M.Sc. FASHION & APPAREL DESIGN (CBCS)

Semester I of PG program or VII Semester of the Honours Program								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDIT
					IA	Exam	Total	
FAD 1.1	Textile Process and Products	Theory	4	3	30	70	100	4
FAD 1.2	Apparel Design	Theory	4	3	30	70	100	4
FAD 1.3	Apparel Technology I	Theory	4	3	30	70	100	4
FAD 1.4	Research Methodology	Theory	4	3	30	70	100	4
FAD 1.5	Textile Process and Products	Practical	4	4	15	35	50	2
FAD 1.6	Design Methodology	Practical	4	4	15	35	50	2
FAD 1.7	Garment Construction I	Practical	4	4	15	35	50	2
FAD 1.8	Computer Aided Design	Practical	4	4	15	35	50	2
FAD 1.9A FAD 1.9B	Knitwear Design Technology or World Textiles & costumes	Theory	3	3	30	70	100	2

SEMESTER I or VII Semester of the Honours Program

TEXTILE PROCESS AND PRODUCTS

FAD1.1 **No. of Teaching Hours: 52**

Objectives:

- To acquaint students with the requisite knowledge of process to suit the product and fields of application.

Unit 1 **6 Hrs**

Yarn manufacturing process: Ginning – Faults in ginning and controls for optimum ginning. Influence of fibre property on various techniques of spun yarn process. Suitability of spun yarns produced with different techniques for specific products in various fields. Post spinning process of spun yarns for efficient performance in further stages of manufacture and uses.

Unit 2 **6 Hrs**

Features of various methods of filament yarn production, controls and post spinning requirements. Study of special methods of producing filaments.

Unit 3 **8 Hrs**

Controls in shuttle and shuttles weaving machines. Yarn quality requirements for weaving domestic and export products.

Unit 4 **2 Hrs**

Study of dobby and jacquard woven products. Fabric defects - types, causes and remedies.

Unit 5 **8 Hrs**

Introduction to jacquard knitting machine. Wrap patterning and gaiting of needles. Fabric defects - types, causes and remedies. Knitted fabric structure: Tightness factor, dimensional properties, spirality-relaxation- shrinkage. Dimensional characteristics of warp knits warp knitted fabric geometry - relation between loop length and construction, fabric relaxation and shrinkage.

Unit 6 **10 Hrs**

Non wovens: Definition, Classification, Raw materials, Web formation techniques - dry laid, wet laid. Bonding techniques – mechanical, thermal and chemical. Properties of nonwoven fabrics, products, applications and its characteristics. Braids- construction methods, properties, characteristics and application. 3 D woven fabrics and their application.

Unit 7 **8 Hrs**

Thermal Properties and Comfort: Thermal comfort, concept of heat and mass transfer, thermal protection, moisture vapour transmission, permeability, factors affecting moisture vapour permeability, relationship between moisture vapour permeability and comfort, liquid – moisture transmission, water repellency and water absorption., factors affecting liquid – moisture transmission, correlation between air permeability and other factors.

Unit 8 **4 Hrs**

Fabric mechanical properties and tactile pressure sensations: Fabric prickliness, itchness, stiffness, softness, smoothness, roughness, and scratchiness, garment fit and pressure, comfort – general aspects, construction factors, dimensional changes and the effects of fit on comfort.

References:

1. J Hu, “Structure and Mechanics of Woven Fabrics”, Hong Kong Polytechnic University, Wood Head Publishing Ltd., 2004.
2. Kothari V K,”Fabric Comfort”, Proc. of the Seminar on Comfort in Textiles, held at IIT Delhi, New Delhi, 2004.
3. Lord P R, “Hand book of yarn production: Technology, Science and Economics”, Woodhead Publishing, 2003.
4. Sabit Adanur, “Handbook of Weaving”, Technomic Publishing Co., Inc., India, 2001.
5. David J Spencer, “Knitting Technology”, Wood Head Publishing Limited, England, 2001.
6. Li Y, “The Science of Clothing Comfort”, Textile Progress, Vol.31, No.1/2, The Textile Institute, 2001.

APPAREL DESIGN

FAD1.2 **No. of Teaching Hours: 52**

Objectives:

- To impart advanced technical skills in pattern making
- To acquaint students with knowledge in designing for special categories.

Unit 1 **6 Hrs**

Introduction to pattern making and clothing construction- terminology, tools and equipments, principles and applications of pattern making techniques-drafting, flat pattern- dart manipulation and draping techniques, Pattern alteration, types of grading.

Unit 2 **4 Hrs**

Design Concepts: Elements and principles of design, application of design concepts in fabrics and fashion products.

Unit 3 **3 Hrs**

Measurements for pattern design- individual and standard measurements, measuring techniques-individual, dress forms, human figure, measurements for fit and pattern size.

Unit 4 **8 Hrs**

Body garment relationship- Ideal figure, figure types, figure analysis, garment design, fabric characteristics & design, structural frame work, contours, proportions, height and weight distribution.

Unit 5 **4 Hrs**

Fitting strategies, fit components, fit evaluation, 3 fitting checks and custom made clothing, commercial patterns.

Unit 6 **10 Hrs**

Designing for special categories: Features and functions of formal, casual and ethnic clothing for various categories and occasions, designing for Infants, maternity wear, plus sizes, elderly citizens, uniforms and physically and mentally challenged.

Unit 7 **5 Hrs**

Intimate apparel, lingerie and other special categories: Evolution of styles from antiquity to modern, design and current trends in intimate apparel, lingerie and body suit categories.

Unit 8 **4 Hrs**

Stitching strategies- stitch classification, securing, temporary, permanent, decorative, principles of hand and machine stitches, stitch and thread selection.

Unit 9 **4 Hrs**

The mechanics of fashion: Role of fashion designers in fashion industry. The fashion design process adapted by designers. Leading fashion designers of India and the world.

Unit 10 **4 Hrs**

Prevailing fashion trends and forecast for fibres, yarns, colours, trends and forecast for various fashion categories for children, men and women.

References:

1. Gavin Wadddell," How Fashion works", Blackwell Publishing, 2005.
2. Arnstrong Helen Joseph, Pattern Making for Fashion Design, 3rd edition, Prentice Hall, 1999.
3. Frances LetoZangrillo, "Fashion Design for the Plus-size", Fairchild Pub., 1999.
4. Sharon Lee Tate, "Inside Fashion Design", Harper & Row Pub, NY.
5. Bernard zamkoff and Jeanne Price, creative Pattern "Skills for Fashion Design "Fairchild Publications, 1990.
6. Laver, James, "Costumes & Fashions: A concise history". London: Thames & Hudson, 1982.

APPAREL TECHNOLOGY I

FAD1.3 **No. of Teaching Hours: 52**

Objectives:

- To provide an insight into technological aspects of apparel manufacturing.
- To familiarize students with various tools & equipments used in apparel production.

Unit 1 **8 Hrs**

Introduction to Indian Apparel Industry: Organizational structures and sectors of the garment industry, apparel product types, developments in recent years, opportunities and challenges in Indian apparel sector, over view of global apparel industry, major trends in international apparel technological concepts.

Unit 2 **8 Hrs**

Pre production process: Tech pack analysis, sampling, pattern and marker preparation, fabric and accessory procurement, sample types, approvals.

Garment production: Sequence of production operations for shirts, trousers, jackets, skirts and vests.

Unit 3 **10 Hrs**

Overview of industrial sewing machines: Features, mechanism, working principle and application of SNLS machine, DNLS machine, over lock machine, blind stitch machine, button sewer and buttonhole machines, bar tack machines.

Study of compatibility of stitch classes and needle types used in industrial sewing machines, seam types and its application.

Selection & application of bed types, machine attachments types, profiles, feed mechanism for different types of fabrics & garment style variation.

Unit 4 **6 Hrs**

Fabric spreading technology: Forms of spreading for different types of fabrics, lay types, spreading modes, spreading methods & machines- manual and mechanical methods.

Advanced spreading machines: Semi automatic and automatic-programmable spreading machine

Unit 5 **6 Hrs**

Cutting technology: Cutting techniques, considerations of cutting parameters for different fabrics Cutting machines and its working principle, recent advancements in cutting technology- semi automated and automated cutting machines, working environment and safety measures.

Unit 6 **4 Hrs**

Fusing technology: Fusing materials, components of fusing, types of resin coating & its applications for various apparel products, selection of fusing machines types, working principle and their application.

Unit 7 **4 Hrs**

Pressing and folding process: Steam boilers, pressing tables, machinery and equipments, types of folds, folding equipment and accessories.

Unit 8 **6 Hrs**

Packing: Function and scope of packing, packing methods, instructions, materials, weight, ratio, and labeling considerations for shipment by air and sea, packing marks, warehousing - assortment and storage methods.

