MAHARSHI DAYANAND UNIVERSITY, ROHTAK
SCHEME OF STUDIES & EXAMINATIONS
B. Tech FINAL YEAR TEXTILE TECHNOLOGY (TT)
7th SEMESTER
'F' Scheme w.e.f 2012-13

Course No.	Course Title	Teaching Schedule				Marks of Class work	Examination		Total Marks	Duration of Exam
		L	T	P	Total		Theory	Practical		
TT-401-F	High Performance Fibres	3	1	-	4	50	100	-	150	3
TT-403-F	Multifibre Spinning	3	1	-	4	50	100	-	150	3
TT-405-F	Waste Management & Pollution Control OR Production Planning & Quality Management	3	1	-	4	50	100	-	150	3
TT-407-F	Engineering of Textile Structures-I	3	1	-	4	50	100	-	150	3
TT-409-F	Textile Costing	3	1	-	4	50	100	-	150	3
HUM-411-F	Finance, Material and Human Resource Management	3	1	-	4	50	100	-	150	3
TT-413-F	Spinning Practical – V	-	-	3	3	50	-	50	100	4
TT-415-F	Weaving Practical – V	-	-	3	3	50	-	50	100	4
TT-417-F	Mill Practice	-	-	-	-	100	-	200	300	4
TT-418-F	Seminar	-	-	2	2	-	-	-	-	-
TT-419-F	Project Work (Mid Term Evaluation)	-	-	2	2	100	-	-	100	Viva
Total		**18**	**6**	**10**	**34**	**600**	**600**	**300**	**1500**	

MAHARSHI DAYANAND UNIVERSITY, ROHTAK
SCHEME OF STUDIES & EXAMINATIONS
B. Tech FINAL YEAR TEXTILE TECHNOLOGY (TT)
8th SEMESTER
'F' Scheme w.e.f 2012-13

Course No.	Course Title	Teaching Schedule				Marks of Class work	Examination		Total Marks	Duration of Exam
		L	T	P	Total		Theory	Practical		
TT-402-F	Post Extrusion Operations	3	1	-	4	50	100	-	150	3
TT-404-F	Spinning Technology	3	1	-	4	50	100	-	150	3
TT-406-F	Complex Textiles	3	1	-	4	50	100	-	150	3
TT-408-F	Engineering of Textile Structures-II	3	1	-	4	50	100	-	150	3
TT-410-F	Technical Textiles OR Global Scenario of Textile Industry	3	1	-	4	50	100	-	150	3
CSE-412-F	Computer Network & Applications	3	1	-	4	50	100	-	150	3
TT-414-F	Textile Colour & Design	-	-	3	3	50	-	50	100	4
TT-416-F	Computer Networking Practical	-	-	3	3	50	-	50	100	4
TT-418-F	Seminar	-	-	2	2	200	-	-	200	-
TT-420-F	Project Work	-	-	2	2	100	-	100	200	Viva
Total		**18**	**6**	**10**	**34**	**700**	**600**	**200**	**1500**	

SEVENTH SEMESTER

TT-401-F HIGH PERFORMANCE FIBRES

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT – I

Introduction to high performance fibres: fully aromatic polyamide or aramid fibres; Liquid crystals. Kevlar: manufacture, structure, properties and applications. Dry-jet wet spinning, Polyarylate fibres viz. Vectran - manufacture, properties and applications.

UNIT – II

Ordered polymeric fibres; Aromatic heterocyclic rigid rod polymeric fibres like PBO – their production, structure properties and applications.

Flexible chain high performance fibres: Ultra high molecular weight polyethylene; gel spinning and melt spinning / drawing. Routes for fibre manufacture. Manufacturing, structure, properties and applications these fibres

UNIT – III

Carbon fibres: Different precursors for carbon fibres like viscose rayon, PAN and pitch; Pre-oxidation, carbonization and graphitization. Chemical and physical changes in structure during these processes: Structure, properties and applications of carbon fibre.

Brief introduction to the manufacturing methods, properties and applications of nano fibres

UNIT – IV

Optical fibres: Definition, working principle and working method, different types of losses in optical fibres and their remedies; different materials used for manufacturing of optical fibres, different types of optical fibres. Manufacturing process of optical fibres and their applications

Meta-aramid fibres-Nomex: production, properties and applications.

