

BHARATHIAR UNIVERSITY, COIMBATORE – 641 046
M.Sc. TEXTILES AND APPAREL DESIGN
UNIVERSITY DEPARTMENT
(For the students admitted from the academic year 2015-2016 onwards)
Scheme of Examination – CBCS Pattern

Subject Code	Study Components	Ins. hrs / week	Exam				Credit
			Dur Hrs.	CIA	Uni. Exam	Total	
Semester I							
13A	PAPER –I Research Methodology and Statistics	5	3	25	75	100	4
13 B	PAPER- II Advanced Textile Science	5	3	25	75	100	4
13 C	PAPER - III Apparel Production Technology	5	3	25	75	100	4
13 P	PRACTICAL -I Innovative CAD Designing	4	4	40	60	100	4
13Q	PRACTICAL -II Advanced Draping	4	4	40	60	100	4
1EA	ELECTIVE –I Entrepreneurship Development (or) Export Documentation	5	3	25	75	100	4
	Supportive I Offered by other Departments	2	3	12	38	50	2
Semester II							
23 A	PAPER-IV Advanced Wet Processing	5	3	25	75	100	4
23 B	PAPER-V Technical Textiles	5	3	25	75	100	4
23 C	PAPER-VI Textile Testing	5	3	25	75	100	4
23 P	PRACTICAL –III Textile Testing	4	4	40	60	100	4
23 Q	PRACTICAL –IV- Advanced Garment Construction	4	4	40	60	100	4
2 EB	ELECTIVE –II Apparel Marketing and Merchandising (or) Home Textiles	5	3	25	75	100	4
	Supportive II Offered by other Departments	2	3	12	38	50	2
Semester III							
33 A	PAPER- VII Apparel Quality Standards and Implementation	5	3	25	75	100	4
33 B	PAPER-VIII Clothing Appearance and Fit	5	3	25	75	100	4
33 C	PAPER-IX Eco Textiles and Sustainability	5	3	25	75	100	4
33 P	PRACTICAL -V Surface Enrichment on Textiles	4	4	40	60	100	4
33 Q	PRACTICAL -VI Portfolio Presentation	4	4	40	60	100	4
3 EC	ELECTIVE -III Visual Merchandising (or) Fashion Retailing	5	3	25	75	100	4
	Supportive III Offered by other Departments	2	3	12	38	50	2
Semester IV							
43 P	Practical -VII CAD in Textile Designing	4	4	40	60	100	4
47 V	Project work & Viva voce (For Project Report 80% Marks & Viva voce 20% marks)	-	-	40	160	200	8
						2250	90

PAPER –I RESEARCH METHODOLOGY AND STATISTICS

UNIT -I

Meaning of Research - Types of Research - Significance of Research - Research Process. Defining the Research Problem - Sources, Identification, Selection and Statement, Review of related literature.

UNIT-II

Research Design - Meaning, Types of research designs, Basic Principles of experimental designs. Developing a Research Plan.

Sampling: Census and sample survey, Steps in sampling design, criteria for selecting a sampling procedure, Characteristics of a good sample design, different types of sample designs.

UNIT - III

Methods of Data collection - Observation, Questionnaire, Interview.

Data Processing- Collection, Classification, Tabulation, Graphical Representation and Data Analysis.

UNIT-IV

Research Report – Format of research report, Main body of the report, References and appendices, Style of writing, Typing the Report, Pagination, Tables and Figures, Evaluating the report.

UNIT- V

Meaning and scope of statistics, Role of Statistics in research, measures of central tendency and dispersion,

Correlation- Co-efficient of Correlation and its Interpretation, Rank Correlation, Regression equation, Application of Chi-Square test, ANOVA test.

REFERENCES:

1. Introduction to Research in Education, Donald Ary, Lucy Cheser Jacobs , Wadsworth Pub Co, 8th edition (2009)
2. Research in Education, Best J N, Prentice Hall, Delhi (1979)
3. Statistical method- An introductory text, J. Medho, New age International publishers, New Delhi(2005)

TEXT BOOKS:

1. Research Methodology, C R Kothari, K K Gupta, Published by for New Age International (P)Ltd, New Delhi, (2004)
2. An Introduction to Statistical Methods, S P Gupta, Vikas Publishing House, New Delhi, (2009)

PAPER II - ADVANCED TEXTILE SCIENCE

UNIT I FIBRE SCIENCE

Textile fibres classification: Natural fibres: Classification of natural textile fibres - Essential and desirable properties of textile fibres - morphological structure, Chemical composition, properties and end uses.

Artificial fibres: History of development, Polymer, Introduction of polyester, nylon, polyolefin, viscose regenerated fibre - Concepts of regeneration of fibre - Raw material for synthetic fibres - Manufacturing sequence of Synthetic fibres.

UNIT II YARN MANUFACTURE

Pre - Cleaning of Cotton: Ginning - Mixing, types of mixing & blending, Blow room, Lap feed, Chute feed systems – Carding.

Preparatory Process: Drawing – Breaker, finisher – Comber preparatory – Sliver lap, ribbon lap, uni lap – simplex.