References

1. Harold Carr & Barbara Latham, "The Technology of Clothing Manufacture", Blackwell publishing, 4th edition, 2008.
2. Richard Jones, "The Apparel Industry", Wiley-Blackwell, 2nd Edition, 2006.
3. Gerry Cooklin, "Introduction to Clothing Manufacturers", Blackwell publishing, 2nd Edition, 2006.
4. Patty Brown , Jane Rice RN CMA, "Ready-to-Wear Apparel Analysis", Prentice Hall, 3rd Edition, 2000.
5. Claire Shaeffer, "Sewing for the Apparel Industry", Prentice-Hall, 1st Edition, 2001.
6. Chuter. A. J." Introduction to clothing production management", Blackwell publishing, 2nd Edition, 1995.
7. Thomas Anna Gawb, "The Art of Sewing", UBS Publishers Distributers ltd. 1994.
8. Harold Carr, "The Clothing Factory, Clothing & Footwear Ins1titute", Blackwell Science, 1992.

RESEARCH METHODOLOGY

FAD1.4 **No. of Teaching Hours: 52**

Objectives:

- To familiarize students with the various types of research, data collection & analysis of research.

Unit 1 **6 hrs**

Meaning and significance of research in management, different approaches to research- scientific method and non scientific methods, types of research.

Unit 2 **6 hrs**

Formulation of research problem, defining research problem, generating research hypothesis, research process, research design, classification of research designs, need for research design, features of good research design, research proposal.

Unit 3 **6 hrs**

Sampling techniques: Steps in sampling, types of sample design – profitability and non profitability sampling designs, size of sample, sampling errors, concept of measurements and scaling, scaling techniques, characteristics of sound management.

Unit 4 **8 hrs**

Sources of data: Primary Vs secondary data, sources of primary data – observation, interview method, survey method, questionnaire construction and design.

Unit 5 **4 hrs**

Processing of research data: Editing, coding, classification and tabulation.

Unit 6 **8 hrs**

Analysis of the data, comprehension of the analysis, findings and suggestions of the research.

Unit 7 **6 hrs**

Measures of central tendency, measures of variation, measures of dispersion and skewness, test of randomness, Hypothesis testing: Null and alternative hypothesis, level of significance, one and two sample tests, ANOVA, MANOVA, correlation regression analysis. Statistical packages.

Unit 8 **8 hrs**

Report writing: Types of reports, objectives and function of report- formal and informal, report writing process, target audience, pre-research proposals, progress reports, final reports, guidelines for effective writing, research report format, presentation of a report, persuasive nature for effective writing, reports for decision making, technical proposal.

References:

1. Michael P. Marder, "Research Methods for Science", Cambridge University Press, 2011.
2. Kumar, Ranjit, "Research Methodology: A step by step guide for beginners", London, Sage publications, 2nd Edition, 2005.
3. Velds, Mandy van der. "Guide to management research method" Oxford, Blackwell, 2004.
4. Kothari, C.R. "Research Methodology: methods and techniques", New Delhi, Vishwa Prakashan, 2nd Edition, 1990.
5. Cahoon, Margaret C. "Research Methodology Edinburgh", Churchill Livingstone, 1987.

TEXTILE PROCESS AND PRODUCTS

16 Practicals of 4 Hrs each

FAD1.5

Objectives:

- To impart the knowledge of textile process and their products.
- To familiarize the students with product assessment methods.

Unit 1 **2**

Yarn test for its quality- Yarn unevenness, Hairiness, Strength.

Unit 2 **2**

Collection of yarn samples with associated products.

Unit 3 **4**

Determination of geometric properties of woven and knitted fabrics (10 types).
Wovens: Yarn linear density, GSM, thread density, crimp, cover factor.
Knitted fabrics: Course per inch, wale per inch, thickness, GSM, loop length, count of yarn and tightness of the fabric.

Unit 4 **4**

Structural analysis of woven and knitted fabrics (10 types).

Unit 5 **4**

Assessment of functional properties of fabrics-
water vapour permeability, air permeability, wicking, crease recovery.

DESIGN METHODOLOGY

FAD 1.6 **16 Practicals of 4 Hrs each**

Objectives:

- To develop aesthetic and creative sensibilities and communication.
- To provide a good understanding and application of mixed media, materials, techniques and methods for creative expression.

Unit 1 **4**

Process of motif development: Geometrical, stylized and abstract, enlargement and reduction, various types of repeats and placements for various applications.

Unit 2 **6**

Introduction to traditional and contemporary designs: Design profile of traditional and contemporary design, creating new textures and sketching of traditional and contemporary design using different mediums.

Unit 3 **4**

Thematic process of motif development: Sources for basic sketching and painting.

Inspiration from traditional and contemporary designs: Nature, religion mythology, art, crafts, architecture, historical textiles, paintings from various countries and cultures.

Unit 4 **2**

Product development portfolio with the designs created for apparel and interiors.

GARMENT CONSTRUCTION I

FAD 1.7 **16 Practicals of 4 Hrs each**

Objectives:

- To impart knowledge of drafting and construction of clothing.
- To enable students to understand adaptation techniques of various style features to basic garments.

Unit 1 **2**

Development of basic blocks: men‟s bodice, women‟s bodice.

Unit 2 **2**

Dart manipulation techniques on women‟s wear.

Unit 3 **2**

Style features- Yoke, pocket design and its variations for women‟s clothing.

Unit 3 **5**

Designing and stitching of jackets with style variations (2 garments).

Unit 4 **5**

Designing and stitching of women‟s clothing using dart manipulation techniques and yoke design (2 garments)

COMPUTER AIDED DESIGN

FAD 1.8 **16 Practicals of 4 Hrs each**

Objectives:

- To acquaint students with the application of computers in pattern making.
- To enable the students to develop patterns and grade them to industrial standards.

Unit 1 **1**

Introduction to AccuMark explorer: Pattern design system (PDS) - creating storage area, setting up and editing p-user environment table, notch table and rule table.

Unit 2 **2**

Working tools: Creating and editing points, notches, lines and pieces.

Unit 3 **1**

Digitizing procedure: Pattern preparation, digitizing and verification of patterns.

Unit 4 **4**

Drafting basic blocks, annotation of patterns, modification of patterns as per style requirement of the garment, adding fullness – pleats, gathers, darts, dart manipulation, seam allowances, shaping corners, rotating patterns with accordance to grain line.

Unit 4 **4**

Grading: Selecting grading methods, editing rule table, size range, assigning rule table, grading patterns with x and y co-ordinates.

Unit 5 **3**

Marker making: Marker making procedure, setting up model editor, annotation editor, block buffer editor, lay limit editor and order editor.

Unit 6 **1**

Plotting: Procedure - setting up annotation editor, piece plot parameter and table piece plot order.

KNITWEAR DESIGN AND TECHNOLOGY

FAD1.9A **No. of Teaching Hours: 39**

Objectives:

- To impart knowledge on designing for knitted apparels.
- To acquaint students on various knitwear categories and knitwear apparel production

Unit 1 **3 Hrs**

Introduction to knitted fabrics. Difference between knits and woven, Indian knitting industry – past, present and future.

Unit 2 **4 Hrs**

History of knitting, Hand knitting, terms used in knitting, weft knitting & warp knitting – introduction and comparison. Parts and functions of weft knitting and warp knitting – calculations used in knitting.

Unit 3 **4 Hrs**

Yarns used for knitting-cotton, wool, nylon, acrylic, high bulk acrylic, spandex, etc. Properties of knits for apparel production –stretch and shrinkage factors.

Unit 4 **4 Hrs**

Wefts knit structures – single jersey or plain – rib – purl – interlock – Knit float-tuck and stitch structures – designing of weft structures. Warp Knit Fabrics –warp knit structures – underlap – overlap – closed lap and open lap stitches.

Unit 5 **2 Hrs**

Latest Knitting machines, weft –knitting machines- warp knitting machines – Knitted fabric defects.

Unit 6 **6 Hrs**

Knitwear production-Machineries: Flat bed, circular & stock knitting machines, categories of knitted garments –fully cut, stitch shaped cut, fully fashioned and integral garments, seams, seam finishes & stitches, machinery used, pre-production and production, finishing and precautions in apparel production.

Unit 7 **4 Hrs**

Knitted garment manufacture: Cutting – stitching – quality control of knitted garments- knit wear garment designs and developments.

Unit 8 **4 Hrs**

Introduction to knitted apparels- apparel categories-men, women and children casual, formal/sportswear, sweaters and hosiery.

Unit 9 **3 Hrs**

Quality control of knitted garments-Fabric quality-weight per unit area, tightness factor, knitted faults, pilling. Garment quality-spreading, cutting, sewing and final inspection.

