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BENGALURU CITY UNIVERSITY

**SYLLABUS FOR MASTER OF SCIENCE
(Fashion & Apparel Design)**

(SEMESTER SCHEME)

2021-22 onwards

BENGALURU CITY UNIVERSITY

Proceedings of the Board of Studies meeting in Apparel Technology (PG), held on 18th October 2021 at 11.00 AM in the Department of Apparel Technology & Management, Bengaluru City University, Bangalore.

The Chairperson welcomed the members and the agenda was taken up for discussion.

1. Approval of revised scheme and syllabus of M.Sc. (Fashion and Apparel Design) from the year 2021-22 onwards.

The members deliberated on the revised scheme and syllabus of I, II, III and IV Semesters M.Sc. (Fashion & Apparel Design) course. After thorough discussion and after incorporating the necessary changes the Board unanimously approved the revised scheme and syllabus of all the four semesters to be implemented from the academic year 2021-22.

2. Approval of panel of Examiners for the year 2021-22

The panel of examiners for M.Sc. (Fashion & Apparel Design) for the year 2021-22 was placed for consideration and after deliberations the same was approved.

3. Consideration of the regulation, scheme and syllabus of the new course M.Sc. (Interior Design & Decoration).

The draft regulation, scheme and syllabus for the new course M.Sc. (Interior Design & Decoration) proposed by NITTE Institute of Fashion Technology & Interior Design was placed for consideration. The Board after deliberations resolved to recommend for institution of the course M.Sc. (Interior Design & Decoration) as it would help the students graduating with B.Sc. (Interior Design & Decoration) for pursuing post-graduation in the same discipline. After deliberations the Board resolved to approve the regulations, scheme and syllabus of I, II, III & IV Semesters M.Sc. (Interior Design & Decoration) programme.

The meeting concluded with the Chairman thanking all the members for their co-operation.

Members Present

Dr. Jayashree Venkatesh

Jayashree Venkatesh 18/10/2021

Smt. Vidhya R

Vidhya R
18/10/21

Dr. HS Hanumantha Naik

HS Hanumantha Naik 18/10/2021

Dr. Naveen V Padaki

Naveen V Padaki
18/10/21

Dr. Yashodha Kumari

Approval taken online

Mr. Venu Nataraj (Co-opt Member)

Venu Nataraj
18/10/21

Mrs. Sneha Manjunath (Co-opt Member)

Sneha Manjunath
18/10/21

Dr. R. Sudhakar (Chairperson)

R. Sudhakar
18/10/2021



M.Sc. (FASHION & APPAREL DESIGN) SYLLABUS
(I TO IV SEMESTERS)
(REVISED)

2021-2022 onwards

M.Sc. (FASHION & APPAREL DESIGN) SCHEME (REVISED)

Semester I								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDITS
					IA	Exam	Total	
FAD 1.1	Textile Process & 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 1.9 Soft Core	Knitwear Design and Technology	Theory	3	3	30	70	100	2
							700	26

Semester II								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDITS
					IA	Exam	Total	
FAD 2.1	Chemical Processing & Finishing	Theory	4	3	30	70	100	4
FAD 2.2	Fashion Accessory Design	Theory	4	3	30	70	100	4
FAD 2.3	Apparel Technology II	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	Apparel Value Addition	Practical	4	4	15	35	50	2
FAD 2.8	Fashion Accessory Design & Production	Practical	4	4	15	35	50	2
FAD 2.9 Soft Core	Sustainable Clothing	Theory	3	3	30	70	100	2
							700	26

Semester III								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDITS
					IA	Exam	Total	
FAD 3.1	Apparel Quality Control and Standards	Theory	4	3	30	70	100	4
FAD 3.2	Apparel Costing	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	Internship	-	8	Report Evaluation	30 Viva-voce	70	100	4
FAD 3.7	Open Elective	Theory	4	3	30	70	100	4
							600	24

Internship shall be carried out after II Semester examination and the viva voce and the internship report shall be evaluated during the III Semester practical examinations.

Semester IV								
CODE	Subjects	Paper Theory/ Practical	Instruction Hrs/week	Duration of Exam (Hrs)	Marks			CREDITS
					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	Enterprise Resource Planning	Theory	4	3	30	70	100	4
FAD 4.4	Export Trade & Documentation	Theory	4	3	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
							600	24

SEMESTER I

FAD 1.1 TEXTILE PROCESS AND PRODUCTS

No. of Teaching Hours: 52

Objectives:

- To familiarise students with the process of yarn and fabric manufacturing.
- To acquaint students with the requisite knowledge of textile process to suit the product and fields of application.

Unit 1

6 Hrs

Yarn manufacturing process: 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. Manufacturing process of linen, wool, silk. Understanding correlation of various functional fibers and filaments with special reference to their technical properties.

Unit 2

6Hrs

Features of various methods of filament yarn production, controls and post-spinning requirements. Study of special uses of filament yarn. Texturisation.

Unit 3

10 Hrs

Controls in shuttle and shuttle- less weaving machines. Yarn quality requirements for weaving domestic and export products. Understanding the major characteristics of various fabric types (woven and knits) in relation to their end use/application.

Unit 4

8 Hrs

Introduction to dobby and jacquard woven products. 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 5

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 6

8Hrs

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 repellence and water absorption, factors affecting liquid – moisture transmission, correlation between air permeability and other factors.