Yarn manufacturing: Spinning – count – twist – conversion – yarn – classification of yarn – fancy yarns – sewing threads

UNIT III FABRIC MANUFACTURE

Weaving preparatory process – warping, sizing, drawing- in, Denting-in, Gaiting – in, pirn winding

Weaving: Looms - Sequence of material flow – Weave – Draft plan – Peg plan – Loom Types – Primary and Secondary motions – Shuttle looms – Shuttleless looms – Hand loom – Power loom – Projectile loom – Rapier loom – Airjet loom – Waterjet loom – Multiphase loom - Dobby, e-Dobby, Jacquard, e- Jacquard, application of fabrics.

UNIT IV KNITTING MANUFACTURE

Knitting - Classification of weft knitting machine - Elements of knitting machine - Technology of loop formation - Geometry of loop structure - Relation between yarn count, machine gauge and stitch density. Classification of knit-structures - Loop formation on single jersey, Rib machines and inter lock machines - Knitting notation - Socks knitting technology.

Warp Knitting - Introduction - Classification of warp knitting – Netting – Types - Lacing – Classification of laces .

UNIT V NON-WOVEN MANUFACTURE

Concept of Non Woven - Application of non-woven fabrics – Fibre - Characteristics needed for the manufacture of non - woven - Manufacturing passage for the felt preparation - Web characteristics and their influence properties - Process variable and their effect on properties of non woven.

Bonding: Various system of bonding the web and their merits, chemical, thermal, adhesive, mechanical - Flocked fabric - Laminates - latest development in non-woven industry.

Others: Braiding – Basic braid structures – Crocheting – Tatting- End uses.

REFERENCES:

1. Textile Science, E.P.G. Gohl and L.D. vilensky, 2nd Ed., CB, Publishers, New Delhi.
2. Technology of spinning, W.D. Klein , Textile Institute, Manchester.
3. Principles of weaving, Mark and Robinson, Textile institute Manchester.
4. Textiles fiber to fabric, corbman B.P, International Edn, 1983.
5. Mechanism of Weaving, N.N. Banner.J.IVol – I & II Textile Institute.

PAPER-III

APPAREL PRODUCTION TECHNOLOGY

UNIT –I Apparel Manufacturing Industry: Nature and Scope - Types of apparel manufacture problems fundamentals of apparel production - Basic types of apparel production process – Major function of apparel manufacturing - Engineering functions, Management functions- Apparel trade association.

Apparel manufacturing Technology: Introduction - Sample Cutting, Fusing Technology, Sewing Technology, Pressing Technology, Finishing and Inspection, Sample Room, Communication, and organization.

UNIT -II Apparel Production Analysis: Introduction to Garment Cutting, Marker Planning, Efficiency of Marker Planning, Methods of Marker Planning and Marker Use, Spreading of the Fabric to form a lay, Spreading Requirements, Methods of Spreading, Fabric Packages, Objective of Cuttings, and Methods of Cuttings. Concepts of 5S, Six sigma, Lean Manufacturing, TQM, TPM.

Seam & Stitch: Introduction to Seam, Stitch, Stitch Classification, Stitch Structure, Seam Formation, Joining Material, Surface Characteristics, Seam Appearance, Damages (Thermal and Mechanical), Seam Performance, Seam Degradation, Seam Failure and Seam Testings, and Seaming Machine.

UNIT – III

Apparel Finishing: Importance of Garment pressing and Finishing, Types of Garments, pressing of Garments and Specialty Garment Finishes.

Packaging and ware housing: Type of packing and packing materials, quality specification, merchandise packing and shipping packing. Intra transport, ware housing, computerized storage systems.

UNIT – IV Production Control: Definition, objectives of production control, co ordination of production control department to the manufacturing organizations other departments. Pre production functions – product acceptance, steps from prototype to production model, order requirements.

Work study: Definition. Purpose. Techniques of work study. Procedure of work study. Work study in textile and apparel industries.

UNIT -V Plant loading and capacity planning: Determination of machinery requirements for a new factory, calculation of labour requirements, application of line balancing techniques – Balance control. Establishing factory capacity, planning for multi style production – Preparation of planning board.

Flow process grid: Garment breakdown with machine & attachment details - Flow process grid construction, flow process grids for production control. Control forms in production department.

TEXT BOOKS:

1. Apparel Manufacturing and Engineering by T.Karthick et al, Spinger publications, singapore.
2. Introduction to Garment Manufacturing Technology By T Ramchandran
3. Apparel manufacturing Hand book, Jacob-Solinger,j Bobbin Blonnelm, Media Corporation – Columbia, (1988)

PRACTICAL -I
INNOVATIVE CAD DESIGNING

1. Fashion illustrations by hand for various seasons and occasions (men, women and children)
2. Fashion illustrations using CAD for various seasons and occasions (men, women and children)
3. Preparing the specification sheet using CAD for industrial production.

PRACTICAL -II
ADVANCED DRAPING

Draping and Garment constructions for men, women and children's wear with Design Variations
(Kimono, Raglan Sleeve Designs, Princess Shapers, Collars, Cowls, Pleats, Flounces, Ruffles).

1. Preparation of fabric for Draping
2. Draping
3. Converting or Truing the Pattern
4. Pattern Development
5. Construction of Garment
6. Fitting of final garment on dress form

ELECTIVE-I

1. ENTREPRENEURSHIP DEVELOPMENT

UNIT-I

Definition of Entrepreneur – Functions of entrepreneurship - Types and problems. Recent trends and development in entrepreneurship. Characteristics of an entrepreneur, Entrepreneurship development, Process of Entrepreneurship development.