Unit 10 **5 Hrs**

Introduction to knitwear designing-Factors influencing knitwear designing, fashion as applied to knitwear-past present and future. Innovations in knitwear-Recent trends in knit wear-seamless garment construction, surface embellishments on knitwear, knits in interiors and computer aided designing in knitwear.

References:

1. Terrry Brackenbury, "Knitting Clothing Technology", Blackwell Publishing, 2005.
2. Sandy Black, "Knitwear in Fashion", Thames and Hudson Publication, 2002.
3. Jay Diamond, Ellen Diamond, "The World of Fashion", 3rd Edition, Fairchild Publication, 2002.
4. David Spencer, "Knitting Technology", Pergamon Press, Oxford, 2001.
5. George A Tay, "Fundamentals of weft knitted fabrics", National Knitwear and Sportswear Association, New York, USA, 1996.

WORLD TEXTILES & COSTUMES

FAD 1.9B **No. of Teaching Hours: 39**

Objectives:

- To acquaint students with textiles and costume designs of different regions during different periods.

Unit 1 **2 Hrs**

Introduction to textiles and costumes of world: History of fashion, psychology of clothing, factors influencing costumes.

Unit 2 **5 Hrs**

Historic costumes: Costumes, head dress, hair style and accessory of head dress and accessories of ancient world- The ancient middle east -3500-600BC- Mesopotamian, Egyptian, Roman, Byzantine, Greece, old English and French, Victorian Period, French Revolution, Renaissance costumes, Boroque and Rococo.

Unit 3 **4 Hrs**

Textiles and costumes of eighteenth and nineteenth century – The American colonies, French, England, Italy and Austria, Directoire period (1790-1820), Romantic period (1820-1850), Crinoline period(1850-1869),The Butle period(1870-1900).

Unit 4 **6 Hrs**

Introduction to the traditional textiles and costumes of ancient India - Indus valley civilization, Mauryan and Sunga, Satvahana period, Kushan Period, Gupta and Mughal period. Contemporary Indian costumes of different states of India: East, West, North and South states

Unit 5 **6 Hrs**

The ancient world textiles: The Mediterranean, central and north Europe, The Middle Eastern textiles- Sassanian, early Islamic, Byzantine silks, Safavid Iran(1499-1722), The Ottoman empire, Central Asian textiles- Republics of Turkmenistan, Uzbekistan, Tadzhikistan, Kirghzia and Kazakistan, Iran and Afghanistan, Portugues carpets.

Unit 6 **4 Hrs**

Textiles and costumes of Asia: Historic background and trade, Textiles from Pakistan, China, Japan, Thailand, Myanmar, Laos and Cambodia, Philippines, Indonesia, Malaysia.

Unit 7 **6 Hrs**

Textile and costumes of Western Europe: Silian Silks, Italian Silks, Spanish silks, French silks, figured linen damasks from Netherland, French tapestries, Italian embroidery and lace and printed textiles. Textile and costumes of Eastern Europe: Embroidered textiles from Hungary, Greece.

Unit 8: **3 Hrs**

Textile and costumes of Colonial North America (1700-1990), Native North America, LatinAmerica.

Unit 9 **3 Hrs**

Textile and costumes of Africa: Traditional designs, Gold embroidery of North Africa, Ghana, Kuba and Madagascar.

References

1. Doreen Yarwood "Illustrated Encyclopedia of World Costume"Dover Publications, 2011.
2. John Gillow, Bryan Sentance, "World Textiles: A Visual Guide to Traditional Techniques", Thames &Hudson , 2005.
3. Hart A North S V and A Museum, "Historical Fashion in detail the 17th and 18th Centuries", McMillan, India, 1998.
4. Chas A, "Historic Costume", Bernard and Co, 1961.
5. Das S N , "Costumes of Indian and Pakistan", D B TaraporevaIa Sons & Co, Bombay, 1958.

Semester II of the PG program or VIII Semester of the Honours Program								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDIT
					IA	Exam	Total	
FAD 2.1	Chemical Processing & Finishing	Theory	4	3	30	70	100	4
FAD 2.2	Apparel Technology II	Theory	4	3	30	70	100	4
FAD 2.3	Apparel Costing	Theory	4	3	30	70	100	4
FAD 2.4	Fashion Merchandising & Marketing	Theory	4	3	30	70	100	4
FAD 2.5	Chemical Processing & Finishing	Practical	4	4	15	35	50	2
FAD 2.6	Garment Construction II	Practical	4	4	15	35	50	2
FAD 2.7	Project Work	-	8	Report Evaluation	30 Viva voce	70	100	4
FAD 2.8A FAD 2.8B	Textiles for Interiors or Eco-textiles and sustainable clothing	Theory	3	3	30	70	100	2

SEMESTER II or VIII Semester of the Honours Program

CHEMICAL PROCESSING & FINISHING

FAD 2.1 **No. of Teaching Hrs. 52**

Objectives

- To acquaint students with modern concepts in dyeing, finishing & bio processing.
- To enable students to understand energy conservation & pollution control approaches in textile processing.

Unit 1 **4 Hrs**

Preparatory processes: Desizing, Scouring, Bleaching, Mercerization.

Unit 2 **10 Hrs**

Dyeing: Introduction, classification, Theory of Dyeing, Application of dyes- direct, basic, acid, vat, reactive, sulphur and disperse dyes. Eco-friendly dyeing, Natural dyes – importance and applications.

Unit 3 **6 Hrs**

Developments in the application of direct, reactive, disperse dyes to textile materials using batch wise and continuous methods, Waterless dyeing.

Unit 4 **4 Hrs**

Printing with different dye classes: Direct, resist and discharge styles of printing - Transfer printing of polyester and blends, Digital printing.

Unit 5 **8Hrs**

Chemical finishing: Application of water repellent/proof, flame retardant, mildew proof, moth proof, anti-static, soil release, UV protection, anti microbial, odour control and fragrance finishes, resin finishing: durable press, wrinkle free, silicone finishing.

Unit 6 **6 Hrs**

Garment Processing & finishing: Processing of grey fabric garments, garment dyeing, machinery for garment dyeing, garment finishing and printing.

Unit 7 **4 Hrs**

Denim finishing: Process conditions, machineries, chemicals and enzymes used for various special effects, stone wash, enzyme wash, biopolishing & biostoning, sand blasting, ozone and laser fading.

Specialty garment finishes: Leather finish, rubbery touch, feather touch, peach skin finish.

Unit 8 **4 Hrs**

Application of enzymes in processing: Mechanism of enzyme reactions – Bio scouring and Bio-bleaching and the other combined processes. Enzyme washing.

Unit 9 **6 Hrs**

Energy conservation steps in chemical processing: Low wet pick-up techniques - causes and remedies for water and air pollution. Wastewater characteristics; wastewater treatment - objectives, methods and implementation considerations, recycling of effluents, low cost adsorbents and modern effluent treatment processes.

References:

1. Tobler-Rohr M I, “Handbook of sustainable textile production”, Woodhead Publishing Ltd, UK, 2011.
2. Chritie R., “Environmental aspects of textile dyeing”, Woodhead Publishing Ltd, UK, 2007.
3. Leslie W.C. Miles: “Textile Printing: Society of Dyers & Colorists Dyers Company”, 2003.
4. Heywood, Derek, “Textile Finishing: Society of Dyers and Colourists”, 2004.
5. Broughton, Kate, “Textile Dyeing: The step-by-step guide” Rockport, 2001.
6. Lueas.J. et al, “Colour Measurement – Fundamentals”, Vol.1, Eurotex 1996.
7. Shenai V A, “Technology of Textile Finishing”, Sevak Publications, Mumbai, 1995.
8. Venkatraman.K,, “Chemistry of Synthetic Dyes” Vol. III, Academic Press, New York, 1991.

APPAREL TECHNOLOGY II

FAD 2.2 **No. of Teaching Hours: 52**

Objectives:

- To endow students with the advanced apparel production process and systems.
- To make the students aware of developments in apparel industrial engineering concepts.

Unit 1 **3 Hrs**

Introduction to core concepts of apparel production: Evolution of apparel production processes; mass production concepts and standardization of sizing, various production systems practiced in India and their application for different apparel products, emerging trends in apparel production processes.

Unit 2 **4 Hrs**

Introduction to apparel industrial engineering concepts: Evolution of industrial engineering, scope of industrial engineering in global perspective, IE interface with apparel production.

Unit 3 **3 Hrs**

Operator training and development: Classification of sewing operators, need based training-primary and secondary training, training modules, multi skilled operator development, adaptation of performance improvement methods, reasons of training failure, retraining on low performance key areas, improving effectiveness of training.