Unit 7

4 Hrs

Fabric mechanical properties and tactile pressure sensations: Fabric prickliness, itchiness, 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

- Hayavadana J, “Advanced Woven Fabric Design”, Woodhead Publishing India Pvt. Ltd., 2018.
- Karthik T, Prabhakaran C, and Rathinamoorthy R, “Non-woven - Process, Structure, Properties and Applications”, Woodhead Publishing India Pvt. Ltd., 2016.
- Li Y, “The Science of Clothing Comfort”, Textile Progress, Vol.31, No.1/2, The Textile Institute, 2001.
- Lord P R, “Hand book of yarn production: Technology, Science and Economics”, Woodhead Publishing, 2003.
- Mukesh Kumar Singh, “Industrial Practices in Weaving Preparatory”, Woodhead Publishing India Pvt. Ltd., 2016.
- Ray S C, “Fundamentals and Advances in Knitting Technology”, Woodhead Publishing India Pvt. Ltd., 2012.
- Sabit Adanur, “Handbook of Weaving”, Technomic Publishing Co., Inc., India, 2001.

FAD 1.2 APPAREL DESIGN

No. of Teaching Hours: 52

Objectives:

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

Unit 1

6 Hrs

Pattern making techniques, principles and applications. Garment fit analysis related to fabric type, grain used, pattern alteration methods. Theory of grading - Systems of grading (2 D & 3D) & techniques of grading (draft & track), suppression grading.

Unit 2

6Hrs

Concept of anthropometry, measurements for pattern design - Individual and standard measurements, measuring techniques - individual, dress forms, measurements for fit and pattern size.

Unit 3

6 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 4

6 Hrs

Design Concepts: Elements and principles of design, application of design concepts in fabrics and fashion products. Fitting strategies, fit components, fit evaluation, 3 fitting checks and custom made clothing, commercial patterns.

Unit 5

8 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.

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 6

10Hrs

Stitching strategies: Stitch classification, stitch class 100 – 600. Advantages and disadvantages of each stitch and its application, comparative analysis, strength, elasticity, durability, appearance of each stitch.

Seam types, seam definition, seam dimension. ASTM standards, superimposed seam, bound seam, flat seam, lapped seam, edge finishing, ornamentation, seam grin, seam strength, seam pucker.

Unit 7

10 Hrs

The mechanics of fashion: Role of fashion designers in fashion industry. The fashion design process adapted by designers. Role of buying houses, product development process(PD) adopted by brands, need for PD, product life cycle, product identity, product differentiation, people involved in process of PD and their roles.

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

References

- Armstrong Helen Joseph, “Pattern Making for Fashion Design”, 5th edition, Prentice Hall, 2013.
- Gavin Waddell, “How Fashion works”, Blackwell Publishing, 2013.
- Connie Amaden-Crawford, “Fashion Sewing: Advanced Techniques”, Fairchild Books India, 2019.
- Harold Carr, Barbara Latham, “The Technology of Clothing Manufacture”, John Wiley & Sons, 1994.
- Helen Goworek, “Fashion Buying”, Wiley-Blackwell, 2nd edition, 2007.
- Jacob Solinger – Apparel Manufacturing Handbook: analysis, principles, and practice' 2nd Edition, Bobbin Blenheim Media Corp, 1988
- Rathinamoorthy R, R Surjit, “Apparel Merchandising”, Woodhead Publishing, 1st edition, 2017.
- Ruth E Glock & Grace I Kunz – Apparel Manufacturing- Sewn Product Analysis, Pearson Education Inc., 2005
- Yu Wing Man, “Advances in Women’s Intimate Apparel Technology”, Woodhead Publishing, 1st edition, 2016.

FAD 1.3 APPAREL TECHNOLOGY I

No. of Teaching Hours: 52

Objectives:

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

Unit 1

10 Hrs

An overview of Indian Apparel Industry: Organizational structure and sectors of the garment industry, apparel product types, developments in recent years, opportunities and challenges in Indian apparel sector, Global scenario and future trends in apparel manufacturing.

Unit 2

12 Hrs

Innovation in apparel product development, Three-dimensional (3D) body scanning, computerized pattern making, grading, marker preparation and patterns cutting. 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 3

6 Hrs

Fabric spreading technology: Forms of spreading for different types of fabrics, lay types. Advanced spreading machines: Semi-automatic and automatic-programmable spreading machine - Automatic turntable spreader, Tubular knit fabric spreader, Automatic rolling rack.

Unit 4

8 Hrs

Cutting and fusing technology: Cutting machines and its working principle, recent advancements in cutting, working environment and safety measures. Fusing machines, fusing materials, components of fusing, types of resin coating & its applications for various apparel products.

Unit 5

8 Hrs

Advanced industrial sewing machines, applications and working principles - Computer controlled and multiprogramming sewing machines used for attaching pockets, belt loops, buttons, edge control, welting, sleeve setting, texture designing, serging and work aids.

Unit 6

8 Hrs

Pressing and packing process: Steam boilers, pressing tables, machinery and equipment, types of folds, folding equipment and accessories. Warehousing - assortment and storage methods, packing methods, and labelling considerations for shipment by air and sea, packing marks.

References

- Gerry Cooklin, “Garment Technology for Fashion Designers”, John Wiley & Sons, 2008.
- Gerry Cooklin, “Introduction to Clothing Manufacturers”, Blackwell Publishing, 2nd Edition, 2006.
- Harold Carr, Barbara Latham, “The Technology of Clothing Manufacture”, Blackwell publishing, 4th edition, 2008.
- Jacob Solinger – Apparel Manufacturing Handbook: analysis, principles, and practice' 2nd Edition, Bobbin Blenheim Media Corp, 1988
- Jane Alvarado, “Computer Aided Fashion Design Using Gerber Technology”, Fairchild Books, 2018.
- Rajkishore Nayak, Rajiv Padhye, “Automation in Garment Manufacturing”, Woodhead Publishing, 1st edition, 2017.
- Rajkishore Nayak, Rajiv Padhye, “Garment Manufacturing Technology”, 1st Edition, Woodhead Publishing, May 2015.
- Rathinamoorthy R, Surjit R, “Apparel Machinery and Equipments”, Woodhead Publishing India Pvt. Ltd., 2015.
- Ruth E Glock & Grace I Kunz – Apparel Manufacturing- Sewn Product Analysis, Pearson Education Inc., 2005.
- Sumithra M, “Advanced Garment Construction Guide”, Woodhead Publishing India Pvt. Ltd., 2020.