UNIT-II

Project identification - Classification. Project formulation - Feasibility analysis and report. Selection. Project appraisal – Concepts and Methods - Cash flows, Payback period, ROI Methods of minimizing risk.

UNIT-III

Steps for starting a small scale enterprise. Preparation of Project report and Business plan. Procedure and formalities for registration, Types of organization – Sole proprietorship. Partnership. Joint stock company, Selection of types of Organization, Factors influencing the choice of organization.

UNIT-IV

Factors influencing entrepreneurship, Institutional finance to entrepreneurs - Commercial Banks. Other financial Institutions - IDBI, IFCI, ICICI, IRBI, LIC, UTI, SIDC, SIDBI, EXIM Bank, Role of Government in entrepreneurship development.

UNIT-V

Institutional support to entrepreneurs - Need for support - NSIC, SIDO, SSIDC, SISI, SFC, DIC, TCO, TIIC, Kadi and Village Industries Commission, Industrial Estates. Issues of prospects of entrepreneurship in India, Global entrepreneurship, Trends in entrepreneurial enterprises-TQM, WTO, Green products, Research and Innovating etc., Entrepreneurship in Textile Industry, Textile and MSME.

TEXT BOOKS:

1. Entrepreneurship development, C.B. Gupta & N.P. Srinivasan, Sultan Chand & Sons (1992)
2. Entrepreneurship development, S. Khanka, S.Chand limited (2006)

REFERENCES:

1. Projects -Planning, Analysis, Selection, Implementation & Review – Prasanna Chandra
Published by Tata McGraw-Hill education private limited, 7th edition (2009)

ELECTIVE-I

2. EXPORT DOCUMENTATION

UNIT- I Introduction to international trade, Global scene, Prospects for Indian Apparel in overseas market, Globalisation, GATT and WTO. Meaning and Definition of Export – Classification – Strategy and Preparation for Export Marketing – Export Marketing Organizations – Registration Formalities – IEC – RCMC – Export Licensing – Selection of Export Product – Identification of Markets – Methods of Exporting – Pricing Quotations.

UNIT- II Foreign trade document -need - types of documents related to goods, invoice to goods, invoice packing note and list - certificate relating to shipments - shipping bill- cart ticket - certificate of measurement - Bill of lading - airway bill - documents related to payment -letter of credit - bill of exchange - bank certificate for payment - document related to inspection.

UNIT- III Steps in Export Procedure – Export Contract – Forward Cover – Export Finance – Institutional framework for Export Finance – Excise Clearance – Pre-shipment Inspection – Methods of Pre-shipment Inspection – Marine Insurance – Role of Clearing and Forwarding Agents – Shipping and Customs Formalities – Customs EDI System – Negotiation of Documents – Realisation of Exports Proceeds. Recent export policies of the government

UNIT –IV

Foreign Trade Policy – Highlights – Special Focus Initiatives – Duty Drawback – Deemed Exports – ASIDE – MAI & MDA – Star Export Houses – Town of Export Excellence – EPCG Scheme – Incentives for Exporters. Export Promotion Councils-Commodity Boards – FIEO – IIFT – EOUs – SEZs – ITPO – ECGC – EXIM Bank.

UNIT- V

Aligned Documentation System – Commercial Invoice – Shipping Bill – Certificate of Origin – Consular Invoice – Mate's Receipt – Bill of Lading – GR Form – Types of Marine Insurance Policies. Customs - meaning, definition, types, exercise and customs, clearance of export cargo shipment of goods and port procedures - claiming duty draw backs and other benefits

REFERENCES:

1. Handbook of Import-Export Procedures – Ministry of Commerce, -, Government of India, New Delhi
2. Export: What, Where and How, Paras Ram, Anupam Publishers, Delhi
3. Exports – Do it Yourself, Mahajan M.I., Snow White Publications, New Delhi
4. Export Marketing, TAS Balagopal , Himalaya Publishing House
5. Export Documentation and Procedures, , Nabhi Publications, New Delhi
6. International Marketing Management, R.L. Varshney, Sultan Chand
7. International Marketing, Terpstra, Holt Saunders
8. International Business, Concept, Environment and Strategy, Sharan V
9. Export Management, D.C. Kapoor, Vikas Publishing House
10. Govt. of India: Hand book of import and export procedures Bose. A, Streamline your export paper work, International trade form Oct - Dec 1965

PAPER- IV **ADVANCED WET PROCESSING**

UNIT-I Preparatory Processing: Introduction, Fibre – Composition - Typical Sequence of Processes - General Wet Processing Sequence for Cotton Goods - Pre-Dyeing preparatory Processing - Desizing Starch - Scouring – Bleaching – Mercerisation.

Post Dyeing preparatory Processing: Dyeing – printing – finishing - Synthetic fibres and Pretreatments - Process Sequence for Polyester / Cotton Blend.

UNIT-II Dyes – Classification of Dyes - Dyeing Machines, Influence of Physical and Chemical Structure of Fibres on Dyeability - Types of Dyeing Machine, Jet, HT, Beam Dyeing Machine, Padding Mangle, and Jigger - Recent developments in dyeing.

Printing: Styles of Printing - Methods of Printing, Block, Flat, Rotary Screen, engraved Roller, Transfer, Duplex printing, Pigment Printing, Batik, Khadi - Fixation and After Treatment - Print Paste Formulation.