Reading list

Title	**Author**
High Performance Fibres	P. Bajaj & A. K. Sengupta
High Technology Fibres (Part A, B, C, D)	M. Lewin & J. Preston
High Performance Fibres	J. W. S. Hearle

TT-403-F MULTIFIBRE SPINNING

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Brief idea about characteristics of man-made fibres their importance during spinning,
Blending and its objective, Different indices of blending, selection of blend constituents, different technique of blending, Processing of man-made fibres and blends in blowroom, carding, drawframe, simplex and ringframe on cotton spinning system.

UNIT-II

Spinning of long staple fibres, spinning of dyed fibres, Structure and properties of ring spun blended yarns, spinning of man-made fibres on woollen and worsted system,

UNIT-III

Woollen, Semi-worsted and worsted systems of spinning: Brief idea of scouring, carbonizing, carding, combing, gilling, flyframe and ring spinning.

UNIT-IV

Jute and flax spinning: understanding of various processes like batching, carding, drawing, roving and spinning of hessian and sacked yarn.
Manufacturing of spun silk
Cotton Waste: Types, classification and end-uses, study of machines and methods employed in the production of waste yarn (coiler system and condenser system).

Reading List

Title	**Author**
Spinning of man-mades and blends on Cotton system	KR Salhotra
Wool Hand Bookm Vol.II	Werner Von Bergei
British Wool Manual	H Spibey
Shoddy & Mungo Manufacture	NC Gee
Worsted	Alan Brearley
Jute-Fibre to Yarn	RR Atkinson

TT-405-F PRODUCTION PLANNING AND QUALITY MANAGEMENT

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Scope and function of Production Management, Macro & Micro level Production planning in textile mill, Objectives of production planning, Functions involved in planning and control. Concept of Productivity and productivity measurements, Factors affecting productivity of an organization

UNIT-II

Work study- scope and objective of work study with special reference to textile industry. Steps involved in Method Study. Objectives and Technique of Work Measurement, Various steps involved in Time Study and Determination of standard time, Applications of Snap Study in Textile Industry, Strategy for obtaining output from human resource

UNIT-III

Concept of Quality & Quality Management System (Q.M.S), Overview of Quality Management System Standard- ISO 9000, Formulation of Quality Policy, Quality Objective and Quality plan, Implementation Procedure of Q.M.S with special reference to Textile industry. Documentation of quality management Quality Audit, Types of audit, Technique of conducting audit, Concept of Total Quality Management, Tools for T.Q.M,- Kaizen, Cost of Quality., Quality circle, 5s , J.I.T. Brief Idea on Total Productive Maintenance.

UNIT-IV

Concept of Environment management system, Importance of Environment Management System in an organization, Linkage between Quality and Environment management system in an organization .Various steps involved in implementing Environment Management System. Initial Environment Review – objective and methodology. Environment Management Programme

Reading List

Title	**Author**
Production and Operation management	S.N.Charry
Production and Operation management	N.G. Nair
ISO14000Guide	Casico Joseph
Quality management hand book	Walsh Oren

TT-405-F WASTE MANAGEMENT AND POLLUTION CONTROL

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Definition of Waste and Pollutant: Classification of wastes and pollutants; Importance of waste management and pollution control. Environmental impact assessment, definition & need, introduction to environmental impact assessment methodology, unit processes.

UNIT-II

Textile effluents and their characterization, methods of effluent treatment, disposal of effluents, reuse of water in a process house, fiber and polymer waste, recovery and recycling of monomer. Modifications of polymer waste. Recovery and recycling of monomers, Modifications of polymer waste and its utilization, Waste Management approaches, Statistical interpretation of data on waste of different sections of textile industry;

UNIT-III

Toxicity of intermediates dyes, processing aids-bleaching, dyeing, printing and finishing auxiliaries etc, Analytical methods for various pollutants. Formaldehyde, Pentachlorophenol, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Minimization, Optimization and Standardization of waste in textile industry