FAD 1.4 RESEARCH METHODOLOGY

No. of Teaching Hours: 52

Objectives:

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

Unit 1

6 hrs

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

Unit 2

10 hrs

Research problem: 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

8 hrs

Sampling techniques: Steps in sampling, types of sample design - probability and non-probability sampling designs, size of sample, sampling errors, concept of measurements and scaling, scaling techniques, characteristics of sound measurement.

Unit 4

8 hrs

Sources of data: Primary v/s secondary data, sources of primary data – observation, interview method, questionnaire construction and design. Processing of research data: Editing, coding, classification and tabulation.

Unit 5

10 hrs

Analysis of research data, 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, Statistical packages.

Unit 6

10 hrs

Report writing: Objectives and function of report, types of reports- 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.

References

- Ingrid E. Mida, Alexandra Kim, “The Dress Detective: A Practical Guide to Object-Based Research in Fashion”, Bloomsbury Visual Arts, 2019.

- Kothari CR, “Research Methodology : Methods And Techniques”, New Age International Publishers, 2019.
- Ranjit Kumar, “Research Methodology”, Sage Publishing, 4th edition 2014.
- Uwe Flick, “Introducing Research Methodology: A Beginner's Guide to Doing a Research Project”, Sage Publications India Private Limited, 2nd edition, 2017.
- Judy Zaccagnini Flynn, Irene M Foster, “Research Methods for the Fashion Industry”, Fairchild Publications, 1st edition, 2009.
- Simon Seivewright, Richard Sorger, “Research and Design for Fashion”, Bloomsbury Academic, 2019.

FAD 1.5 TEXTILE PROCESS AND PRODUCTS

16 Practicals of 4 Hrs each

Unit 1 Yarn test for its quality- Yarn unevenness, Hairiness, Strength.	2
Unit 2 Collection of yarn samples with associated products.	2
Unit 3 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.	4
Unit 4 Structural analysis of woven and knitted fabrics (10 types).	4
Unit 5 Assessment of functional properties of fabrics-water vapour permeability, air permeability, wicking.	4

FAD 1.6 DESIGN METHODOLOGY

16 Practicals of 4 Hrs each

Unit 1

4

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

Unit 2

6

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 (any 5)

Unit 4

2

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

FAD 1.7 GARMENT CONSTRUCTION I

16 Practicals of 4 Hrs each

Unit 1	2
Application of dart manipulation on dress foundation block.	
Unit 2	2
Lining, facing, binding.	
Unit 3	4
Principles of Contouring, Development of women's contoured dress block.	
Unit 4	8
Designing and stitching of halter neck/off shoulder dress with style variations (2 garments).	

FAD 1.8 COMPUTER AIDED DESIGN

16 Practicals of 4 Hrs each

Unit 1

2

Introduction to CAD: Pattern design system (PDS) - storage areas, standard measurement units, and rule table set up. Learning drafting tools - Creating points, notches, lines and pieces.

Unit 2

3

Learning modification and editing tools: Adding darts and dart manipulation, fullness - adding flare, pleats and gathers, combining and mirroring patterns, splitting and shaping patterns, adding seam allowances, naming and saving the patterns.

Unit 3

8

Digitizing, drafting, adaptation and grading of patterns: Construction of basic blocks for men and women, adaptation of patterns according to styling requirement.

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

Unit 4

3

Marker making and Plotting: Marker making procedure - fabric lay plan, fabric cuttable width calculation, design repeat calculation, marker efficiency and plotting process.

FAD 1.9 KNITWEAR DESIGN AND TECHNOLOGY

No. of Teaching Hours: 39

Objectives:

- To impart knowledge on knit structures and its applications.
- To acquaint students on various knitwear categories and knitwear apparel production.

Unit 1

6 Hrs

Introduction to knitted fabrics. Difference between knits and wovens, Indian knitting industry - past, present and future. Introduction to knitted apparels: Apparel categories - Men, women and children - casual, formal, sportswear, sweaters and hosiery.

Unit 2

5 Hrs

History of knitting, hand knitting, terms used in knitting, weft knitting & warp, parts and functions of weft knitting and warp knitting - calculations used in knitting, dyeing and finishing of knit fabrics.

Unit 3

5 Hrs

Yarns used for knitting and knit structures - Cotton, wool, nylon, acrylic, high bulk acrylic, spandex. Properties of knits for apparel production - stretch and shrinkage factors.

Unit 4

5 Hrs

Wefts knit fabric structures – single jersey or plain, rib, purl, interlock – knit float - tuck and stitch structures - designing of weft structures. Warp knit fabric structures – Underlap, overlap, closed lap and open lap stitches.

Unit 5

6 Hrs

Knitwear production - Machineries: Flat bed, circular & stock knitting machines, latest knitting machines, warp and weft 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, precautions in apparel production, knitted fabric defects.

Unit 6

7 Hrs

Knitted garment manufacture and quality aspects: Knit wear garment designs and developments, cutting, stitching, finishing. 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 7**5 Hrs**

Introduction to knitwear designing: Factors influencing knitwear designing, fashion as applied to knitwear. 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

- Gokarneshan N, “Technology of Knit Spacer Fabrics”, Woodhead Publishing India Pvt. Ltd., 2020.
- Juliana Sissons, “Knitwear: An Introduction to Contemporary Design”, Bloomsbury Visual Arts, 2018.
- Ray, S C “Fundamentals and Advances in Knitting Technology”, Woodhead Publishing India Pvt. Ltd., 2012.
- Sandy Black, “Knitwear in Fashion”, Thames and Hudson Publication, 2005.
- Spencer, D J “Knitting Technology: A Comprehensive Handbook and Practical Guide”, Woodhead Publishing, 2001.
- Terry Brackenbury, “Knitting Clothing Technology”, Blackwell Publishing, 2005.