UNIT-III Finishing: Necessity for Finishing – Commercial importance of finishing - Mechanical finishes, heat setting, anti shrink, calendaring - Finishing chemicals – Resin finishing, Flame proof & flame retardancy, Soil Release Finish, Foam Finish, Water proof & Repellent - Micro encapsulation techniques in finishing process.

UNIT-IV Bio - Technology in Textiles: Enzymes & Proteins – Sources and Applications - Application of enzymes in Textile Chemical Processing - Mechanism of enzyme reactions – Bioscouring - Bio-bleaching, Combined bio - processing, bio washing, bio polishing, Denim fading, anti odour and anti microbial finishes, bio finishing and other applications - Evaluation of enzyme treated fabrics.

UNIT – V Effluent Treatment Plants: Detail study about characteristic of textile effluent Developments in membrane techniques in the effluent treatment - Energy conservation steps in chemical processing - Low wet pick-up techniques - Causes and remedies for water and air pollution – Bio-Technology in textile effluent treatment plants.

TEXT BOOKS:

1. Trotman,E.R., “Dyeing and Chemical Technology of Textile Fibres”, Charles Griffin & Co. Ltd., U.K., 1984.2.
2. R.S.Bhagwat, ‘Wet Processing Machineries’.Mahajan Publications, 2000

REFERENCES:

1. Shenai.V.A, “Technology of Dyeing”, Sevak publications, Mumbai, 1995.
2. Miles.L.W.C, “Textile Printing”, SDC, England, 1994, ISBN: 0901956570.
3. Manivasakam, N., “ Treatment of Textile Processing Effluents”, Sakthi Publication, Coimbatore, 1995
4. DatyeK.V and Vaidya.A.A, “Chemical Processing of Synthetic Fibres and Blends”, John Wiley and Sons, New York, 1984
5. NCUTE – Programme series, Finishing of Garments and Knits, held at Ichalkaranchi, IIT,Delhi.

PAPER –V

TECHNICAL TEXTILES

UNIT – I Technical Textiles: Definition and Scope, Applications, Globalisation and Future of technical textiles industry. **Technical Fibres:** High – Strength and high-modulus organic fibres, high chemical and combustion - Resistant fibres, high performance inorganic fibres, ultra-fine and novelty fibres.

UNIT –II Medical Textiles: Classification – Hygiene Textiles – Wound care products – Surgical Textiles. Medical Products – Vascular grafts – Cardiac supportive devices – Embroidered implants. Implantable medical textiles – Tissue engineering – Biomedical Textiles – Antibacterial Textiles – Antimicrobial wound dressings.

UNIT III Geotextiles: Classification, Functions, Design, Properties, Raw materials, and Applications.

Agro Textiles – Need for Agro Textiles, Properties Required, Types of Agrotech products and their application, Fibres used, types, properties and functions.

Filtration Textiles - Theory of dust collection, cleaning systems, fabric selection for dust collection, finishing treatments; solid, liquid separation, fabric selection - filtration, requirements, yarn and fabric construction for filter fabrics, finishing treatments.

Architectural and Construction Textiles: Fabrics used - applications of coated fabrics in building structures, awnings and canopies, textiles for roofing materials.

UNIT –IV Safety and Protective Textiles: Thermal insulation materials; study of water vapour permeable / water proof materials, military combat clothing systems; camouflage textiles, UV wave band, visible wave band, visual decoys; infrared camouflage; protective textiles against micro organisms, chemicals and pesticides, evaluation technique.

Military and Defence Textiles: Protective clothing, Textiles used in defence systems, other applications.

Transportation: Fibre requirements – fibre, plastic composites; textiles applications in all kinds of road transport vehicles, rail, aircrafts, marine.

UNIT – V Sports and Recreation Textiles: Introduction, fibers used, Types, functions and properties, Characteristics and Applications of Sports Tech.

Smart Textiles - Components, Classification - Active smart, passive smart and very smart textiles.

Intelligent Textiles - Phase change materials, shape memory polymers, chromic and conductive Materials and its applications in various fields.

TEXT BOOKS:

1. [Sabit Adanur](#), “Wellington Sears Handbook of Industrial Textiles” CRC Press (1995)

REFERENCES:

1. R Senthil Kumar, “Textiles for Industrial Applications” CRC Press (2013)
2. A. R. Horrocks and S. C. Anand, Hand book of Technical textiles, Wood head publishing ltd, England (2000)

PAPER VI

TEXTILE TESTING

UNIT I Introduction to testing - Terminology of testing - Selection of samples for testing: fibre, yarn and fabric sampling. Standard RH and temperature for testing - Measurement of Moisture regain - Conditioning oven & Shirley Moisture meter.

UNIT II Fiber Testing: Cotton fiber length - Baer Sorter - Fineness - Air flow principle instruments, Sheffield micronaire - Maturity - Caustic Soda swelling - Strength - Pressley bundle strength tester, Stelometer. Determination of trash and lint in cotton - Shirley trash analyzer.

