

Curriculum for Master of Science Textile Management Programme

(i) Compulsory Courses

Course No.	Course Title	Credit Hours
EM-501	Organisational Systems	3
TS-551	Apparel and Merchandising Management	3
EM-502	Accounting and Financial Management	3
TE-516	Supply Chain Design and Management	3
EM-504	Project Management Framework and Tools	3

(ii) Elective Courses of Textile Management

Course No.	Course Title	Credit Hours
TS-515	Technical Textiles	3
EM-503	Strategic Planning & Decision Making	3
TS-556	Research Methodology	3
TS-552	Textile Computer Integrated Enterprise	3
TS-553	Textile Brand Management and Marketing	3
TS-554	Health Safety and Environmental Management	3
EM-505	Operation Research	3
TS-517	Advanced Fabric Forming Processes	3
TS-508	Advanced Finishing Processes	3
EM-511	Total Quality Management	3
TS-600	Independent Study Project	6
TS-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.

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.

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.

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.

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),

TS-515 Technical Textiles

Definition and scope of Technical Textiles: Application of technical textiles in different fields of life such as Agriculture, Industry, Construction, Medical etc.

Development in fibre materials such as polyester, polyolefin, glass, high performance fibres for special applications in different technical products.

Technical products for automobiles: Seat belt system, Air bag system, Car interiors. Materials used, Manufacturing techniques and testing methods.

Protective Clothing; Ballistic body protection, Protection against heat and flame, Cold protective clothing, Physiological functions and parameters, Material used such as phase change material, Manufacturing techniques and testing methods.

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.

TS-556 Research Methodology

Research Methodology: scope and significance; approaching and understanding research methodology; differentiating research methodology from research method, technique and design.

Research: Definitions; characteristics of good research; research versus common sense; and research as scientific approach.

Planning & Initiating Research: Research process, stages and major milestones; topic selection and problem identification; strategies in restricting the topic, and narrowing and adjusting its focus.

Reviewing Literature: Identification of relevant literature, literature selection and evaluation; reading and writing for literature review, reading and writing strategies and skills for literature review; E- researching skills; software and IT applications for reading and writing literature review.

Research Writing: academic and scientific writing style; understanding the organization and structure of different research genres (abstract, conference and journal articles,

research proposal, research report, thesis). Referencing and citations according to recommended styles. Avoiding plagiarism.

Research Method: Qualitative, Quantitative and Mixed Methods paradigm; developing theory and conceptual framework; selecting suitable research designs; population and sample, sampling techniques; Instrumentation & Data Collection.

Data Analysis: data coding, techniques for analyzing qualitative and quantitative data. Reliability, Validity and Ethical Standards in Research

Planning, implementation and management of a research project.

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-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-517 Advanced Fabric Forming Processes

Course outline needs to be made

TS-508 Advanced Finishing Processes

Types of Finishing Processes: Introduction to the types of textile finishing and chemical finishing processes. Requirements for water to be used in finishing- quality, softening conditions, hardness and softness, water softening systems and effects of water on the finishing process.

Finishing Processes: Principal chemicals and auxiliaries used in the post- coloration finishing processes, effects of chemicals and auxiliary on the finishing processes. Formulation composition, physical conditions (pressure, temperature, liquor pick- up) and their effects on the process end- results. Details (formulation and processing method) for the following processes: Water- proofing, flame- proofing, antiseptics, oil- repellancy, soil- release finishing, softening of textiles, bluing (OBA treatments).

Quality Control: Quality control tests for finishing processes and the chemical used. Quality control tests for the finished textile products.

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.

TS 518 Advanced Yarn Manufacturing Processes

Synthetic fibres:

Yarn Manufacturing: Production processes for continuous filament and stretched yarns i.e. melt spinning, dry spinning and wet spinning. Techniques used to manufacture synthetic fibres such as polyester, nylon, acrylic, viscose aramides etc.

Short staple spinning:

Compact Spinning:

Reduction of spinning triangle, comparison between different compact spinning systems and advantages of compact spinning over conventional ring spinning

Rotor Spinning:

Economics of rotor spinning, mechanism of rotor spinning, its comparison with ring spinning system, advantages and limitations

New Spinning systems:

Air-jet Spinning:

Air vortex spinning, air jet spinning, concept of false twist, specific raw material requirements, economics and comparison with ring spinning system, advantages and limitations

Friction Spinning:

Concept of friction spinning, DREf 2000 and DREf 3000 systems, classification, advantages and limitations

Bulked Yarn texturing:

Texturing of the synthetic filaments, texturing types; air-jet, false twist, stuffer box, edge crimping, gear crimping.

Fancy Yarn:

Types and structures of fancy yarns, Multi count, multi twist, slub and siro yarns.

TS 519 Technical Textiles Applications

Definition and scope of Technical Textiles: Application of technical textiles in different fields of life such as Agriculture, Industry, Construction, Medical etc.

Thermal resistant, chemical resistant, high modulus high tenacity and nano fibres for special applications in different technical products

Mobitech: Various textiles used in automobiles, ships and aircraft such as seat belts; airbags; filters; carbon composites; tyres etc.

Clotech: All textile components used primarily in garment applications, which have some specific functional applications such as Interlinings, Sewing threads, Shoe laces, labels, and Velcro etc.