UNIT-I

Source of water: Factors contributing water pollution and their effect, water pollution parameters, physical, biological, chemical standards for quality of treated water. Effluent treatment methods and control, basic principles-Unit operations (sedimentation, precipitation, filtration, and incineration), specific pollutants, Pollution of air, causes, effect, monitoring and control, Source of noise pollution, its effect and control .Legislation- salient provisions of water act, Air act, Environment protection act, Environment Impact Assessment: Basic principles, purpose, components, methodology and constraints

Reading List

Title	**Author**
Basic course in environmental studies	S. Deswal & Anupama Deswal.
Environment impact Assessment	Mc. Graw Hill by Caeter L.W
Environment Pollution & Control	H.S. Bhatia
Textile management	V.D.Dudeja.
Water and effluent in textile mills	P.B.Jhala

TT-407-F ENGINEERING OF TEXTILE STRUCTURES-I

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Types of yarns; Influence of fiber parameters on yarn structure

Yarn Geometry- Idealized yarn geometry, relationship of yarn number and twist factor. Packing of fibers in yarn, Twist contraction, Limit of twist, Significance of twist and forms of twist

UNIT-II

Ideal Packing, Hexagonal close packing and other forms, Packing factors and its measurement,

Fiber Migration- mechanism of migration, Condition for migration to occur, Frequency of migration, Migration in blended yarns

UNIT-III

Translation of fiber properties into yarn properties, Extension of continuous filament yarn for small strains and large strains, Prediction of breakages

UNIT-IV

Mechanics of blended yarns, Hamburger model and later modifications

Spinnability of textile fiber-relation with end breakage rate, Dynamic, Bending and torsional behavior of fibers and yarns

Reading List

Title	**Author**
Structural Mechanics of Fiber, Yarn and Fabrics	JWS Hearle, P Grosberg & S Bracker
Structure of Yarn	Witold Zurek

TT-409-F TEXTILE COSTING

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

General cost concepts: Definition and concepts of cost accounting, cost accountancy and costing. Objectives of cost accounting, Rules for application of cost accounting, Cost Classification: Variability (behavioral classification), Functional areas (functional Classification), Responsibility (controllable and uncontrollable cost), Traceability/indentify-ability (direct and indirect cost), The accounting period charged to revenue (product cost and period costs), Relevance to decision-making (relevant and irrelevant costs), Break even equation, Other cost concepts like Shut down cost, Research cost Development cost, Joint cost. Elements of cost in textile industry, Total cost component, preparation of cost sheet.

UNIT-II

Costing Methods and Techniques: concepts of different costing methods like Job costing, Contract (Terminal) costing, batch costing, Process costing, Unit Costing, Operation costing, Service costing, Multiple (Composite) Costing. Concept of different costing techniques like Absorption Costing, Standard Costing, Marginal Costing, Uniform Costing and Budgetary control Costing.

Inventory cost/Inventory Evaluation in textile industry: Basic concepts, different methods of pricing material issues, First-in First-out (FIFO): concept, advantages, disadvantages, Suitability. Last-in First-out (LIFO): concept, advantages, disadvantages, Suitability. Stores ledger account based on LIFO & FIFO.

UNIT –III

Cost control in textile industry under different situation. Method of calculation clean cotton cost.

Costing for a spinning mill: General concept, Cost of Setting up a Spinning Mill, Profit Computation of Spinning Mill Setup, Costing for a POLY/COTTON PLANT with auto-doffing and link to Auto Conner

UNIT-IV

Factors influencing costing of fabrics

Garment Costing, Calculation cost of Fabric Consumption. Cost related with Trims and Accessories. Costing of Shirts, Cost related with Sea and Air Freight. Cost related with Dispatch and Containerization.

Reading List

Title	**Author**
Cost Accounting, Principles and practice	B.M. LALL NIGAM, I.C.JAIN
Cost Accounting in Textile Mills	P.V.BHAVE, V. SRINIVASAN

HUM-411-F FINANCE, MATERIAL AND HUMAN RESOURCE MANAGEMENT

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Financial Management: Objectives and scope, sources of finances.