Unit 4 **3 Hrs**

Elements of production planning and control: Task scheduling, material resource planning, process selection and planning, basic capacity calculation, estimating quantity & costs of production.

Unit 5 **6 Hrs**

Production plant layout and material handling: Principles of plant layout, plant layout considerations; integration of workmen, material and machines, minimum movement, safety measures, maximum visibility, material handling techniques- application of advanced material handling equipments to eliminate non productive movements, minimum handling of materials.

Unit 6 **8 Hrs**

Work study: Method study approach, work measurement; tools and techniques, principles of motion economy, ergonomics, SAM calculation methods, work elements, basic motion elements, predetermined motion time standards, micro and macro motion charts; operation process chart, flow process chart, string diagram, efficiency indices.

Unit 7 **4 Hrs**

Line planning: Line requirement parameter considerations based on type of apparel product, SAM, order quantity, lead time, factory efficiency.

Men and machine requirements planning, batch setting, line balancing concepts, elimination of bottlenecks.

Unit 8 **6 Hrs**

Productivity management: Overview of productivity measures, measuring labour productivity, machine productivity & value productivity, strategies to improve productivity, factors affecting productivity, balancing productivity and quality.

Unit 9 **4 Hrs**

Performance appraisal (PA): Analysis and development, criteria for PA, techniques of PA, employee turnover, absenteeism, attrition and retention, industrial hygiene and safety standards

Unit 10 **8 Hrs**

Emerging trends in apparel production concepts: Lean manufacturing concepts, lean principles, six sigma, theory of constraints (TOC), lean tools; muda, just in time, 5s, total productive maintenance(TPM), kanban, kaizen, KPI, poka yoke, PCDA, SMED, value stream mapping, tact time calculation, root cause analysis.

Unit 11 **3 Hrs**

Innovative trends and challenges in apparel production: IT applications in capturing motion economy and time measurement, lowering energy consumption and minimizing environmental impact.

References

1. Janace Bubonia. "Apparel Production Terms and Processes", Fairchild Books, 2nd Edition, 2011.
2. Grace I. Kunz "Going Global: The Textile and Apparel Industry", Fairchild Books, 2nd Edition, 2011.
3. Paula J. Myers-McDevitt, "Apparel Production Management and the Technical Package" Bloomsbury Academic, 2010.
4. Eberle, Hannelore, "Clothing technology: from Fibre to Fashion, Verlag Europa-Lehrmittel, Nourney, Vollmer GmbH & Co., 5th Edition, 2008.
5. Grace I. Kunz, Ruth E. Glock, "Apparel Manufacturing: Sewn Product Analysis", Pearson/Prentice Hall, New Jersey, 4th edition, 2005.

APPAREL COSTING

FAD 2.3 **No. of Teaching Hours: 52**

Objectives:

- To familiarize students with apparel costing methods and techniques.

Unit 1 **8 hrs**

Cost accounting: Classification of cost elements- direct and indirect. Determination of factory cost, administration cost and sales cost of an apparel product. Manufacturing cost account statement - preparation and analysis, cost behavior patterns – fixed, variable, semi variable. Calculations related to job order costing and process costing.

Unit 2 **6 hrs**

Accounting for factory overhead: Capacity level concepts, production and service departments, indirect costs, over and under applied overhead.

Unit 3 **8 hrs**

Cost volume profit analysis: Break-even analysis, Contribution margin, variable, cost ratio, marginal income. Sales mix by garment style, effect of volume change, price/volume analysis.

Unit 4 **8 hrs**

Standard Costing: Variance analysis, setting cost standards, price variance analysis for material, labour and overheads. Determination of standard cost for weaving, knitting and processing cost of woven/knitted fabrics. Fabric cost – stripe/ checked, printed and embroidery and special finished goods.

Unit 5 **6 hrs**

Determining pricing of apparels: Price elasticity of demand and supply, Sample costing-marginal revenue and marginal cost. Assortment order planning -cost determination, size and colourwise – men‟s, women‟s and children‟s wears.

Unit 6 **8 hrs**

Pricing methods: Cost plus pricing methods / full cost pricing, conversion cost pricing, differential cost pricing; variable cost pricing, direct cost pricing. Derivation of cost of apparel products – woven / knits. CM, CMT cost analysis for various styles. Activity based costing, Cost analysis for various styles of garments. FOB/CIF/C&F pricing of apparels.

Unit 7 **8 hrs**

Budgeting process: Budgeting principles for the apparel industry, fixed vs. flexible budget, master budget, limitations of budgets. Project proposal for setting up a new garment unit.

References

1. William Lanen, “Fundamentals of Cost Accounting”, McGraw-Hill/Irwin, 3rd Edition, 2010.
2. Hansen, Don R, “Cost Management Accounting and Control”, Ohio Thomson, 4th Edition, 2003.
3. Blocher, Edward, “Cost Management: A strategic Emphasis”, McGraw Hill, London, 2002.

4. Richord D Irwin, “Principles of Cost Accounting: Managerial Applications”, Excel books, India, 2001.
5. Bhabatosh Banerjee, “Cost Accounting”, Word Press, 11th Revised Edition, 2001.
6. Hilton, Ronald W, “Cost Management: Strategies for Business Decisions”, McGraw Hill, London, International Edition, 2000.

FASHION MERCHANDISING AND MARKETING

FAD 2.4 **No. of Teaching Hours: 52**

Objectives

- To acquaint students with fashion merchandising and marketing concepts.
- To endow students with a broad perspective on emerging trends in merchandising & challenges in marketing.

Unit 1 **3 Hrs**

Introduction to merchandising: Evolution, merchandising types, basic functions of merchandising, merchandising technology, merchandiser‟s key responsibilities.

Unit 2 **3 Hrs**

Domestic and export marketing: Study of market, market structure, market types, business strategic planning, micro and macro environments, market development, problems and benefits.

Unit 3 **4 Hrs**

6 R‟s of fashion merchandising, fashion forecasting, fashion interpretation, merchandise resource planning, elements of planning, capacity planning, merchandising calendar, KPI measurements, buying and selling seasons in different market.

Unit 4 **6 Hrs**

Market Research: Research types, research objectives, developing research plan, methods of sampling, data source & collection methods, data analysis, presenting findings, interpretation and implementation.

Unit 5 **2 Hrs**

Consumer behaviour, target market and market segmentation.

Unit 6 **4 Hrs**

New product line development: Types of products, study apparel product lines, product life cycle, brand management, idea generation, screening, concept testing, test marketing, commercialization, product positioning, major reasons for product failure.

Unit 7 **4 Hrs**

Preproduction activity: Pre-production & TNA meetings, sampling-developing samples, sample types, sample approvals, lab dip, yarn dip, bit loom, strike offs, pre-costing and order follow-up.

Unit 8 **8 Hrs**

Purchase Management: Role and responsibilities of purchase department, purchase cycle, global sourcing methods, identification of vendors, vendor analysis, evaluation of vendor, ratings criteria and selection procedure, negotiation and bargaining, vendor relations

Order confirmation, consumption, final costing, pricing, purchasing of raw materials, bill of materials, trim card, production file, and production follow-up.

Unit 9 **10 Hrs**

Marketing mix, assortment and range planning, promotional techniques, distribution channels, market intermediaries & logistics management.

Retail formats: Organized, unorganized formats, types of retail stores – convenience stores, super markets, departmental stores, hyper markets, lifestyle stores, franchisee outlets & specialty stores.

Unit 10 **8 Hrs**

Emerging trends and issues in marketing: Consumerism, rural marketing, social marketing, online marketing, and green marketing.

Quality assurance and IT application in merchandising, Textile and apparel policies- FDI policies in retail sector.

References

1. Jung E. Ha-Brookshire, "Global Sourcing in the Textile and Apparel Industry", Prentice Hall, 1st Edition, 2014.
2. Del Hawkins, David Mothersbaugh , Amit Mookerjee, "Consumer Behavior: Building Marketing Strategy", Tata McGraw Hill Education, 11th edition, 2012.
3. Philip Kotler , Kevin Keller, "Marketing Management", Prentice Hall, 14th Edition, 2011.
4. Grace I. Kunz, "Merchandising: Theory, Principles, and Practice", Fairchild Books, 3rd Edition, 2009.
5. Donnellan, John, "Merchandise Buying and Management", Fairchild Books, 3rd Edition, 2007.
6. Jeremy A. Rosenau, David L. Wilson, "Apparel Merchandising - The Line Starts Here", Fairchild Books, 3rd Edition, 2006.

CHEMICAL PROCESSING & FINISHING

FAD 2.5 **16 Practicals of 4 Hrs each**

Objectives:

- To familiarize students with chemical processing techniques.
- To impart the skills of preparation and dyeing of textiles.