Unit III Yarn Testing: Yarn numbering system - Conversion of count from one system to another - Instruments for count determination - quadrant balance, Beesley balance - Yarn strength testing - Principles of CRT, CRL, CRE – Single yarn strength tester, Lea strength tester - Yarn twist - Direction of twist, twist multipliers, twist testers - tension type - Yarn Evenness - Classification of variation, methods of measuring evenness – Black board appearance, ASTM Standards, Uster evenness tester, Yarn faults classification, Uster Classimat - Yarn hairiness and crimp testing

UNIT IV Fabric Testing Fabric Particulars – Length, width, crimp, weight, cover factor. Fabric Strength - Fabric tensile strength tester, tearing strength tester, hydraulic bursting strength tester. Fabric Abrasion - Martindale abrasion tester. Fabric Pilling - I C I Pill box tester. Fabric drape – Measurement by Drape meter. Fabric Stiffness - Shirley stiffness tester. Fabric crease resistance and crease recovery - Measurement of crease recovery. Fabric permeability - Shirley air permeability tester, fabric permeability to water, Bundersmann tester.

UNIT V Colour Fastness of Textiles - Crocking test, perspiration test, sunlight, laundering, drycleaning, Computer Colour Matching – Colour measurement and Whiteness Index.

Garment Testing – Seam strength, Dimensional Stability, Spirality, Accessories Testing: Zipper, Buttons, Sewing thread, Peel bond strength.

TEXT BOOKS:

1. “Textile Testing”, Angappan P and Gopalakrishnan R, SSM Institute of textile technology, Komara Palayam
2. “Objective Evaluation of Fabrics”, Stylos G, John, Wiley & Sons USA

REFERENCES:

1. Principles of Textile Testing, Booth J E, Hoybooks, London (1970)
2. Technology of Textile Properties, Marjorie A Taylor, Forbes publications Ltd, London (1972).
3. Fiber Science, Mishra S. P. and Kesavan B. K., SSM Institute of textile technology, KomaraPalayam.

PRACTICAL III

TEXTILE TESTING

1. Determination of Fiber length using Baer Sorter Method
2. Determination of Yarn Count and CSP
3. Determination of Single Yarn Strength
4. Determination of Twist of the given yarn
5. Determination of Stiffness of the given fabric
6. Determination of Abrasion Resistance of the given fabric
7. Determination of Crease Recovery of the given fabric
8. Determination of Drape of the given fabric
9. Determination of Pilling of the given fabric
10. Determination of Tensile Strength of the given fabric
11. Determination of Bursting Strength of the given fabric
12. Determination of Colour Fastness to Washing and Crocking of the given fabric
13. Determination of Colour Fastness to Perspiration of the given fabric
14. Determination of Dimensional Stability of the given fabric
15. Determination of Tear Strength of the given fabric

PRACTICAL IV

ADVANCED GARMENT CONSTRUCTION

I. MACHINE ADJUSTMENTS: Single Needle Lock Stitch Machine (SNLS) – Select fabrics of different construction and modify the stitches per inch and study the effects.

II. SPECIALIZED WORK WEAR: Design and construct uniform clothing for people like Policemen / Army / Navy / Doctors / Industry Workers.

III. INNER WEAR: Design and construct innerwear for men / women / children.

IV. NEED BASED GARMENT: Design and construct garment for Special people / Bed ridden patients.

V. GARMENT ACCESSORY MAKING: Design and Construct Gloves / Cap / Socks / Veils / Belt / Bow / Tie / Bags.

ELECTIVE II

1. APPAREL MARKETING AND MERCHANDISING

UNIT I

Marketing - Marketing Concepts, Marketing Management, Marketing System, Marketing environment, Marketing Organisation, Strategic Marketing Process, Competitive marketing strategy - Marketing of Apparel and Fashion Products.

UNIT II

Buying Behaviour - Factors influencing buying behaviour - Buying process segmentation: Market segmentation - Segmentation Variables - Target Marketing market measurement- Market Potential - Estimation - Demand Forecasting - Methods of forecasting.

UNIT III

Marketing Mix - Product, Price - Promotion and Distribution - Advertising and Sales Promotion – Public Relations - Case study.

Product Life Cycle - Life cycle of product - Marketing strategy for various stages of life cycle - New product development - Case study.

Marketing Research: Purpose, Procedure and Applications - Theories in Market Research – Trickle - up, Trickle – down and other theories - Case Study.

UNIT IV

Merchandising - Merchandise – definition - Apparel and Fashion Merchandising - Role of Merchandiser – Types of Merchandises - Export House, Manufacturer, Buying House, Buying Agency and Comparison between them - Selection of Buyers and Buying Agencies - Merchandising Correspondence - Orders, handling of orders and dealing with manufacturers - Advertising - Trade fair participation and other methods of sales promotion in merchandising.

UNIT V

Garment Costing – Introduction - Terms and purposes, Cost terminology, direct and indirect costs, Cost behavior patterns: variable costs & fixed costs, total costs and unit costs - pricing decisions and cost management, target costs. Process optimization — Methodology for spinning, weaving, knitting, chemical processing, garment making - Case Studies. Export Cost - Basic T-shirt, Ladies night wear, Pyjama, striped T-shirts, etc.

TEXT BOOK:

1. Philip Kotler, 'Marketing Management', Printice Hall Inc 1996

REFERENCES

1. Taarno, Guerreiro & Judelle 'Inside the fashion business' 1995
2. "Clothing Retailing in Europe", Corporate intelligence on retailing, 1997
3. "The Textile Industry", Winning strategies for the new millennium volume 2" Textile Institute., 1999.
4. Evelyn C. Moose, Wey II. "Path For Merchandising" 1999. 6. Jarnow.J & Dickerson.K.G, "Inside the Fashion Business", Prentice Hall, 1997.