SEMESTER II

FAD 2.1 CHEMICAL PROCESSING & FINISHING

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

6Hrs

Preparatory processes: Desizing, Scouring, Bleaching, Mercerization.

Application of enzymes in processing: Mechanism of enzyme reactions – bio scouring bio-bleaching, bio-polishing and the other combined processes.

Unit 2

12Hrs

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

Unit 3

6 Hrs

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

Unit 4

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 5

6 Hrs

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

Unit 6

8Hrs

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

Unit 7

6Hrs

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

- Chakraborty, J N “Fundamentals and Practices in Colouration of Textiles”, Woodhead Publishing India Pvt. Ltd., 2nd edition, 2014.
- Chrítie R., “Environmental aspects of textile dyeing”, Woodhead Publishing Ltd, UK, 2007.
- Mahapatra N N, “Textile Dyeing”, Woodhead Publishing India Pvt. Ltd., 2018.
- Mahapatra N N, “Textile Dyes”, Woodhead Publication Pvt., Ltd., 2016.
- Mathews Kolanjikombil, “Pretreatment of Textile Substrates”, Woodhead Publishing India Pvt. Ltd., 2016.
- Vigneswaran C, Ananthasubramanian M, Kandhavadiu P, “Bioprocessing of Textiles”, Woodhead Publishing India Pvt. Ltd., 2014.

FAD 2.2 FASHION ACCESSORY DESIGN

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

10 Hrs

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

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

Unit 5

6 Hrs

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

Unit 6

6 Hrs

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

Unit 7

4 Hrs

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

References:

- Frings, Gini Stephens, "Fashion: From Concept to Consumer", Prentice Hall, 9th Edition, 2007.
- John Peacock, "Fashion Accessories: The Complete 20th Century Sourcebook", Thames and Hudson, 2000.
- John Peacock, "Shoes: The Complete Sourcebook", Thames & Hudson Ltd., 2005.
- Judith C. Everett, "Guide to Producing a Fashion Show" Fairchild Books, 3rd Revised Edition, 2013.
- Olivier Gerval, "Fashion Accessories" (Studies in fashion), Firefly Books, 2010.

FAD 2.3 APPAREL TECHNOLOGY II

No. of Teaching Hours: 52

Objectives:

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

Unit 1

8Hrs

Introduction to core concepts of apparel production: Evolution of industrial engineering, mass production concepts and standardization of sizing, scope of industrial engineering in global perspective, IE interface with apparel production, emerging trend in apparel production process, Efficiency, performance, capacity, utilisation calculations.

Unit 2

8Hrs

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 equipment.

Unit 3

8 Hrs

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

Unit 4

8Hrs

Work study and line planning: Method study and work measurement - tools and techniques, charts and diagrams, principles of motion economy, ergonomics, SAM calculations. Line planning - for apparel types, order quantity, lead time. Calculation of factory efficiency, Operator and machine requirement planning and calculations. Innovative trends - IT applications in capturing motion economy and time measurement.

Unit 5

8Hrs

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

Unit 6

6 Hrs

Operator training: Performance appraisal (PA), classification of sewing operators, need based training-primary and secondary training, training modules, multi skilled operator development, Criteria for PA, techniques of PA, employee turnover, absenteeism, attrition and retention, industrial hygiene and safety standards.

Unit 7**6 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, takt time calculation, root cause analysis.

References

- Gordana Colovic, “Management of Technology Systems in Garment Industry”, Woodhead Publishing India Pvt. Ltd., 2011.
- Gordana Colovic, “Ergonomics in the Garment Industry”, Woodhead Publishing India Pvt. Ltd., 2014.
- Gordana Colovic, “Strategic Management in the Garment Industry”, Woodhead Publishing India Pvt. Ltd., 2012.
- Jacob Solinger – Apparel Manufacturing Handbook: analysis, principles, and practice' 2nd Edition, Bobbin Blenheim Media Corp, 1988
- Purushothama B, “Handbook of Managing Apparel Production and Quality”, Woodhead Publishing India Pvt. Ltd., 2019.
- Ramesh Babu V, “Industrial Engineering in Apparel Production”, Woodhead Publishing India Pvt. Ltd., 2nd edition, 2012.
- Ruth E Glock, Grace I Kunz, “Apparel Manufacturing: Sewn Product Analysis”, Pearson/Prentice Hall, New Jersey, 4th edition, 2005.

FAD 2.4 FASHION MERCHANDISING AND MARKETING

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 6 Hrs

Introduction to merchandising: Evolution, merchandising types -retail merchandising, production merchandising, merchandising in buying house, basic functions of merchandising, 6 R's of fashion merchandising, merchandising technology, merchandiser's key responsibilities.

Unit 2 6 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 8 Hrs

Market Research: Research types, research objectives, developing research plan - consumer behaviour, target market and market segmentation. Data source and collection methods, data analysis, presenting findings. 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

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 5 10 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 6 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 7

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:

- David Shaw, Dimitri Koumbis, “Fashion Buying: From Trend Forecasting to Shop Floor”, Fairchild Books India, 2018.
- Doris H Kincade, “Merchandising of Fashion Products”, Pearson Education, 2011.
- Gaynor Lea-Greenwood, “Fashion Marketing Communications”, Wiley Blackwell, 2014.
- Grace I. Kunz, “Merchandising: Theory, Principles, and Practice”, Fairchild Books, 3rd Edition, 2009.
- Jeremy A. Rosenau, David L. Wilson, “Apparel Merchandising - The Line Starts Here”, Fairchild Books, 3rd Edition, 2006.
- Mike Easey, “Fashion Marketing”, Wiley Publication, 3rd edition, 2008.s
- Ramesh Babu V, Arunraj A, “Fashion Marketing Management”, Woodhead Publishing India Pvt. Ltd., 2019.
- Rathinamoorthy R, Surjit R, “Apparel Merchandising”, Woodhead Publishing India Pvt. Ltd., 2017.