Unit 1 **4**

Pre-processing of textiles: Desizing, degumming, scouring, bleaching, bio polishing, optical whitening, mercerization.

Unit 2 **1**

Water quality analysis: hardness, pH, salinity, TDS.

Unit 3 **7**

Dyeing: Dyeing textiles with direct, acid, basic, reactive, disperse, sulphur, vat dyes & natural dyes. Assessment of colour fastness of dyed samples.

Unit 4 **1**

Colour measurement: Determination of K/S values and colour difference of dyed fabrics

Unit 5 **1**

Printing: Priniting of cotton by direct technique

Unit 6 **2**

Effluent analysis: COD, BOD, pH, TS, TDS.

GARMENT CONSTRUCTION II

FAD 2.6 **16 Practicals of 4 Hrs each**

Objectives:

- To familiarize students with spec sheet analysis, garment construction and its evaluation.
- To acquaint students with garment quality tests and assessment methods.

Unit 1 **3**

Development of basic block for men using flat pattern and draping technique.

Unit 2 **2**

Development of collar, sleeve, pocket, cuff & placket design and its variations

Unit 3 **6**

Design and construction of men‟s clothing (upper garment & leg wear) and develop a spec for the same.

Unit 4 **1**

Analyse the constructed garments using standard methods.

Unit 5 **2**

Garment quality test for dimensions, stitches, seam appearance, seam strength, seam slippage.

Unit 6 **2**

Garment accessory tests: Buttons impact and compression tests, zippers test, hooks and loop fastener tests

PROJECT WORK

FAD 2.7 **8 Hrs/week**

Students have to undertake project in the relevant areas of apparel manufacturing. At the end of the first semester, students have to submit the project proposal for approval. The project work shall be carried out during the II Semester either in the Department or at an approved industry / organisation under the supervision of the guide. Three copies of the project reports are to be submitted to the Department through the guide before the commencement of III Semester examination.

TEXTILES FOR INTERIORS

FAD 2.8 A **No. of Teaching Hrs. 39**

Objectives:

- To enable students to understand various textiles used in interiors.
- To impart knowledge on various application of textiles in interiors.

Unit 1 **4 hrs**

Fundamental principles of interior textiles: classification of interior textiles. Types -Natural and synthetic fibres for interior textiles; the use of knitted, woven and nonwoven fabrics in interior textiles. Their characteristics and application in interiors.

Unit 2 **4 hrs**

Interior textiles from antiquity to modern -Surface design of fabrics for interior textiles. Use of textiles in carpets and floor coverings. Special finishes for carpets and floor coverings, its care and maintenance.

Unit 3 **4 hrs**

Developments in interior textiles: Upholstery fabrics for interiors. Methods and innovative textiles for seating. Advances in joining fabrics for the furniture industry.

Unit 4 **4 Hrs**

Development and characteristics of interior textiles for automotive, locomotives and aeroplanes.

Unit 5 **4 Hrs**

Development and characteristics of interior textiles for hospitals and hospitality industry.

Unit 6 **6 hrs**

Developments in special finishing treatments for interior textiles: Soil and stain resistant finishes, Fragrance textiles, odour resistant, antimicrobial finishes, flame retardant, Fire testing of upholstered furniture. Testing standards and evaluation of risk analysis.

Unit 7 **5 hrs**

Fabrics for soft furnishing: Textiles for carpets, durries, tapestries, drapery, upholstery, wall coverings. Home furnishing - their properties, uses and application in the interiors, other materials used for interior textiles- Cork, leather, paper, Rexene etc.- their properties, uses and applications in the interiors.

Unit 8 **4 hrs**

Environmental issues in interior textiles: A brief overview of green materials used for textiles for interiors. Role of textiles in indoor environmental pollution- problems and solutions.

Unit 9 **4 Hrs**

Current trends and forecast on interior textiles.

References:

1. Chambers B.G. “Colour and design, Fashion in Men‟s Women‟s Clothing and furnishings” Prentice Hall. Inc. Newyork, 1951.
2. Erwin, Kinchen and Peter, “Clothing for Moderns” Mcmillan publishing compare, In. New York, 6th Edition, 1976.
3. Gisela Hein, “Fabric printing”, B.T. Batsford Ltd, London, 1972.
4. Hamyln, “Mc.Calls Sewing in Colour”, The Hamyln Publishing Corporation limited, 1975.
5. JasleenDhamija, “The Indian Folk, Arts and Crafts”, National Book Trust India, New Delhi, 1992.

ECO TEXTILES AND SUSTAINABLE CLOTHING

FAD 2.8 B **No. of Teaching Hrs. 39**

Objectives: To acquaint students with eco-friendly processes and products.

Unit 1 **8 hrs**

Introduction: Differences between chemical & green processes, rules/recommendations for using chemicals, raw materials & waste handling for sustainable textiles & clothing.

Unit 2 **10 hrs**

Eco-friendly chemical processing: Modern approaches to eco-friendly wet processing of woven and knitted clothing. Red listed textile chemicals, their sources and remedies. Eco-friendly dyes and their method of dyeing. Energy efficient production methods and processing techniques. Eco-labeling and various eco-standards, enzymes and natural dyes.

Unit 3 **6hrs**

Quality standards and assessment of Eco-textiles: Oekotex standards, GOTS standards: certification procedures and implementation, ISO 14000 & EMS: guidelines and implementation. Toxicology of textile dyes and chemicals, eco- parameters and testing of various toxic chemicals and dyes.

Unit 4 **6 hrs**

Organic and Sustainable textiles: Organic fibre production & processes- cotton, wool silk, bamboo, Regenerated fibres- Lyocell, PLA, Recylced fibres- PET. Reduction of carbon footprints in textile processing.

Unit 5 **4 Hrs**

Introduction and importance of recycling and up cycling for growing source of innovative design in the fashion and accessories, processing, production and their applications.

Unit 6 **5 hrs**

Manufacturing rights- Ethical and environmental issues relating to textiles and fashion industry. Ethical, standard practices for sourcing of sustainable fashion clothing and accessory. Corporate social responsibility in fashion and apparel industry.

References:

1. Chritie R., "Environmental aspects of textile dyeing", Woodhead Publishing Ltd, UK, 2007.
2. Trivedi R.K., "Handbook of Environmental laws, Acts, Guidelines, Compliances and Standards", Vol. 1, Enviro Media, India, 1996.
3. Blackburn R S, „Sustainable textiles: Life cycle and environmental impact", Woodhead Publishing Ltd, UK, 2009.
4. Skelly J. K., "Water Recycling in Textile wet Processing", Woodhead Publishing Ltd, UK, 2003.

5.Moore M.A "Environmental impact of textile production , Fairchild books, New York 2008.

Semester III of the PG program or IX Semester of M.Sc. (Integrated) Program

CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDIT
					IA	Exam	Total	
FAD 3.1	Apparel Quality Control and Standards	Theory	4	3	30	70	100	4
FAD 3.2	Fashion Accessory Design	Theory	4	3	30	70	100	4
FAD 3.3	Retail Management	Theory	4	3	30	70	100	4
FAD 3.4	Fashion Draping	Practical	4	4	15	35	50	2
FAD 3.5	Advanced Textile & Apparel Testing	Practical	4	4	15	35	50	2
FAD 3.6	Apparel Value Addition	Practical	4	4	15	35	50	2
FAD 3.7	Fashion Accessory Design & Production	Practical	4	4	15	35	50	2
FAD 3.8 OE	Fashion Design	Theory	4	3	30	70	100	4

SEMESTER III or IX Semester of the M.Sc. (Integrated) Program

APPAREL QUALITY CONTROL AND STANDARDS

FAD 3.1 **No. of Teaching Hrs. 52**

Objectives:

- To impart skills for analysis of garment specification sheets and to translate them into quality output.
- To familiarize students with advanced apparel quality tests and standards

Unit 1 **8Hrs**

Introduction to quality control and standards: Evolution of quality, quality planning, quality control, quality assurance, total quality management-contributions of Deming, Juran and Crosby, Quality Management System- Organizing, planning and implementation.

Quality standards: importance, benefits, levels and sources of standards- ISO, AATCC, ASTM, BS, BIS, DIN.

Unit 2 **6 Hrs**

Quality Specifications: Yarns, fabrics & trims defect analysis and rectification.

Garment Standards and Specifications: Analysis of pre-sample specification of garment or apparel product, understanding quality assurance in terms of measurement, sewing operations and finishes as per the specification sheet and garments defect analysis.

Unit 3 **8 Hrs**

Eco management of textile and apparel industry: Global scenario, eco textiles, eco standards and certifications - ISO 14000, Eco-mark, Oeko Tex 100 standards, GOTS, OSHA, Green label, Green Seal.