ELECTIVE II

2. HOME TEXTILES

UNIT – I

Home Textile in India: Introduction, history, exports - Trends in home textile industry – Domestic and Global market for home textiles, Major production centers in India.

Home Textile Products - Role of fabric in interior furnishing – Properties required – Factors affecting that selection of fabrics - Different fibres used, Standard sizes, Fabric requirement and cost calculations.

UNIT – II

Seating: Structures, lay out, Range & size – Material used – Manufacturing – Double cloth – loop pile – cut pile – cushion foam – multi layer sheets – seat covers – types & materials.

Bed Linens - Definitions – design & size - Bed spread designs – chenille and organic bed spreads – dimensions – Bed sheets – types – fitted sheets – manufacturing process – bed skirts – types – mattress – domestic and international market for bed linens – pillows - Quilt: types – Machine, Hand quilting – Knotted and tied – Trapunto – Shadow trapunto – export and import contributions – process sequence for bed linen – scope in global market.

UNIT – III

Windows: Basic sizes, Lay outs, Materials – Voiles, Nets - Sun filters - Semi sheers - Reflective textiles - Draperies – Types – Valances – Types – Shades – Types – Swags — Headings – Types – Distribution Channels - Curtains - Introduction - Types of curtains – Characteristics of curtain fabrics.

Wall Coverings: Requirements, benefits, types - carpet as wall covering - Materials and manufacturing of fabrics – Application, end use – colour concepts.

UNIT - IV

Table Linens - Place mats and table cloths - Definition – Placemats – Varieties of placemats – Making process flow – Instruction – tips & warnings – Reversible placemats – Stone placemats – table cloths – Types, material & manufacturing.

Kitchen Linens - Introduction - Material used – Kitchen products – Oven mitten – Pot holder – Apron – Napkins – Doilies – Kitchen mats – Dining table cloth – tea cozy – kitchen curtain – Table runner – Kitchen rugs – Types of stitches and seams used.

UNIT – V

Floor Coverings: Definitions – Fibre used – Types of carpets – Comparison of carpets – broad loom carpets — Benefits of carpets and rugs - Carpet cushions – Manufacturing Process – Rugs – Types of rugs – Knots and oriental rugs – Embroidered rugs – Natural leather rugs – Advances - Earth carpets – Thinking carpets – Magic carpets – Lawn carpets.

Bath Linen: Categories – bath robe – Sizes & design elements - Terry towels – Classification – Ranges – Fibre used – Standard sizes – Manufacturing flow chart – Construction of terry towels – Market share - Production centers.

TEXT BOOKS:

T. Karthick et.al “Home Textiles” Astral International Pvt Ltd, New Delhi.

REFERENCES

1. Ghosh, Dr. Ashis Kumar “Traditional Knowledge of Household” Daya Publishing House
2. Kapoor, Hemant and Aashima Arora “Home Textiles” Astral International Pvt Ltd, NewDelhi.

PAPER- VII

APPAREL QUALITY STANDARDS AND IMPLEMENTATION

UNIT I

Introduction to quality standards, importance, benefits, levels and sources of quality, standards, British standards & ISO Standards for the Apparel Industry, ISO 9000 & 14000 standards, Total quality Management systems, Co Labeling & OKO Tex 100 standards.

UNIT II

Sensitizing dye stuffs, allergic dyes, carcinogenic amines, red-listed as per Eco specifications, Eco management of textile and apparel industry, Global Scenario, Eco mark & Environment friendly textiles.

Garment defects.- cutting defects, sewing def ects, assembly defects, pressing, finishing and packaging defects .

UNIT III

Eco specification restrictions in apparels and textiles - dry cleaning using ozone. Depleting chemicals, PH values, formaldehyde contents, heavy metal contents, Pesticides and herbicides, azo dye stuffs, Nickel, Pentachlorol phenols, color fastness, brighteners, softening agents etc.,

UNIT IV

Quality costs and customer returns; inspection procedures, AQL-Raw materials, in process, and quality control in final Inspection

UNIT V

Starting a quality control program, implementation of quality systems in production line, product specifications and analysis using analytical tools. Quality management through Inspection, testing and sewing quality tools.

TEXT BOOK

1. Managing quality in apparel industry, Pradeep V Mehta, NIFT Publications (1985)
2. An Introduction to quality control for the apparel industry, Mehta P V, Marcel Dekker(1982)

REFERENCES

1. Physical testing and quality control, Vo123, No. 1/2/3 textile Institute (1993)
2. Textile Testing, John Skinkle, Brooklyn Publication, New York (1947)
3. Textile Testing, P. Angappan & Gopala Krishnan, J.K. Publications

PAPER-VIII CLOTHING APPEARANCE AND FIT

UNIT I

Perception of body appearance and its relation to clothing – Introduction – Beauty - Facial attractiveness, body physical attractiveness, body image, modification of body appearance by dressing, fabric properties related to clothing appearance & fit.

UNIT II

Assessment of Clothing Appearance – Introduction - Assessment of fabric surface smoothness, seam appearance, crease retention, appearance retention of finished garments, and reliability of subjective assessment. Objective evaluation of fabric wrinkling, fabric pilling, seam pucker, overall garment appearance.