Sportech: Various textiles used in sports wear and sports equipment such as indoor, outdoor, flying and sailing sports.

Protech: Textiles used in the form of personal protective equipment such as impact, cut and tear resistant; thermal resistant; chemical resistant; and electric shock resistant textile products.

Meditech: Textiles in the medical industry such as used in hygiene, healthiness and private care as well as surgical end use. Smart textiles for wearable health monitoring.

Homotech: Textiles used in a domestic environment - interior decoration, furniture, carpeting, floor and wall coverings etc.

Geotech: Textiles used in geo-technical field to perform the functions of filtration, drainage and separation, the products used are geo-textile fabrics, geo-grids canal linings etc

Buildtech: Various textiles used in the building construction industry to provide strength, appearance and covering such as textile reinforced composites, covers for the building construction, coated fabrics, ceiling of stadium etc.

Agrotech: Textiles used in agriculture to cover the ground, crops and provide capillary actions such as capillary mats, crop covers, shade cloth etc.

Packtech: Various textiles used in packaging industry to provide bulk packaging, disposable products, protect the products from outside temperature and environmental effect such as food soaker pads, performance envelopes nettings etc.

Indutech: Textiles used in the industrial products to provide cleaning, transportation such as vacuum cleaner filters, filters used to liquids and gases and conveyor belts etc

Oekotech: Various textiles used to protect the environment by minimizing water loss, reducing weight of products, erosion protection and filtration such as filters, textile materials for reducing weight and fuel consumption etc.

List of Reference Books for Compulsory Courses (MEM TEXTILES)

EM-504: Project Management Framework And Tools

1. Project Management; A Systems Approach to Planning Scheduling and Controlling by Harold Kerzner 12th Edition

EM-502: Accounting And Financial Management

1. Financial & Managerial Accounting The basis for Business Decisions 16th Edition by William Haka Bettner Carello
2. Financial and Managerial Accounting 12th Edition by Warren Reeve Duchac

EM-501: Organization Systems

1. Management, by Robbins & Coulter, 11th Edition, 2010 Prentice Hall

EM-503: Strategic Planning And Decision Making

1. Strategic Management: Concepts & Cases by Fred David, 13th Edition, 2011 Prentice Hall

EM-505: Operations Research

1. Introduction to Operations Research by Hillier & Liebermann, 7th Edition, McGraw-Hill
2. Operations Research by P. Rama Murthy, 2nd Edition, New Age International Pvt Ltd Publishers

EM-511: Total Quality management

1. Fundamentals of Quality Control and Improvement 3rd edition by Amitava Mitra.
2. Probability & Statistics for. Engineers & Scientists 9th edition by Raymond Myers and Ronald E. Walpole.
3. Total Quality Management: Key Concepts and Case Studies by by D. R. Kiran.

TE-553: TEXTILE BRAND MANAGEMENT & MARKETING

1. The New Strategic Brand Management by Jean – Noel Kapferer
2. Branding For Dummies By Bill Chiaravalle, Wiley Publishing

TE-552: TEXTILE COMPUTER INTEGRATED ENTERPRISE

1. Essentials of MIS: 12th Edition by Laudon
2. Concepts in Enterprise Resource Planning: 4th Edition by Ellen Monk

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MANAGEMENT)**

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EM-502: Accounting And Financial Management

1. Financial & Managerial Accounting The basis for Business Decisions 16th Edition by William Haka Bettner Carello
2. Financial and Managerial Accounting 12th Edition by Warren Reeve Duchac

EM-501: Organization Systems

1. Management, by Robbins & Coulter, 11th Edition, 2010 Prentice Hall

TM-551: Apparel Merchandising And Management

1. A Practice Approach to Merchandising Mathematics' By Linda M Cushman, ISBN 978-1-60901-300-4
2. Fashion Retailing a Multi-Channel Approach By Ellen Diamond, ISBN 81-317-0949-3
3. Garment Manufacturing Technology Edited by Rajkishore Nayak and Rajiv Padhye, ISBN 978-1-78242-232-7 (print)

TS-516: SUPPLY CHAIN DESIGN AND MANEMENT

EM-511: Total Quality management

1. Fundamentals of Quality Control and Improvement 3rd edition by Amitava Mitra.
2. Probability & Statistics for. Engineers & Scientists 9th edition by Raymond Myers and Ronald E. Walpole.
3. Total Quality Management: Key Concepts and Case Studies by by D. R. Kiran.

TE-553: TEXTILE BRAND MANAGEMENT & MARKETING

2. The New Strategic Brand Management by Jean – Noel Kapferer
3. Branding For Dummies By Bill Chiaravalle, Wiley Publishing

TE-552: TEXTILE COMPUTER INTEGRATED ENTERPRISE

1. Essentials of MIS: 12th Edition by Laudon
2. Concepts in Enterprise Resource Planning : 4th Edition by Ellen Monk

TE-556: RESEARCH METHODOLOGY

1. Social Research Methods – Qualitative and Quantitative approaches (7th edition) by W Lawrence Neuman, Pearson Education. 2009
2. Research methods in Education. (7th edition).Louis Cohen, Lawrence Manion, and Keith Morrison, London: Routledge. 2011
3. Keith Punch (2006). Developing Effective Research Proposals (2nd ed.).London: Sage Publications