Accounting procedure: Definition of accounting, book keeping and accounting, Double Entry book keeping and financial statement, Meaning and Importance of double entry book-keeping, Accounting principles, accounting conventions, Specimen and purpose of balance sheet, Trading and Profit and Loss Account, Journal and ledger rules.

UNIT-II

Capital Structure: Meaning: Essentials of an ideal/optimum Capital Structure, Difference between capital, Capitalization and Capital Structure.

Management of Working Capital: Definition; Nature Classification of Working Capital – (i) Permanent working Capital and (ii) Variable Working Capital; Factors affecting requirement of working capital, Presentation of cash flow statements and its benefits.

UNIT-III

Personal Management and HRD, Job Analysis: Meaning and Importance; Processes of Job Analysis, Job Description and Job Specification.

UNIT-IV

Materials Management: Definition and Objectives: Inventory Management.

Inventory Control: Techniques of Inventory control- ROL, FOR Value Analysis, ABC Analysis, VED Analysis; Factors affecting Inventory Control, Ordering Costs, Carrying Costs, Stock-out costs, Buffer Stock, Stock Turnover & Lead Time

Reading List

Title	**Author**
Accounting for Managers	Paresh Shah
Financial Accounting	D K Goyal
HRM	R S Dwivedi
Accounting Principles	Robert N Anthony & S James Reece
Financial Accounting	S M Shukla
Cost Mgt Accounting & Control	Hansen & Mowen
Financial Accounting	P C Tulsiyan

Financial Management	I M Pandey
H R M	Gary Dessler
H R and Personnel Management	K Aswathappa
Material Management	P Gopala Krishnan

TT-413-F SPINNING PRACTICAL –V

L	T	P			
-	-	3	Class work	:	50
			Examination	:	50
			Total	:	100
			Duration of exam	:	4 hrs

Practical approach to identify, analyze and resolve Quality and Operational related problems arises in Ring, Rotor and Air jet Spinning – their origin, remedial and preventive measures. Comparison of Norms and their Statistical Interpretation, Measurement of productivity in ring and rotor spinning, Causes of efficiency losses in ring and rotor spinning. Studies on analysis of waste in ring frame.

Studies on major maintenance activities of ring frame and their effects on quality and operation of ring frame. Brief idea on various important spare parts in ring frame and their life and replacement /reconditioning frequency

Setting of process and machine parameters of conventional and modern ring frame
Snap study in ring frame and ring doubling section. Determination of end breakage rate in ring frame and ring doubling section, To study the various parts of TFO and their functions, adjustment of various process and machine parameters.
Yarn costing, contribution various machines to the production cost.

Case studies pertaining to disciplinary actions taken against workers and grievance handling mechanism

TT-415-F WEAVING PRACTICAL-V

L	T	P			
-	-	3	Class work	:	50
			Examination	:	50
			Total	:	100
			Duration of exam	:	4 hrs

Theory of colour; primary, secondary and tertiary colours, Complementary colours, Colour in combination, Colour and weave effect, Proportion, rhythm and decorative qualities in textile design. Contrast and harmony in textile and colour
Product design and developments in weaving and knitting, Design preparation through CAD
Practice in motion study, time study and work-load measurement.

TT-417-F Mill Practice 6 Weeks (300)

L	T	P			
-	-	-	Class work	:	100
			Examination	:	200
			Total	:	300
			Duration of exam	:	Viva

Each student, individual or in association with some other students at the end of the Third B.Tech course will observe and collect the general and technical information pertaining to machinery, raw materials used, yarns and fabrics produced by the textile mills, in which he/she/they are undertaking 6 weeks' practical training with the approval of the Director, TITS.

Each student will have to submit a written/typed report duly approved and signed by the guide to the Head of the department.

TT-419-F Project Work (Mid-Term Evaluation)

L	T	P			
-	-	2	Class work	:	100

EIGHTH SEMESTER

TT-402-F POST EXTRUSION OPERATIONS

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Drawing process: Objectives, neck drawing process, NDR, MDR and LDR, Drawing process of polyester and nylon; Spin-draw processes and staple lines; Different types of heating; Influence of drawing on structure and properties of fibres

Heat setting process: Types of setting – temporary and permanent setting, effect of temperature, tension and water on setting process. Influence on setting of structure and properties of fibres. Thermal heating, settability and measurement of degree of set

UNIT-II

Texturing process: Principle of texturing, Types of texturing processes. Principle and brief description of stuffer box crimping, knit-de-knit texturing, hi-bulk acrylic yarns, Solvent texturing – method, principle and properties of yarns.