FAD 2.5 CHEMICAL PROCESSING & FINISHING

16 Practicals of 4 Hrs each

Unit 1

4

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

Unit 2

8

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

Unit 3

2

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

Unit 4

2

Printing: Printing of cotton by direct technique.

FAD 2.6 GARMENT CONSTRUCTION II

16 Practicals of 4 Hrs each

Unit 1	3
Development of basic Jacket block for men using flat pattern and draping technique.	
Unit 2	8
Design and construct a jacket and develop a specification for the same.	
Unit 3	1
Analyse the constructed garments using standard methods.	
Unit 4	2
Garment quality test for dimensions, stitches, seam appearance, seam strength, seam slippage.	
Unit 5	2
Garment accessory tests: Buttons impact and compression tests, zippers test, hooks and loop fastener tests.	

FAD 2.7 APPAREL VALUE ADDITION

16 Practicals of 4 Hrs each

Unit 1 **3**
Theme based conceptualization, illustration, rendering of apparel and accessory for product development.

Unit 2 **4**
Surface value addition technique: Prints, embroidery and painting technique from regional arts of India.

Unit 3 **4**
Structure and Texture development and its application for designing apparel: Patch work, cutwork, drawn thread work, bead work, metal work.

Unit 4 **2**
Structure development for apparel: Weaves, knits, smocking, macrame, crochet.

Unit 5 **3**
Dyeing technique and its application for designing apparel: Tie and dye, batik, shibori.

FAD 2.8 FASHION ACCESSORY DESIGN AND PRODUCTION

Practicals of 4 Hrs each

Unit 1

2

Market survey: Consumer behaviour patterns on fashion accessory trend and understanding trend and inspiration: Bags, footwear, belts, watches, eyewear, fashion jewellery. Develop a digital portfolio of accessory making materials.

Unit 2

8

Theme based design conceptualization and construction.

- Fashion Accessory
- Fashion Jewellery

Unit 3

5

Accessory and jewellery making techniques: Leather accessory, thread work, bead work, crochet, macramé, paper quilling, clay jewellery making. (Develop a sample for each technique)

Unit 4

1

Evaluation of the designed products.

FAD 2.9 SUSTAINABLE CLOTHING

No. of Teaching Hrs. 39

Objectives:

- To acquaint students with the concept of sustainability and its relevance in textile and fashion industry.
- To impart knowledge about eco-friendly processes, products and circular economy.

Unit 1

8 Hrs

Introduction to eco-friendly and sustainable approaches to fashion textiles: Sustainable development goals for the textile and fashion industry. Overview of textile industry and sustainability practices for environmental, social and economic impacts across the textiles and fashion industry.

Unit 2

8 Hrs

Sustainable textiles: Cotton-organic, naturally coloured, bast fibre based -hemp, flax, jute, ramie, wool, silk, Recycled - Polyester.
Standards and certification: GOTS, Global Recycle Standard, Responsible wool standard, Oeko-tex, SA 8000, Fair Trade, WRAP.

Unit 3

8 Hrs

Regulations and recommendations for using chemicals, raw materials & waste handling for sustainable textiles & clothing. Red listed textile chemicals, their sources, recommendations and remedial measures. Environmental impact audit for pollution control, toxicology of textile dyes and chemicals, eco-parameters and testing of various toxic chemicals and dyes. Reduction of carbon footprints and water foot print in textile processing.

Unit 4

6 Hrs

Eco-friendly garment processing: Modern approaches to eco-friendly wet processing of woven and knitted garments. Washing and processing of denims using eco-friendly methods. Use of enzymes and natural dyes.

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. Ethical, standard practices for sourcing of sustainable fashion clothing and accessory.

Unit 6

5 Hrs

Manufacturing rights: Ethical and environmental issues relating to textiles and fashion industry. Concept of circular economy in textile and apparel industry.

References:

- Christie R M, "Environmental aspects of textile dyeing", Woodhead Publishing Ltd, UK, 2007.

- Mahapatra N N, “Textile and Environment”, Woodhead Publishing India Pvt. Ltd., 2015.
- Parthiban M, Srikrishnan M R, Kandhavadi P, “Green Apparels”, Woodhead Publishing India Pvt., Ltd., 2019.
- Parthiban M, Srikrishnan M R, Kandhavadi P, “Sustainability in Fashion and Apparels”, Woodhead Publishing India Pvt. Ltd., 2017.
- Richard Blackburn, “Sustainable textiles: Life cycle and environmental impac”, Woodhead Publishing Ltd, UK, 2009.
- Subramanian Senthilkannan Muthu, “Fast Fashion, Fashion Brands and Sustainable Consumption”, Springer, 2019.

SEMESTER III

FAD 3.1 APPAREL QUALITY CONTROL AND STANDARDS

No. of Teaching Hrs. 52

Objectives:

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

Unit 1

8 Hrs

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: 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.

Role of quality in Sampling and pre-production – types of samples, pattern making, grading, preproduction meeting and pilot run.

Unit 3

8 Hrs

Eco management of textile and apparel industry: Global scenario, eco textiles, eco standards and certifications - ISO 14001, Eco-mark, Oeko Tex 100, GOTS.

Unit 4

12 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, antimicrobial.

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

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.

Unit 6

6 Hrs

Labelling: Introduction, labelling parameters, fibre content, care labelling and flammability, wash care labels, labelling systems, Regulations for labeling parameters, Eco-labelling.

Product safety- Product safety laws, Product recalls.

Unit 7**4 Hrs**

Inspection: Inline, Midline and end of line inspection, Key Inline checkpoints for standards Garment Types. Final audits-Final inspection report, statistical sampling, application of AQL, Zoning of garments and classification of defects.