Eco specifications and restrictions in apparels and textiles: Sensitizing dye stuffs, allergic dyes, carcinogenic anions, red listed as per eco specifications, chemicals used in dry cleaning which deplete ozone, pH value, formaldehyde contents, heavy metal contents, pesticides and herbicides, azoic dyestuffs nickel pentachlorophenol, colorfastness, brightness, softening agents, etc.

Unit 4 **8 Hrs**

Fabric hand characteristics- Drape, bending, crease recovery, shear, bias extension, formability, friction- objective measurement by FAST & KES.

Serviceability: Snagging, pilling, abrasion resistance, tearing strength, tensile, bursting, seam strength, seam slippage, flammability, soil resistance, soil release.

Unit 5 **8 Hrs**

Aesthetics-Colour measurement, shade variation and colour fastness to washing, light, perspiration, crocking and other agencies.

Hygral expansion, relaxation shrinkage - methods of measuring dimensional change to dry cleaning, dry heat and steam.

Transmission characteristics – air permeability, heat transmission, light permeability, moisture transmission and water permeability.

Unit 6 **6 Hrs**

Garment Quality tests for dimensions, fabric construction, weight, properties, stitch lines, seams, special stitches, finishes etc.

Durability characteristics of trims - resistance of zippers, buttons, snaps, buckles etc. to abrasion, bursting and corrosiveness.

Unit 7 **4 Hrs**

Labelling: Introduction, labelling parameters, fibre content, care labelling and flammability, wash care labels, labelling systems - Canadian, American, European, Australian, Sweden, UK, Germany and Japan, Regulations for labeling parameters, Eco-labelling.

Unit 8 **4 Hrs**

Garment defects: Cutting defects, sewing defects, assembly defects, pressing, finishing and packaging defects, and procedures of quality evaluation, revision and approvals as specified in the specification sheet.

References

1. Sara J Kadolph, "Quality Assurance for Textiles and Apparels", Fairchild publications, 2nd Edition, 2007.
2. David H, "ISO 9000 quality system handbook", Butterworth publishing, New Delhi, 2006.
3. Juran J M and Gryna, F M, "Quality Planning and Analysis - From Product Development through Use", Tata McGraw Hill Publishing Limited, New Delhi, 2001.
4. Pradeep V Mehta, "Managing Quality in Apparel Industry", NIFT publication.
5. Saville, B.P. "Physical testing of textiles", Woodhead Publishing Ltd and CRC Press LLC, 1999.

FASHION ACCESSORY DESIGN

FAD 3.2 **No. of Teaching Hrs. 52**

Objectives:

- To make students understand current accessory categories trends, designs, materials selection, production process, costing and marketing aspects

Unit 1 **10 Hrs**

Introduction to Fashion Accessories: Categories for men, women and children, functions and features, inspirations, analyse forecasting reports different sources, accessory trend reports, designing aspects, selection of colours, materials, with relation to clothing line.

Unit 2 **8 Hrs**

History of jewellery from various cultures, gemology and categories of traditional and contemporary jewellery, production and processing procedure, beading techniques with application on earrings, bracelets, and neckpiece, current trends in jewellery.

Unit 3 **8 Hrs**

Designing with leather and fur: Evolution categories, sources, production and processing procedure, design and current trends in leather and fur, laws and regulation for production, marketing and labelling of leather and fur products.

Fashion leather goods: Belts, shoes and socks and shoe accessories, bags, clutches and travel accessories.

Unit 4 **6 Hrs**

History of headgears from various cultures, categories, styles, materials used and current trends. Hair accessories and hair adornments.

Unit 5 **4 Hrs**

Scarves and wraps: Current trends, materials used and style features.

Unit 6 **6 Hrs**

Lifestyle and tech accessories: Sunglasses and readers, materials used and manufacturing process, current trends in sunglasses and readers.

Unit 7 **6 Hrs**

Trends in imitation jewellery: Design, inspirations, production process, compatibility of design concepts between materials used and style characteristics with clothing line.

Unit 8 **4 Hrs**

Major fashion accessory houses, inspirations, product releases, marketing overview.

References:

1. Judith C. Everett , "Guide to Producing a Fashion Show" Fairchild Books, 3rd Revised Edition, 2013.
2. Olivier Gerval, "Fashion Accessories" (Studies in fashion), Firefly Books, 2010.

3. Frings, Gini Stephens, “Fashion: From Concept to Consumer”, Prentice Hall, 9th Edition, 2007.
4. John Peacock, “Shoes: The Complete Sourcebook”, Thames & Hudson Ltd., 2005.
5. John Peacock, “Fashion Accessories: The Complete 20th Century Sourcebook”, Thames and Hudson, 2000.

RETAIL MANAGEMENT

FAD 3.3 **No. of Teaching Hrs. 52**

Objectives:

- To make the students understand retailing as an industry.
- To acquaint the students with knowledge & skills for store operations, retailing marketing & merchandising management functions.

Unit 1 **4 Hrs**

Overview of Retailing Environment, Store Formats – Types of Retailers and types of Ownerships, Elements of Retail Mix, Store Organizations, Retail Market Strategy

Unit 2 **3 Hrs**

Trade area analysis and site selection, Location advantage and disadvantage

Unit 3 **6 Hrs**

Departmentalization, Layout planning and space allocation, Basic Profit Factors – The Relationship of Markup to Profit, Retail pricing & re-pricing

Unit 4 **8 Hrs**

Retail Market structure, retail functions & distribution, channels of distribution, sorting process, relationship between retailers & their suppliers, wholesaling, exclusive distribution, intensive distribution, selective distribution, marketing concepts in retailing, structure of global retail markets & consumers, profile of Indian retail markets

Unit 5 **6 Hrs**

Retail Store Business Plan, profit planning, net profit margins, returns on assets, budgeting decisions, magnitude of various costs, productivity targets, operating expenses

Unit 6 **6 Hrs**

Store operations; Store formats, size & space allocation, operating functions to be performed, personnel utilization, store maintenance, energy management & renovations, inventory management, credit management, computerization, crisis management, insurance

Unit 7 **4 Hrs**

Inventory Methods, Six months buying plans – stock turn, open to buy

Unit 8 **8 Hrs**

Sales promotion techniques, advertising, public relations, personnel selling, publicity, role of salespersons, word of mouth, incremental promotion method, distributed promotion method, setting retail promotion goals.

Unit 9 **3 Hrs**

Customer Service; Loyalty Programmes and Customer Relationship Management

Unit 10 **4 Hrs**

Strategic Profit Model, Retail Mathematics, Retail balance sheets, calculations involving net profit margins, asset turnover, returns on assets, financial leverage, quick ratios, current ratios, collection periods, profits & net worths, cash inflow & cash outflow, productivity, sales to stock ratio.

1. References:

1. Barton A Weitz, "Retail Management" McGraw-Hill Higher Education, 9th Edition, 2013.
2. Barry R Berman, Joel R. Evans, "Retail Management: A Strategic Approach", Prentice Hall, 12th Edition, 2012.
3. Bette K. Tepper, "Mathematics for Retail Buying 6th Edition", Fairchild Books, 6th revised edition, 2008.
4. David Gilbert, "Retail Marketing Management", Financal Times Management, 2nd Edition, 2003.
5. Hasty, Ronald W. "Retail management", New York: McGraw-Hill, 1997.
6. Ghosh, Avijit. "Retail management, Fort worth: Dryden Press, 2nd Edition, 1994.
7. James C. Makens, Robert G. Roe, "Retail management: Satisfaction of consumer needs", Chicago: Dryden, 3rd Edition, 1983.

FASHION DRAPING

FAD 3.4 **16 Practicals of 4 Hrs each**

Objectives:

- To impart in depth knowledge of draping techniques.
- To understand and analyze draping behaviour of different textile materials.

Unit 1 **1**

Introduction to draping: Draping terminology, tools and equipments, dress forms, elements of fabric behaviour, principles and techniques of draping.

Unit 2 **4**

Draping of foundation patterns-Basic bodice, basic skirt / trousers, basic sleeve- Children and adults

Unit 3 **5**

Designing draped garments based on theme using following components with different fabrics
a. Bodice variations- dartless silhouettes, princess shape.
b. Midriffs &Yokes
c. Collars
d. Cuffs
e. Sleeves
f. Pocket
For upper garment, skirts / pants.

Unit 4 **2**

Design, develop and construct an evening gown using draping technique

Unit 5 **4**

Transformational Reconstruction (TR) technique for design and volume. (TR cutting)

ADVANCED TEXTILE AND APPAREL TESTING

FAD 3.5 16 Practicals of 4 Hrs each Objectives:

- To acquaint students with procedures adopted to analyze textile fabrics and apparel for end use performance.