UNIT-III

Twist texturing principle, processes and machine. Material, machine and process variables affecting twist texturing process and yarns. Structural geometry of textured yarns, Faults in twist textured yarns and their remedies. Evaluation of twist textured yarns.

UNIT-IV

Air-jet texturing: principles and mechanism of air-jet texturing. Material, machine and process variables affecting the air-jet textured yarn properties; different types of jets, baffle elements and their description; properties of air-jet textured yarns and their importance. Evaluation of air-jet textured yarns.

Reading List

Title	**Author**
Yarn Texturing Technology	Hearle, Hollick & Wilson
Modern Yarn Production	G R Wray
Manufactured Fibre Technology	Gupta & Kothari

TT-404-F SPINNING TECHNOLOGY

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Irregularity of drafted material: random, periodic and quasi-periodic irregularities; Law of addition of irregularities, Effect of doubling on irregularities.

Cause and control of drafting wave, roller nip movement, roller speed variation, roller slippage and their effect on yarn irregularities

UNIT-II

Effect of warp and weft yarn irregularity on cloth appearance, Understanding Uster spectrogram

Causes of yarn irregularity; Influence of raw material, process and machine variables on irregularity

Scope of process control in spinning, Key variables for process control in spinning, Control of mixing quality and cost, Yarn realization and its control,

UNIT-III

Control of waste and cleaning in blow room, carding and combing;

Measurement and analysis of productivity of a spinning mill, Means to improve productivity (By machine efficiency and end breakage rate at ring spinning or by machine productivity at preparatory section)

Prediction of yarn quality parameters from fibre quality parameter

UNIT-IV

Control of yarn quality: Count (within and between bobbin), strength and their variability, Machinery audit and its implementation, Role of ambient temperature and humidity, Yarn fault and their control, Different types of package defects and their control.

Reading List

Title	**Author**
Manual of Cotton Spinning Vol IV	GAR Foster
Process Control in Spinning	AR Garde and T A Subramanian
Maintenance Management in Spinning	TV Ratnam et al
Textile Research Journal	
Indian Textile Journal	
Indian Journal of Fibre & Textile Research	
Joint Technological Conferences	

TT-406-F FABRIC MANUFACTURE-V

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-1
Special Woven Fabric Structures:
Damask Fabrics, Brocade, Terry pile structure, warp pile, weft pile fabrics
Special gauge and leno structures

UNIT-II
Non woven fabrics:
Characterization, classification, application areas in general, production trends
Methods of web preparation – longitudinally, crosswise and random oriented webs; web formation technologies and machineries

UNIT-III
Web Reinforcement Techniques:
Needle punching - principle, needle loom, needling parameters, felting needles, applications
Spunlacing - principle, machinery, properties, applications
Stitch bonding – principle, applications
Chemical bonding - principle, adhesive types, forms, principle of adhesion, production techniques, applications

UNIT-IV
Thermal bonding - principle, binder types, forms, calendar bonding, hot air bonding, applications
Spun bonding - principle, machineries, applications
Melt blown - principle, applications
Non woven fabric structure-properties
Braiding, tufting – principle, uses.

Reading List

Title	**Author**
Watson's Textile Design & color	W Watson
Watson's Advanced Textile Design	W Watson
Grammar of Textile Design	Nisbet
Woven Fabric Production–II	NCUTE Publication
Handbook of nonwovens	Russell
Nonwoven Fabrics	Albrecht, Fuchs

Non Woven	M.L.Gulrajani, The Textile Institute
Manual of Nonwoven	R Krcma
Innovations in Textile Sc. &Tech (Non woven)	V.K. Kothari

TT-408-F ENGINEERING OF TEXTILE STRUCTURES- II

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Elements of fabric geometry, Cloth setting theories: Ashenhurst's, Armitage's, Law's, Brierlay's theories. Fabric cover, cover factor and their significance, Relationships between cover and weight per unit area of fabric, Peirce's fabric geometry

UNIT-II

Flexible and Elastic thread models.
Mechanism of simple deformations: Tensile, Bending, Shear, Compression and Friction.