References

- Amutha K, “A Practical Guide to Textile Testing”, Woodhead publishing India Pvt. Ltd., 2016.
- David H, “ISO 9000 Quality System Handbook”, Butterworth publishing, New Delhi, 2006.
- Juran J M and Gryna, F M, "Quality Planning and Analysis - From Product Development through Use", Tata McGraw Hill Publishing Limited, New Delhi, 2001.
- Pradeep V Mehta, “Managing Quality in Apparel Industry”, NIFT publication.
- Purushothama B, “Effective Implementation of Quality Management Systems”, Woodhead Publishing India Pvt. Ltd., 2010.
- Purushothama B, “Implementing ISO 9001:2015”, Woodhead Publishing India Pvt. Ltd., 2015.
- Saville, B.P. “Physical testing of textiles”, Woodhead Publishing Ltd and CRC Press LLC, 1999.
- Subrata Das, “Quality Characterisation of Apparel”, Woodhead Publishing India Pvt. Ltd., 2nd edition, 2019.
- Subrata Das, “Product Safety and Restricted Substances in Apparel”, Woodhead publishing India Pvt. Ltd., 2nd edition, 2016

FAD 3. 2 APPAREL COSTING

No. of Teaching Hours: 52

Objectives:

- To familiarize students with apparel costing methods and techniques.
- To provide an insight into apparel pricing and budgeting process

Unit 1

8 Hrs

Cost accounting: Classification of cost elements - direct and indirect costs. 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 costs.

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:

- Andrea Kennedy, Andrea Reyes, Francesco Venezia, “Apparel Costing”, Bloomsbury Visual Arts, 2020.
- Bhabatosh Banerjee, “Cost Accounting: Theory and Practice”, Prentice Hall India Learning Private Limited, 2006.
- Edward Blocher, David Stout, Gary Cokins, “Cost Management: A Strategic Emphasis”, McGraw-Hill Education, 2009.
- Michael Maher, “Fundamentals of Cost Accounting”, McGraw-Hill Education, 2013.
- Nathalie Evans, Michael Jeffrey, Susan Craig, “Costing for the Fashion Industry”, Bloomsbury Visual Arts, 2020.
- Ronald Hilton, Michael Maher, Frank Selto, “Cost Management: Strategies for Business Decisions”, McGraw-Hill Education, 2005.

FAD 3.3 RETAIL MANAGEMENT

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

10 Hrs

Overview of Retailing Environment: Evolution of retail, retail scenario in India, emerging trends in retailing, types of retailers and ownerships, structure of global retail markets and consumers, profile of Indian retail markets, retail functions & distribution channels.

Unit 2

12 Hrs

Retail Store: Store format types, trade area analysis and site selection for store formats, location advantage and disadvantage. Departmentalization, layout planning and space allocation, retail store operations - personnel utilization, visual merchandising and displays, store maintenance, energy management & renovations, credit management, crisis management, insurance.

Unit 3

12 Hrs

Retail Store Business Plan: Elements of retail mix, retail market strategy, basic profit factors - profit planning, the relationship of markup to profit, net profit margins, returns on assets, budgeting decisions, productivity targets, operating expenses, trade discount, pricing and repricing, inventory methods, six months buying plans - stock turnover, open to buy.

Unit 4

8 Hrs

Retail sales techniques and promotions: Advertising, public relations, personnel selling, publicity, retail selling skills, role of salespersons, word of mouth, incremental promotion method, distributed promotion method.

Unit 5

4 Hrs

Customer Service: Understanding customer expectations, emerging trends in retail services – green retailing, loyalty programmes, customer relationship management - significance of relationship marketing, benefits and challenges of CRM.

Unit 6

6 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 & networths, cash inflow & cash outflow, productivity, sales to stock ratio.

References:

- Barry R Berman, Joel R. Evans, “Retail Management: A Strategic Approach”, Prentice Hall, 12th Edition, 2012.
- Gibson B Vedamani, “Retail Management”, Pearson Education, 5th edition, 2017.

- Doug Stephens, “The Retail Revival: Reimagining Business for the New Age of Consumerism” , Wiley; 1st edition, 2013.
- James C. Makens, Robert G. Roe, “Retail management: Satisfaction of consumer needs”, Chicago: Dryden, 3rd Edition, 1983.
- Jochen Strähle, “Green Fashion Retail”, Springer, 1st edition, 2017.
- Tsan-Ming Choi, Edwin Cheng T C, “Sustainable Fashion Supply Chain Management: From Sourcing to Retailing”, Springer, 1st edition, 2015.

FAD 3.4 FASHION DRAPING

16 Practicals of 4 Hrs each

Unit 1	1
Introduction to draping: Draping terminology, tools and equipment, 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. Sleeves	
For upper garment, skirts / pants.	
Unit 4	2
Designing and developing garments using	
-Origami technique	
-style lines	
-Zero waste material	
Unit 5	4
Transformational Reconstruction technique for design and volume (TR cutting).	

FAD 3.5 ADVANCED TEXTILE AND APPAREL TESTING

16 Practicals of 4 Hrs each

Unit 1	4
Determination of fabric tensile characteristics, tearing strength and bursting strength. Seam strength and seam slippage.	
Unit 2	7
Testing fabrics for stiffness, drape co-efficient, abrasion resistance, pilling resistance, dimensional stability, crease recovery and colour fastness.	
Unit 3	2
Testing fabrics for moisture properties: moisture management, repellence properties.	
Unit 4	1
Testing fabrics for Flammability.	
Unit 5	1
Assessment of tailorability of fabrics using FAST.	
Unit 6	1
Objective colour measurement of dyed fabrics.	

FAD 3.6 INTERNSHIP

Students shall undertake internship in the relevant areas of apparel manufacturing / design / retail sector. Internship shall be carried out for 30 days after the completion of second semester in a reputed industry/ organisation or under a reputed designer.