UNIT III

Assessment of Clothing Fit - Definition of fit - Influences on clothing fit, testing methods for dimensional fit, subject rating scales, subjective fitting guide, Objective evaluation of clothing fit - Moire's optics, algebraic evaluation of clothing fit, clothing waveform, pressure valuation of clothing fit, 3D modelling of pressure fit. Pattern alteration for fit, prediction of garment patterns from body measurements.

UNIT IV

3-d Body Scanning – Introduction - global development of body scanners, principles and operations of body scanning technologies, bench marking. Challenges of 3D body scanning. Garment drape - measurement of fabric drape, empirical prediction of fabric drape, dynamic and seamed fabric drape, modelling fabric and garment drape, drape models in commercial CAD and internet systems.

UNIT V

Human Anthropometrics and Sizing Systems - Terms and definitions - Traditional anthropometry, Historical development of sizing system, Latest national size survey using 3-D body scanner, international sizing, principles of sizing systems. Three-dimensional (3-D) apparel design systems for pattern generation and garment fit, virtual fitting on the internet.

TEXT BOOK

1. Clothing appearance and fit: science and technology, J. Fan, W. Yu and L. Hunter.
2. Form and Fit, Jay Calderin.

REFERENCES

1. The complete photo guide to perfect fitting, Sarah Veblen.
2. Digital Human Modelling, Vincent G Duffy.
3. Anthropometry, Apparel Sizing and Design, Deepti Gupta, Norsaadah Zakaria.

PAPER-IX

ECO TEXTILES AND SUSTAINABILITY

UNIT I

Eco-Textiles - Introduction & needs for eco-textiles & its importance. Ecology - Production ecology, Human ecology & Disposal ecology. Structure and stability of the ecosystem. German ban on toxic dyes, chemicals and auxiliaries. Eco-Auditing and Eco-labelling, Eco mark on textiles.

UNIT II

Natural fibres – Importance of natural fibres in textiles - Major fibres used in textiles - cotton, jute, linen and silk. Minor fibres used in textiles - sisal, pineapple, coir, nettle. Protein - soya, spider silk etc., Extraction or preparation methods of natural fibre-retting, & its methods, decortications by hand and machine. Recent findings of natural fibres in textile industry.

UNIT III

Natural Dyes - History, importance. Types of natural dyes-plant, animals and mineral -Madder, indigo, catechu, myrobalan, pomegranate, lac, alum. Extraction methods & application methods-pre, meta and post mordanting. Characteristics of Natural dyed fabrics. Commercially available natural dyes. Recent developments in natural dyes.

UNIT IV

Natural Finishes - Need for natural finishes. Traditional plants & herbs used in natural finishing. Various plant Components, extraction methods and application. Recent natural finishes on textiles for various applications.

UNIT V

Eco - Textiles Testing, Standards and Sustainability - Processes adopted for eco-friendliness: Enzyme technology, Foam technology, Super critical carbon-di-oxide dyeing & Plasma technology- Glow-discharge method, Corona discharge method & Dielectric barrier discharge method. Toxicology of textile dyes. Eco testing instruments-working of Gas Chromatography, Mass Spectrometry, High Performance Liquid Chromatography, Atomic Absorption Spectrometry/Atomic Emission Spectrometry and Plasma Emission Spectrometry. Eco Standards for Textile.

TEXT BOOK

- 1.Keith Slater, “Environmental Impact of Textiles”, Wood head Pub. Ltd, Cambridge, 2003. ISBN:1-85573-541-5
- 2.Christie R.M., “Environmental Aspects of Textile Dyeing”, Wood head Pub. Ltd, Cambridge, 2007. ISBN:978-1-84569-115-8
- 3.Miraftab M. and Horrocks R., “Eco Textiles”, Wood head Pub. Ltd, Cambridge, 2007. ISBN-13: 9781-84569-214-8

REFERENCES:

1. Eco-Textiles'98, Bolton Institute, Bolton, 1998.
2. Eco-Textiles, Special Report, The Bombay Textile Research Association, Mumbai, February, 1996.
3. Eco Friendly Textiles: Challenges to the Textile Industry, Textiles Committee, Mumbai, 1996.
4. Oeko-tex Standard 100, International Association for Research and Testing in the field of Textile Ecology(Oeko-tex), Zurich, Switzerland, January, 1997.
4. Eco-Friendly Textiles, SITRA Focus, Vol.14, No.2, July 1996.
5. BIO-textiles as medical implants, M W King, B S Gupta, R Guidoin
6. The Applications of Biotextiles in Tissue Engineering Ruwan Sumanasinghe and Martin W. King
7. Blackburn R.S., "Biodegradable and Sustainable Fibres", Wood head Pub. Ltd, Cambridge, 2005. ISBN:0-84933-484-5

PRACTICAL -V
SURFACE ENRICHMENT ON TEXTILES

1. Printing – a) Screen, Block, b) Spray, Stencil
2. Painting with fabric paint
3. Dyeing - resist & discharge - a) Tie & dye b) batik.
4. Texture printing by combining any three different types of textures.
5. Smocking with different techniques
6. Designing and making of any three traditional embroideries
7. Ribbon work on textiles
7. Collection of samples for traditional Textiles – Bandhani, Patola, Ikat, Pocchampalli.
8. Adaptation of traditional designs from craft items and modifying as per modern trends.
9. Collage work for textile designs

PRACTICAL VI
PORTFOLIO PRESENTATION

1. Trend Forecast
2. Name board
3. Story Board
4. Mood Board
5. Inspiration Board
6. Customer Profile
7. Flat Sketches
8. Illustration Board
9. Component Board
10. Colour Board
11. Fabric Board
12. Accessory Board
13. Garment Construction
14. Photographs

ELECTIVE -III

1. VISUAL MERCHANDISING

UNIT I

Introduction - Objectives, Visual merchandising and display, purpose of visual merchandising, store image, target customers, seasonal visual merchandise and windows.