UNIT-III

Theory of fabric properties involving complex deformations: Buckling, Tearing, Creasing, Drape and Abrasion.
Handle of fabrics. Constituent properties and Objective measurement of handle by KES and FAST

UNIT-IV

Thermal Comfort: Thermal comfort in humans, Flow of Heat, air and moisture through woven fabrics.
Fabric properties and apparel performance, Tailorability and Formability for apparel fabrics

Reading List

Title	**Author**
Structure of fibres, yarns and fabrics	Hearle, Backer and Grosberg
Textile properties	Kaswell
HESC standard evaluation	S. Kawabata
(Textile Machinery Society of Japan, 2nd edition, 1984, pp 130-141)	
Woven Textile Structures: Theory and applications	B K Behera and P K Hari
Structure and mechanics of woven fabrics	J. Hu

TT-410-F TECHNICAL TEXTILES

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Introduction: Definition, Textile materials in technical applications.
Fibres: Natural and Man-made fibres suitable for technical applications and their relevant properties.

UNIT-II

Geotextile: Mechanics of reinforcement, Separation, filtration and drainage of soils by geotextile. Types: woven, nonwoven, Geonets, Geogrids etc. Fiber and fabric construction details of Geotextile in typical applications like road construction, river embankment, earth quake proof building

Medical textiles: Textiles in various medical applications.; Medical fibers and their properties, Hygiene and non implantable medical textile, Biotextiles, application oriented design of typical medical textile(e.g. porous graft or trashed tube).Materials used and design procedure for wounds dressing, scaffolds, Sutures etc.

UNIT-III

Automotive Textiles: Fibres used for automotive applications-upholstery, carpets, preformed parts, tires, safety devices, filters and engine compartment items. Brief description for the manufacture and application of these devices or parts

Protective clothing: Thermal protection. Ballistic protection, Protection from electromagnetic radiations and hazards, Protection against micro-organisms, chemicals and pesticides

UNIT-IV

Composites: Type of fibers and resins used, Methods of construction, Type of preforms and their properties, typical applications, 3 dimensional fabrics and triaxially braided materials for composites.

Filtration: Principles and some mathematical models of wet and dry filtrations. Characteristics properties of fibers and fabrics in selective examples of filtration

Ropes and Cordage: Method of production. Application oriented structure and production of ropes, cordages and twines.

Reading List

Title	**Author**
Handbook of Technical Textiles	A. Richard Horrocks, Subhash C. Anand
Technical Textile yarns: Industrial and medical applications;	R. Alagirusamy, A. Das
Progress in Textiles: Science & Technology Volume 2 – Textile Fibres: Developments & Innovations	V K Kothari
Progress in Textiles: Science & Technology Volume 3 – Technical Textiles	V K Kothari
Technology, Development and Applications Technical Textile	NCUTE series

TT-410-F GLOBAL SCENARIO OF TEXTILE INDUSTRY

L	T	P			
3	1	-	Class work	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Sectors of textile industry viz. organized mill sector, decentralized small-scale sector.
Sectors based on technology: Handloom, Power loom, Garment, Cotton, Silk, Wool, Jute and Synthetic Fibers, Indian cotton: production, quality and global competition. Major textile producing countries, their production capacities and varieties of products

UNIT-II

Raw material producing countries, production quality and quantity and cost comparison
Machinery suppliers and their comparative studies

UNIT-III

Changing scenario of Indian Textile Industry in the wake of WTO Agreement, Strengths and weaknesses of the Indian Textile Industry in the global scenario, Research and technology support to the Indian Textile Industry. Research trends and emerging technologies and their impact on the future of the industry

UNIT-IV

Marketing trends and export prospects. Demand and supply scenario, Fashion trends and consumer preferences. Channels of distribution and procurement of textile goods and raw materials

