Brand Management and Marketing**

Basics of branding, Strategic brand management, conditions for successful brand management process, brand communication, corporate brands, trademarks, logo. Textile brand management and marketing, local and global markets, marketing programmes and organisations. The economic, social, political, legal, and cultural environments; local and global textiles market opportunities, challenges, marketing strategies, creation and management of marketing programmes. Quantitative methods employed in market research in the textile industry. Role of market research in management and decision making.

**TS-554            Health Safety and Environmental Management**

Introduction to Occupational Health, Safety and Environmental Protection. Health Safety and Environment issues related to textiles. Management responsibilities and role of human resources in HSE

Elements of Occupational Health and Safety Management Systems (OHSAS-18001) and Environmental management systems (ISO-14001) and other related standards. Health Safety and Environment Laws, Legislations, Regulations and standards and Legal Compliance. Waste categorisation and pollution prevention strategies in textile industry. Ergonomics; Hazard Identification risk assessment; Environmental Impact Assessment. Accident Investigation and Reporting. Permit to work. Emergency preparedness and response. Fire protection; material handling & storage.

### **EM-511 Total Quality Management**

Critical principles and procedures of quality management in a competitive global environment: contemporary definitions of quality; construction quality; Product quality; Process quality; Quality economics; Quality philosophies; Planning, organizing and controlling for quality; Human resource strategies: QA and QC tools.

### **EM-512 Project Evaluation and Feasibility Analysis**

Evaluation of engineering projects from the engineering management perspective: Techniques for capital investment for decision-making; Time value of money and the concept of equivalence; Present worth, annual and rate of return analysis; Multiple alternatives; Replacement criteria; Tax considerations; Breakeven sensitivity analysis; Project evaluations under uncertainty; Risk sharing; Capital budgeting; Cost of capital depreciation: Multicriteria decisions. Project feasibility analysis; Organizational impacts; societal impacts; Environmental impacts.

### **EM-513 Research Methods in Engineering Management**

Research methods in engineering and technology management; Statistical techniques including proper selection; Use and interpretation of parametric and non-parametric tests along with factor and discriminate analysis; Design of experiments and model misspecification: Simulation in engineering and management research and practice.

### **IM-503 Maintenance Management**

Typical maintenance responsibilities; Types of maintenance: Breakdown Maintenance, Preventive Maintenance, Individual Versus Group Replacement, Internal Versus External Maintenance; Determination of Crew size. Queuing Theory Application in Maintenance: Input, Queue, Service Characteristics. Mathematical Approach; Monte Carlo Simulation, Computerised Maintenance Management.