Elements and principles of design in visual merchandise - Introduction, objective, design elements - color, texture, line; Principles - balance, emphasis, proportion, rhythm, repetition.

UNIT II

Strategic Planning - Analysis of target audience. Segmentation of market, Analysis of buying motives & brand preferences. Understanding Marketing & Sales Management.

Basic Principles - Windows designs, showroom, boutique display. Colour theory and harmony application with music, lighting and mannequins.

UNIT – III

Display and Display Settings - Types of display, one – item, line of goods, related merchandise, assortment, promotional vs. institutional; Type of display settings - Realistic, environmental, semi-realistic, fantasy, abstract. Store and window settings - Exterior of the store, signs, marquees, outdoor lightning, banners, planters, awning; Window in store front - The angled front, the arcade front, the corner, display, closed back, open-back, island, shadow boxes, elevated, deep, tail. Music & Lighting - Selection of music. Advantages & disadvantages of using music, understanding lighting patterns. Role of lighting in visual merchandising, Colours and types of lightings.

UNIT IV

Mannequin - Types of mannequins - realistic, semi realistic, abstract, semi abstract, headless; dressing up of mannequin.

Attention drawing devices - Attention drawing devices, color, lighting, line and composition. Scale, contrast, repetition, humor, mirrors, nostalgia, motion, surprise and shock, props.

Merchandise display - Introduction, objectives, planning a display, visual merchandiser in store promotion, scheduling the promotion.

UNIT V

Visual Merchandising - Approaching clients. Developing according to client requirements.

Handling client objections. Developing them and idea for client presentation. Finalization of

Display - Motive & Marketing consideration for every merchandise display. Estimation & finalizations of the contract. Assignments & Evaluation. Planning & inventory control system.

TEXT BOOKS:

1. Gini Stephen Frings, “Fashion Concept to Consumer” – Prentice Hall, New Jersey, 2004.
2. Diamond, “Contemporary visual merchandising and environmental design”, fourth edition, Prentice Hall, 2006.

REFERENCES

1. Martin M. Pegler, "Visual Merchandising and Display", fifth edition, Berg Publishers, UK, 2006.
2. Laine stone, Jean Samples, "Fashion Merchandising – An Introduction", Mc Graw Hill Book Co, 2001.
3. Diamond, J, "Fashion Retailing - A Multi – Channel Approach", Second Edition, Prentice Hall, New Jersey, 2000.
4. Fashion Merchandising & Information, John Wiley & Sons, PRISCO, Australia. Ltd (1986)
5. Fashion Merchandising, Mery.D. Troxell , Elaini Store Gregg division, Mc Grow-Hill (1981)
6. Fashion Merchandising Introduction Evelyn Grace, –Prentice-Hall (1978)
7. Visual Merchandising, Hearst books, ST publications incorporated (1997)
8. The business of fashion inside outside Kitty Dickerson

ELECTIVE –III

2. FASHION RETAILING

Unit –I

Retail Merchandising - The Marketing Channel, Retail organization structures, retail merchandising , Retailing Formats - Department stores specialty stores , hard – to – classify stores, Depth and breadth, discounting , Other Retailing Formats – non store retailers.

Unit –II

Retail Locations – Unplanned shopping districts, planned shopping centers, the mix of stores in a shopping center. Retail growth and expansion – Retail ownership. International Retailing, Retailing Advertising.

Unit –III

Brands and private labels - Branded Merchandising, Licensing, Private Labels, and Private Labels as Brands. Merchandise Resources – Manufacturers, Merchant Wholesale – Distributors. Trade Shows.

Unit –IV

The financial aspects of Merchandising – Measures of Productivity – Productivity , turnover, Stock - to – sales Ratio , sales per Square foot, Space Management. Retail pricing - Mark-up. Markdowns, Residue merchandise, maintain Mark-up. Tactical price changes, Managing Markdowns, Promotional Pricing, Deceptive pricing, Resale price Maintenance.

Unit –V

Store Layout and Merchandise Presentation – Store Planning and Design, Visual Merchandising, Store Layout, Fixtures, Merchandise Presentation, signs.

REFERENCES

1. Merchandise Buying and Management, John Donnellan Fairchild Publications , New York 1996
2. Fashion Retailing: A Multi-Channel Approach ,Ellen Diamond, Prentice Hall 2nd Edition, 2005

Practical -VII
CAD IN TEXTILE DESIGNING

1. Pattern layout and marker efficiency using specification sheet
2. Designing fabrics for
Plain Weave, Rib,
Twill Weave,
Satin, Sateen,
Dobby and
Jacquard Weave.