Unit 1 **4**

Determination of fabric tensile characteristics, tearing strength and bursting strength. Seam strength and seam slippage.

Unit 2 **6**

Testing fabrics for stiffness, drape co-efficient, abrasion resistance, pilling resistance, dimensional stability and colour fastness.

Unit 3 **3**

Testing fabrics for moisture properties: moisture management, repellence properties.

Unit 4 **1**

Flammability tests for textile fabrics.

Unit 5 **1**

Assessments of tailorability of fabrics using FAST.

Unit 6 **1**

Objective colour measurement of dyed fabrics.

APPAREL VALUE ADDITION

FAD 3.6 **16 Practicals of 4 Hrs each**

Objectives:

- To introduce and train students on value addition aspects.
- To enable students to learn methods of value addition using different techniques.

Unit 1 **2**

Introduction to value addition techniques through weaves, prints, embroidery and painting techniques

Unit 2 **4**

Develop designs using different types of weave designs, print, painting.

Unit 3 **4**

Developing samples of regional embroideries of India.

Unit 4 **2**

Appliqué, Bead work, Patch work, Cut work, drawn thread work and smocking

Unit 5 **2**

Design and development of samples using metal embroidery

Unit 6 **1**

Dyeing: Tie and dye, Batik, Shibori and their types.

Unit 7 **1**

Market Survey for value addition and surface ornamentation samples and pricing, with respect to value addition, ornamentation and develop a folio.

FASHION ACCESSORY DESIGN AND PRODUCTION

FAD 3.7 16 Practicals of 4 Hrs each Objectives:

- To impart knowledge of fashion accessory materials and handling methods.
- To familiarize students about current fashion accessory making trends.

Unit 1 **2**

Port folio of accessory materials: Beads, stones, fabrics, threads, fasteners.

Unit 2 **3**

Sketching and rendering of belts, gloves, hats, bags and construction of any one.

Unit 3 **6**

Sketching of Indian jewellery: Mughal Jewellery, Thewa, Kundan Jewellery, Temple Jewellery and construction of contemporised design inspired by traditional Indian jewellery.

Unit 4 **2**

Sketching of accessories on women and men croqui (2 each).

Unit 5 **3**

Designing and develop a sample using macramé, crochet, bead work technique

FASHION DESIGN

FAD 3.8 OE **No. of Teaching Hrs. 52**

Objectives:

- To impart advanced knowledge in fashion design.
- To impart knowledge about designing for special categories.

Unit 1 **2 Hrs**

Design Concepts: Elements and principles of design, application of design concepts in fabrics and fashion products.

Unit 2 **6 Hrs**

Couture: Meaning and place in the fashion industry, organization, controlling bodies, International couture, decline and revival of couture, characteristics and specialties.

Unit 3 **6 Hrs**

Ready-to-wear: Definition, origin, evolution of utility clothing, design process, manufacturing techniques, work rooms and studios, factors in the growth of the industry, contribution of various cultures to ready-to-wear industry.

Unit 4 **6 Hrs**

Mass Production: Process, production, sizing, design strategies, lines within a design house, offshore production and new trends.

Unit 5 **6 Hrs**

Designing of apparels for specialty shows: Introduction, need for specialty shows, different categories- Fashion shows, trade shows, collection shows.

Unit 6 **6 Hrs**

Designing for special categories: Infants, maternity, plus-size, old-age, physically challenged.

Unit 7 **8 Hrs**

Designing of intimate apparels: Evolution of styles from antiquity to modern, fibers, fabrics & accessories used, types of intimate apparels, relationship between intimate apparel designs and ready-to-wear designs.

Unit 8 **6 Hrs**

Designing with leather and fur : Materials, production procedures- processing, finishing and apparel production, styles, laws and regulations, marketing and scope.

Unit 9 **6Hrs**

Home fashions: Evolution of designs in home fashions, Categories of home furnishing products - upholstery, table, bed and bath linen, styles, licensing and retailing of home fashions.

References:

1. Gavin Wadddell, “How Fashion works”, Blackwell Publishing, 2005.

2. Jay Diamond, Ellen Diamond, “The World of Fashion”, Fairchild Publication, 3rd Edition, 2002.
3. Frances LetoZangrillo, “Fashion Design for the Plus-size”, Fairchild Publication, 1999.
4. Laver, James, “Costumes & Fashions: A concise history”, Thames & Hudson, 1982.
5. Rubin LG, “The World of Fashion”, Canfield press, 1976.

Semester IV of the PG program or X Semester of M.Sc. (Integrated) Program

CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDIT
					IA	Exam	Total	
FAD 4.1	Functional Textiles & Clothing	Theory	4	3	30	70	100	4
FAD 4.2	Fashion journalism and photography	Theory	4	3	30	70	100	4
FAD 4.3	Management Information Systems	Theory	4	3	30	70	100	4
FAD 4.4	Export Trade & Documentation	Theory	4	4	30	70	100	4
FAD 4.5	Fashion Studio	Practical	4	4	15	35	50	2
FAD 4.6	Portfolio Presentation	Practical	4	4	15	35	50	2
FAD 4.7	Project Work	-	8	Report Evaluation	30 Viva voce	70	100	4

SEMESTER IV or X Semester of the Honours Program

FUNCTIONAL TEXTILES & CLOTHING

FAD 4.1 **No. of Teaching Hours: 52**

Objectives:

- To introduce students to functional aspects of textiles.
- To impart knowledge on manufacture and end use applications of functional clothing and textiles.

Unit 1 **4 Hrs**

Functional Textiles: Market overview, need for functions, properties of textiles for specific functions, global and regional trends in functional textile production, world market trends.

Unit 2 **6 Hrs**

Functional fibres: Introduction, high performance fibers and speciality fibres – classification and important applications. Functional yarns - Introduction, staple and filament yarns.

Functional fabric structures – criteria to select fabric structures for various functional fabrics.

Unit 3 **6 Hrs**

Surface modification for improved functionality: Introduction, types of surface modification, physical and chemical characterization of surface modifications, applications for functional textiles, future trends.

Unit 4 **6 Hrs**

Medical textiles: Introduction, biomaterials for medical textiles, implantable, non implantable, extra corporal, healthcare and hygiene applications of textiles.

Unit 5 **4 Hrs**

Protective textiles: Introduction, thermal, chemical and ballistic protection and their application.

Unit 6 **6 Hrs**

Defense textiles and textile reinforced composites: Military textile materials, water proof breathable, water vapour permeable fabrics, military combat clothing systems, camouflage clothing, composite materials, and applications of textile composites.

Unit 7 **4 Hrs**

Build textiles: Introduction to construction textiles, advanced thermal insulation, two dimensional & three dimensional fibre textile composites, selection and property analysis of fibers and structures.

Unit 8 **6 Hrs**

Nano textiles: Nano science and technology.

Carbon nanotubes and nano applications in textiles and their importance in textile industry.

Unit 9 **6 Hrs**

Functional and smart textiles: Interaction design in smart clothing, specific requirements and applications of sensors, actuators, data processing, storage and communication in intelligent textile assembly, phase change materials, stimuli sensitive materials applications in textiles, wearable electronics and applications.

Unit 10 **4 Hrs**

Eco-functional textiles: Introduction to eco friendly textile materials-green composites.

References:

1. HVJ, "Shape Memory Polymers and textiles", Wood Head Publishing limited, England, 2007.
2. Anand S.C., Kennedy J.F. Miraftab M. and Rajendran S., "Medical Textiles and Biomaterials for Health care", Wood Head Publishing Ltd. England, 2006.
3. Amar K. Mohanty, Manjusri, Lawrence T, "Natural Fibers, Biopolymers and biocomposites" Boca Raton, London, 2005.
4. Xiaoming Tao, "Wearable Electronics and Photonics", The Textile Institute, CRC press, Manchester, 2005.
5. A.R. Horrocks, S.C. Anand, "Handbook of Technical Textiles", Wood Head Publishing Ltd., 2000.

FASHION JOURNALISM AND PHOTOGRAPHY

FAD 4.2 **No. of Teaching Hrs. 52**

Objectives:

- To develop creative fashion photographic approaches among students for thematic fashion article presentation and interpretations.
- To educate fashion journalism methods and currents trends of photography methods and equipments.

Unit 1 **6 Hrs**

Fashion Journalism: History, introduction, elements of fashion journalism, scope of fashion journalism in current fashion world, fashion writers, writing and editing articles, published fashion media, formulation and styling of fashion shoot, fashion critics and fashion reports.

Unit 2 **8 Hrs**

Fashion journalists: Types, researching of fashion trends and conducting interviews, working methods, information gathering methods, tools and techniques used to gather information, reporting styles.