Students have to submit two copies of the internship reports duly approved by the guide prior to the commencement of third semester examination.

SEMESTER IV

FAD 4.1 FUNCTIONAL TEXTILES & CLOTHING

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

6 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 specialty fibres – classification and important applications. Functional yarns - Introduction, staple and filament yarns. Functional fabric structures – criteria to select fabric structures for various functional fabrics, Surface modification for improved functionality.

Unit 3

6 Hrs

Functional clothing: Introduction, Definition, Classification: Protective functional, medical functional, sports functional clothing, Cross functional clothing needs.

Unit 4

8 Hrs

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

Unit 5

10 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. Protective textiles: Thermal, chemical and ballistic protection and their application.

Unit 6

10 Hrs

Nano textiles: Nano science and technology. Carbon nanotubes and nano applications in textiles and their importance in textile industry. 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 7

6 Hrs

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

References:

- Amar K. Mohanty, Manjusri, Lawrence T, “Natural Fibers, Biopolymers and bio composites” Boca Raton, London, 2005.

- Anand S.C., Kennedy J.F. Miraftab M. and Rajendran S., “Medical Textiles and Biomaterials for Health care”, Wood Head Publishing Ltd. England, 2006.
- Abhijit Majumdar, Deepti Gupta, Sanjay Gupta, “Functional Textiles and Clothing”, Springer; 1st edition, 2019.
- Horrocks, A.R, Anand, S.C “Handbook of Technical Textiles”, Wood Head Publishing Ltd., 2000.
- HVJ, “Shape Memory Polymers and textiles”, Wood Head Publishing limited, England, 2007.
- Shahid Ul-Islam, Butola BS, “Advanced Functional Textiles and Polymers: Fabrication, Processing and Applications”, Wiley-Scrivener; 1st edition, 2019.
- Xiaoming Tao, “Wearable Electronics and Photonics”, The Textile Institute, CRC press, Manchester, 2005.

FAD 4.2 FASHION JOURNALISM AND PHOTOGRAPHY

No. of Teaching Hrs. 52

Objectives:

- To educate students on the fashion journalism methods and thematic fashion article presentation and interpretations.
- To develop creative fashion photographic approaches and current trends of fashion photography methods and equipment.

Unit 1

8 Hrs

Fashion journalism: Introduction, history, elements of fashion journalism, types, scope in the current fashion world. The writing process-Planning, shaping, drafting, revising, editing, proofreading.

Unit 2

7 Hrs

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

Unit 3

10 Hrs

Fashion journalism media: Newspapers, Magazines, broadcasting media, books, lifestyle sections of newspapers, on-line fashion magazines, websites, blogs and social network. Fashion promotion and communication: Public relation management, writing for public relations, writing for advertising, writing for business communications.

Unit 4

9 Hrs

Fashion photography: Types of photography, cameras and working principles of professional cameras, equipment and accessories, criteria for selecting cameras and lens. Photo techniques and equipment's for different fields: Modelling, newspapers, magazines, occasions - fashion shows, fashion fairs.

Unit 5

10 Hrs

Indoor and outdoor photography: camera, lens and equipment selection, half and full-length shots, comparison of outdoor and indoor photography, glamour shots, mood shots, styling and make up for fashion and glamour photography. Lighting technique - need, methods - shooting with natural light, modification of lighting on location, lighting ratio and effects of soft high key.

Unit 6

8 Hrs

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

References

- Billy Pegram, “Fashion Model Photography: Professional Techniques and Images”, Amherst Media, 1999.
- Bruce Smith, “Fashion Photography: A Complete Guide to the Tools and Techniques of the Trade”, Amphoto Books, Watson Guptill Publication, New York, 2008.
- John Hedgecoe, “The Book of Photography”, DK Publishing Inc., United States, 2005.
- Julie Bradford. “Fashion Journalism” Routledge, 2014.
- Sanda Miller , Peter McNeil, “Fashion Journalism”, Bloomsbury Academic, 1st edition, 2018.
- Stephen A Dantzig,” Lighting Techniques for Fashion and Glamour Photography”, Amherst Media, Inc, New York, 2005.

FAD 4.3 ENTERPRISE RESOURCE PLANNING

No. of Teaching Hrs. 52

Objective:

- To appraise students about typical functionality of an ERP system in apparel manufacturing and retail industry.
- To acquaint students about the change management issues in operations and trends in ERP.

Unit 1

8 Hrs

Introduction to enterprise resource planning: Basic concepts and objectives of ERP, origin, significant characteristics, need for ERP in the fashion industry, its contributions in organizational change to meet global market requirements, risks- investments and ROI. Application and benefits of ERP.

Unit 2

10 Hrs

Information system: Data and information- characteristics, types, Need and components of information systems, Information system types- transaction processing system, management information system, decision support system, executive support system, office automation system, business expert system.

Unit 3

8 Hrs

ERP setup process: Selection process for apparel industry- criteria involved in ERP vendor and consultants in selecting ERP, ERP tools and software, ERP Implementation lifecycle, implementation methodologies, ERP transition strategies- training and education, challenges in ERP implementation- employee resistance, post-implementation activities, success and failure factors.

Unit 4

10 Hrs

ERP modules for Apparel industry- Finance management, HR management, plant maintenance, production planning & control, quality management, manufacturing resource planning (MRP), purchase order management, material requirement planning (MRP), shop floor control (SFC), master production schedule, inventory management, capacity requirements planning (CRP), warehouse management, cost reporting/ management, bill of material (BOM), customer relationship management (CRM) etc.

Unit 5

10 Hrs

Maintenance and performance measurement of ERP: Operation and maintenance of the ERP System, measuring the performance of the ERP System, maximizing the ERP system. Management issues n ERP- Information security and control, quality assurance, ethical and social dimensions and intellectual property rights- managing global information systems.