Reading List

Title	**Author**
Textile Industries	Murphy WS
Textile Industry, "Technical Conference On Textile Industry: Atlanta, 19778	IEEE Publication
India's Textile Industry	Srinivasan, Kastury
World Textiles: Investment Innovation, Invention – Annual World Conference on World Textiles and Investment Innovation Invention"	The Textile Institute, Manchester
Textile Journals, Magazines and Topical Reports	

CSE-412-F COMPUTER NETWORK AND APPLICATIONS

L	T	P			
3	1	-	Classwork	:	50
			Examination	:	100
			Total	:	150
			Duration of exam	:	3 hrs

NOTE: Examiner will set 9 questions in total, with two questions from each unit and one question covering all sections which will be Q.1. This Q.1 is compulsory and of short answers type. Each question carries equal mark (20 marks). Students have to attempt 5 questions in total at least one question from each unit

UNIT-I

Introduction, Network structure and architecture, OSI reference model and services, Topology design, Protocols and media for data transmission, IEEE LAN standards, HQLC, ALOHA, Slotted ALOHA.

UNIT-II

Client Server architecture, Example Networks – APRANET, MAP and TOP, USENET, CSNET, BITNET AND SNA, Network communication device – Routers, Bridges, HUBS, Switch, Gateways, Modem, Repeater, etc. Introduction to advanced communication techniques, ISDN, ATM, TOKEN Based Protocol, CSMA/CD, Mobile communication

UNIT-III

Multimedia Hypertext Markup Language, www. Search Engines, Basic concept in E-commerce and E-mail, EDI, Electronic Payments, Digital Signatures, Network Security, Firewall.

UNIT-IV

TCP/IP: Introduction, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol ,User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, Application Layer, Domain Name System, FTP, HTTP

TT-414-F TEXTILE COLOUR & DESIGN

L	T	P			
-	-	2	Class work	:	50
			Examination	:	50
			Total	:	100
			Duration of exam	:	4 hrs

To show colour mixtures according to light theory and pigment theory of colour; To draw the Oswald's colour circle; To draw the chromatic circle and fill-up the colours. To show the arrangement of the primary, secondary and intermediate colours in the Brewster's theory; To modify a pigment colour by mixing with another colour; To modify a pigment colour by mixing with white (tints); To modify a pigment colour by mixing with black (shades); To obtain coloured greys of a colour; To produce monochromatic contrast; To produce polychromatic contrast of the following kinds:

a) Contrast of hue
b) Contrast of tone.

To produce harmony of analogy of a colour; To produce harmony of contrast of a colour, To produce floral, geometrical, abstract and border designs; Enlargement and reduction of designs. Simple Weave and colour effects. Compound colour and weave effects – stripe colour and weave effect, Check colour and weave effect, Special colour and weave effect, figured colour and weave effect; Placement of figures and motifs – half drop, double ½ drop, diamond base, ogee base, rectangular, horizontal, vertical etc.

CSE-416-F COMPUTER NETWORKING PRACTICAL

L	T	P			
-	-	2	Classwork	:	50
			Examination	:	50
			Total	:	100
			Duration of exam	:	4 hrs

Introduction to hub, routers, gateways, various types of cabling in networking, various types of topologies design for computer network. IP configuration and addressing for networking etc, Also Network Configuration

TT-418-F SEMINAR

L	T	P			
-	-	2	Classwork	:	200

Each student will have to deliver a talk on the topic in the weekly period allotted to this subject, either pertaining to his project work or any topic assigned by Head of the Department.
The performance of the speaker would be judged in the class by a Board of Examiners.

TT-420-F PROJECT WORK

L	T	P			
-	-	2	Classwork	:	100
			Examination	:	100
			Total	:	200
			Duration of exam	:	4 hrs

Each student individually, or an association with some other students will carry out project of an experimental and/or theoretical nature in one of the main branches of textile technology and present his findings in a systematic manner in the report form duly approved and signed by his Supervisor/Guide (to be nominated by the Head of Department/Institution). Each candidate would submit 3 typed copies of Project Report to the Head of the Department/Institution at least 15 days before the commencement of Second Semester Examination. One copy of the project report will be returned to the candidate after viva-voce examination. The original Report and a carbon copy will be retained by the concerned Department/Institution and the Supervisor respectively.