Unit 3 **4 Hrs**

Introduction to fashion journalism media: Fashion magazines, books, lifestyle sections of newspapers, television, online fashion magazines, websites, blogs, and social networks.

Unit 4 **6 Hrs**

Public relationship management: Cordial relationships with fashion industry people-fashion photographers, designers, celebs, models and public relation specialists.

Unit 5 **8 Hrs**

Fashion photography: Types of photography, criteria for selecting camera and lens, working principles of professional cameras and accessories.

Photography techniques and equipment for different fields: Modelling, newspaper, magazines, Occasions: Fashion Shows, fashion fairs.

Unit 6 **6 Hrs**

Lighting techniques: Need, methods, lighting ratio and the effects of soft high key, glamour shots, mood shots, styling and makeup for fashion and glamour photography.

Unit 7 **8 Hrs**

Indoor and Outdoor Photography: Camera, lens and equipment selection, lighting techniques - shooting with natural light, methods used to modify lighting on location, half and full length shots, comparison of Outdoor Photography by with Indoor photography.

Unit 8 **6 Hrs**

Fashion photography trends**:** Photography using digital cameras video photography, image mixing, application of computers in photography- image collage methods, cloning techniques, printing techniques.

References

1. Julie Bradford."Fashion Journalism" Routledge, 2014.
2. Bruce Smith, " Fashion Photography: A Complete Guide to the Tools and Techniques of the Trade", Amphoto Books, Watson Guptill Publication, New York, 2008.
3. Stephen A Dantzig," Lighting Techniques for Fashion and Glamour Photography", Amherst Media, Inc, New York, 2005.
4. John Hedgecoe, "The Book of Photography", DK Publishing Inc., United States, 2005.
5. Billy Pegram, "Fashion Model Photography: Professional Techniques and Images", Amherst Media, 1999.

MANAGEMENT INFORMATION SYSTEMS

FAD 4.3 **No. of Teaching Hrs. 52**

Objectives:

- To equip students with essential knowledge of computers and Management Information system.
- To acquaint students with emerging trends in MIS.

Unit 1 **8 hrs**

Management Information Systems - Need, Purpose and Objectives. Contemporary Approaches to MIS - Information as a strategic resource - Use of information for competitive advantage - MIS as an instrument for the organizational change

Unit 2 **8 hrs**

Information, Management and Decision Making, Models of Decision Making - Classical, Administrative and Herbert Simon's Models, Attributes of information and its relevance to Decision Making - Types of information

Unit 3 **6 hrs**

Information Technology - Definition, IT Capabilities and their organizational impact. Telecommunication and Networks - Types and Topologies of Networks, IT enabled services such as Call Centers, Geographical Information Systems etc.

Unit 4 **6 hrs**

Data Base Management Systems - Data Warehousing and Data Mining

Unit 5 **4 hrs**

Systems Analysis and Design - Systems Development Life Cycle, Alternative System Building Approaches .

Unit 6. **8 hrs**

Decision Support Systems - Group Decision Support Systems, Executive Information Systems - Executive Support Systems - Expert Systems and Knowledge Based Expert Systems, Artificial Intelligence

Unit 7 **8 hrs**

Management Issues in MIS - Information Security and Control, Quality Assurance, Ethical and Social Dimensions, Intellectual Property Rights as related to IT Services / IT Products - Managing Global Information Systems

Unit 8. **4 hrs**

Applications of MIS in apparel industry, Role of information systems in SCM and CRM.
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References:

1. Sadagopan,S. Management Information Systems, PHI Learning Pvt. Ltd, 1997.
2. Jawadekar, W.S., Management Information Systems, , Tata McGraw Hill, 1997.
3. Davis and Olson. Management Information Systems, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2nd Edition 2000.
4. Robert Schultheis, Mary Sumner, Management Information Systems, Tata McGraw Hill, 2008
5. Kenneth C Laudon, Jane P Laudon, Management Information Systems- Managing the digital firm, 7th Ed., Prentice Hall, India 2002.

EXPORT TRADE AND DOCUMENTATION

FAD 4.4 **No. of Teaching Hrs. 52**

Objectives:

- To acquaint students with the nature and scope export trade.
- To familiarize students with the documents involved in foreign trade & processing of an export order.

Unit 1 **4 Hrs**

Introduction to export trade: Nature and scope of export trade, factors influencing export trade, benefits and problems in international trade.

Unit 2 **6 Hrs**

Organizations: Principles of formation, forms of business, proprietorship, partnership, and public / private limited company.

Unit 3 **6 Hrs**

Export firm: Nature of export firm, setting up of an export firm, export licensing, registration formalities - registrations with RBI, EPC, DGFT, commodity boards, income tax and customs authorities.

Unit 4 **6 Hrs**

Export promotional measures: Role of export promotional councils, commodity boards, ECGC, role of commercial banks, establishment & significance of SEZ & EPZ, availing concessions and incentives under various export promotion schemes, duty drawback, subsidies.

Unit 5 **4 Hrs**

Trade blocs: Effects of trade blocs on world trade, major trade blocs – EU, ASEAN and NAFTA.

Unit 6 **4 Hrs**

Export order execution: Steps in export procedure, risks involved in documentation procedure, customs clearance.

Unit 7 **6 Hrs**

Letter of credit: Definition and processing of letter of credit, principles and types of letter of credit, checklist, advantages and disadvantages of letter of credit.

Unit 8 **4 Hrs**

Export documents: Principal & auxiliary documents, steps involved in availing export documents.

Unit 9 **4 Hrs**

Export payments: Pre-shipment and post shipment finances, negotiation of documents.

Unit 10 **4 Hrs**

Export risk management, export barriers- tariff and non tariff barriers.

Unit 11 **4 Hrs**

Foreign exchange market, EXIM policies, FEMA and FERA.

References

1. R.K.Jain, " Foreign Trade Policy & Handbook of Procedures with Forms, Circulars & Public Notices (Vol.1) 2009-2014" 19th Edition, 2013.
2. R.K.Jain, " CUSTOMS TARIFF of India 2013-14", 55th Edition, 2013.
3. Sandeep M. Bhatnagar, " Export Oriented Units - Law and Procedures", 14th Edition, 2013.
4. Warren J. Keegan, "Global Marketing", Prentice Hall PTR, 7th Edition, 2012.
5. Thomas E. Johnson and Donna L. Bade, "Export/Import -Procedures and Documentation" Amacom, 4th Edition, 2010.
6. Donnellan, John, "Merchandise Buying and Management", Fairchild Books, 3rd Edition, 2007.

FASHION STUDIO

FAD 4.5 **16 Practicals of 4 Hrs each**

Objectives:

- To acquaint students with creative writing skills in fashion.
- To enable students to gain first hand knowledge in visual merchandising.

Unit 1 **1**

Development of writing skills using 5Ws and 1H in creative fashion writing.

Unit 2 **3**

Fashion Journalism: Review of fashion columns and photographs from magazines, newspapers and periodical content from historical and modern sources. Design an article using the above on current fashion trends

Unit 3 **4**

Photo Journalism: Use of cartoons, pictures and comic strips to creating brand logo, Labels and fashion communication tools-brochures, pamphlets, handouts and other promotional tools.

Unit 4 **3**

Use of photographic tools and softwares to create fashion communication brochures, pamphlets, handouts and other promotional tools (Theme based).

Unit 5 **2**

Development of logos and fashion labels based on theme.

Unit 6 **3**

Visual merchandising: Use of visual merchandising tools, create theme based display for sales promotion for the designed product from apparel, jewellery, accessory or home interior products.

PORTFOLIO PRESENTATION

FAD 4.6 **16 Practicals of 4 Hrs each**

Objectives:

- To make students understand the importance of portfolios and presentations.
- To impart skills for portfolio presentations.

Unit 1 **1**

Introduction to portfolio: Organization, content and customer focus.

Unit 2 **4**

Presentation formats: Inspiration/mood board, colour, board, swatch board, client board and figure boards – different styles of presentation of each kind of board.

Unit 3 **3**

Flats: Different techniques of drawing flats from croqui and body silhouettes, knit flats and free hand flats, Illustrative and Production flats, Specs- Generation of spec sheets.

Unit 4 **5**

Presentation boards: Men‟s wear, Women‟s wear, Children‟s wear with accessories.

Unit 5 **3**

Compilation & Presentation of a digital portfolio and fashion show production.

PROJECT WORK

FAD 4.7 **8 Hrs/week**

Students have to undertake project in the relevant areas of apparel manufacturing. At the end of the third semester, students have to submit the project proposal for approval. The project work shall be carried out during the IV Semester either in the Department or at an approved industry / organisation under the supervision of the guide. Three copies of the project reports are to be submitted to the Department through the guide before the commencement of IV Semester examination.