Unit 6

6 Hrs

Trends and future directions in ERP- ERP and e-business, turbo charging ERP with business intelligence (BI) and corporate performance management (CPM), mobile ERP application, cloud storage, artificial intelligence (AI) enabled ERP, two-tiered ERP, extended ERP.

References:

- Kelly Rainer R, Brad Prince, Casey G. Cegielski, “Introduction to Information Systems: Supporting and Transforming Business”, Wiley Publications, 5th edition, 2013.
- Mary Sumner, “Enterprise Resource Planning”, Pearson, 1st edition, 2004.
- Michael W Pelphrey. “Directing the ERP Implementation: A Best Practice Guide to Avoiding Program Failure Traps While Tuning System Performance”, CRC Press, 1st edition, 2015.
- Paige Baltzan Instructor, Amy Phillips, “Business Driven Information Systems”, McGraw-Hill Education, 5th edition, 2015.
- Surjit R, Rathinamoorthy R, Vishnu K J, Vardhini, “ERP for Textiles and Apparel Industry”, Woodhead Publishing India, 1st edition, 2016.
- Veena Bansal, “Enterprise Resource Planning: A Managerial perspective”, Pearson, 1st edition, 2013.

FAD 4.4. EXPORT TRADE AND DOCUMENTATION

No. of Teaching Hrs. 52

Objectives:

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

Unit 1

8 Hrs

Global business environment: Nature and scope of export trade, factors influencing export trade, benefits and problems in international trade. Business organizations; principles of formation, forms of business

Unit 2

8 Hrs

Export firm: Nature of export firm, setting up of an export firm, export licensing and registrations

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

Unit 3

8 Hrs

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

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 4

6 Hrs

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

Unit 5

6 Hrs

International economical, monetary and technological coordination: Regional trade agreements, major trade blocs - SAARC, EU, ASEAN and NAFTA

Unit 6

10 Hrs

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

Unit 7

6 Hrs

Export risk management, export barriers- tariff and non-tariff barriers, foreign exchange market, trade policy - challenges in making policies and recent developments.

References

- Donnellan, John, "Merchandise Buying and Management", Fairchild Books, 3rd edition, 2007.
- Jain, R.K. "Customs tariffs of India", CENTAX Law Publications Pvt. Ltd.; 72nd Edition 2021.

- Jain, R.K. “Foreign Trade Policy & Handbook of Procedures”, CENTAX Law Publications Pvt. Ltd; 26th edition, 2021.
- Sandeep M. Bhatnagar, “Export Oriented Units - Law and Procedures”, 14th edition, 2013.
- Thomas E. Johnson and Donna L. Bade, “Export/Import-Procedures and Documentation” Amacom, 4th edition, 2010.
- Warren J. Keegan, “Global Marketing”, Prentice Hall PTR, 7th edition, 2012.

FAD 4.5 FASHION STUDIO

16 Practicals of 4 Hrs each

Unit 1

3

Photo Journalism: Use of digital photography - lights, lenses, camera angle and types of photography. Photo composition for any one photography.

Unit 2

4

Fashion Journalism: Review of fashion columns and photographs from magazines, newspapers and periodical content from historical and modern sources. Formulating an article using creative fashion writing skills 5Ws and 1H on current fashion trends.

Unit 3

4

Digital fashion creativity & 3D Product Visualization: Designing a theme based motif and fabric development with repeats and soft draping of developed fabric design on to 3D model.

Unit 4

5

Virtual product display: Digital display layouts with virtual props according to theme.

FAD 4.6 PORTFOLIO PRESENTATION

16 Practicals of 4 Hrs each

Unit 1	1
Introduction to portfolio: Organization, content and customer focus.	
Unit 2	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 3	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 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.	

FAD 4.7 PROJECT WORK

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

FASHION DESIGN

(Open Elective)

No. of Teaching Hrs. 52

Unit 1

14 Hrs

Design concepts: Elements and principles of design, application of design concepts in fabrics and fashion products. Structural and applied design, colour- colour theories, dimensions of colour, colour Schemes, design principles applied in dress design.

Unit 2

12 Hrs

Introduction to fibers, definition, classification and identification of fibers –essential and desirable properties and end uses –natural fibers- cotton, silk, wool, Jute. Synthetic fibres- polyester, nylon and acrylic. Yarns, fabrics- knitted, woven and nonwovens. Basics of dyeing and printing of textile materials.

Unit 3

14 Hrs

Introduction to fashion and fashion cycle. Fashion development, fashion terminologies. fashion theories, couture, ready-to-wear, mass production. Figure irregularities and remedies. Designing of apparels for specialty shows: Introduction, need for specialty shows, different categories- fashion shows, trade shows, collection shows.

Unit 4

12 Hrs

Indian traditional textiles: Brocades of Banaras, Chanderi silks, Paithani brocade, Kancheevaram, Dharmavaram, Sambalpuri fabric, Ikat fabric and kalamkari. Traditional Indian Embroideries: Kasida of Kashmir, Kantha of Bengal, Phulkari of Punjab, Kutch embroidery of Gujarat, Kasuti of Karnataka, Chamba Rumal of Himachal Pradesh and their motifs, colours, stitches used and their applications.

References:

- Corbman B.P, Textiles fiber to fabric, International McGraw- Hill, Editions, 1983.
- Dantyagi. S Fundamental of Textiles and their care, Orient Longman Ltd., New Delhi, 1980.
- Gavin Waddell, “How Fashion Works”, Blackwell Publishing, 2005.
- Jay Diamond, Ellen Diamond, “The World of Fashion”, Fairchild Publication, 3rd Edition, 2002.
- John Gillow and Nicholas Bernard, Traditional Indian textiles, Thames & Hudson, 1993.
- Rubin LG, “The World of Fashion”, Canfield press, 1976.
- Shenai VA. Textile Printing- Sevak publications, Mumbai 1991.