

**MANONMANIAM SUNDARANAR UNIVERSITY – TIRUNELVELI**  
**B. SC. COSTUME DESIGN & FASHION CURRICULUM**  
*(For the students admitted during the academic year 2020 -2021)*

Sem	Pt. I/II/I II/ IV/V	Subject Status	Subject Title	Contact Hrs/ week	L Hrs/ week	T Hrs/ week	P Hrs/ week	C Credits
<b>III</b>	III	Core - III	Fashion Apparel Merchandising	5	5	0	0	4
	III	Core - IV	History of Costume	4	4	0	0	4
	III	Core - V	Fabric structure and Design	4	4	0	0	4
	III	Core Practical - III	Construction of women's wear	4	0	0	4	2
	III	Allied - III	Apparel Export Trade Documentation	3	3	0	0	3
	III	Allied Practical- III	Surface Embellishment	4	0	0	4	2
	IV	Skill Based Core - I	1. Embroidery and Surface working 2. Costume Development	4	4	0	0	4
	IV	Non - Major Elective- I	1. Embroidery and Surface working (or ) 2.Fashion Concept	2	2	0	0	2
	IV	Common	Common-Yoga	0	0	0	0	2
			<b>Total</b>	<b>30</b>				<b>27</b>
Sem	Pt. I/II/III/ IV/V	Subject Status	Subject Title	Contact Hrs/ week	L Hrs/ week	T Hrs/ week	P Hrs/ week	C Credits
<b>IV</b>	III	Core - VI	Technology of Knitting	5	5	0	0	4
	III	Core - VII	Computer in Garment Industry	4	4	0	0	4
	III	Core - VIII	Fashion Accessories	4	4	0	0	4
	III	Core Practical -IV	Computer Aided Apparel Designing	4	0	0	4	2
	III	Allied - IV	Technology of Dyeing and Printing	3	3	0	0	3
	III	Allied Practical - IV	Textile wet processing	4	0	0	4	2
	IV	Skill Based Core - II	1. Art Portfolio 2. Fashion Photography	4	4	0	0	4
	IV	Non- Major Elective - II	1.Fashion Illustration (or ) 2.Fibre to Fabric	2	2	0	0	2
	IV	Common	Computers for Digital Era	0	0	0	0	2
	V	Extension Activity	NCC,NSS,YRC,YWF,PE-	0	0	0	0	1
			<b>Total</b>	<b>30</b>				<b>28</b>

Sem	Pt. I/II/II I/ IV/V	Subject Status	Subject Title	Contact Hrs/ week	L Hrs/ week	T Hrs/ week	P Hrs/ week	C Credits
V	III	Core - IX	Apparel Production Management	6	6	0	0	4
	III	Core - X	Garment costing	5	5	0	0	4
	III	Core -XI	Textile Testing and Quality Control	5	5	0	0	4
	III	Major Practical - V	Construction of men's wear	4	0	0	4	2
	III	Major Elective -I	Technology of Textile finishing	4	4	0	0	4
	IV	Skill Based Common - III	Skill Based Common- Personality Development / Effective Communication/Youth Leadership	2	2	0	0	2
	III	Mini Project		4	0	0	4	6
			<b>Total</b>	<b>30</b>				<b>26</b>
Sem	Pt. I/II/II I/ IV/V	Subject Status	Subject Title	Contact Hrs/ week	L Hrs/ week	T Hrs/ week	P Hrs/ week	C Credits
VI	III	Core -XII	Clothing care	4	4	0	0	4
	III	Core -XIII	Technical Textile	4	4	0	0	4
	III	Core - XIV	Quality control in Apparel Production	4	4	0	0	4
	III	Core - XV	Entrepreneurial Development	4	4	0	0	4
	III	Major Practical - VI	Textile Testing and care	4	0	0	4	2
	III	Major Elective - II	Home Textile	4	4	0	0	4
	III	Major Project		6	0	0	6	7
			<b>Total</b>	<b>30</b>				<b>29</b>

**Total 140 credits- exclusive of Yoga and Computers for Digital Era**

### FASHION APPAREL MERCHANDISING

**Preamble:** This course facilitates an understanding of fashion apparel merchandising techniques and orients the learners in the field of costume design. The learners are expected to know the different types of merchandising techniques, retailing and supply chain management in apparel industry.

#### UNIT - I Terms in Fashion Industry

Definition of fashion, style, classic, fad. Terms related to fashion industry such as Mannequin, Boutique, Collection, Fashion shows, Apparel, Catalogue, Fashion Chic, Haute couture. Fashion-Origin, Principle, components and stages of fashion cycle.

#### UNIT-II Merchandising

Merchandising – Definition, types. Fashion merchandising – principles and techniques. Merchandising – role and function.

#### UNIT - III Visual Merchandising

Visual merchandising technique –Merchandising Ladder – Factors for Route card – Preparation – Effective Expediting Procedures – samples and types of samples, Brand – Definition. Branding strategies.

#### UNIT - IV Apparel Merchandising

Apparel merchandising – principles and techniques. Apparel merchandising – Interface with production.

#### UNIT - V Retailing

Retailing – Types of Retailer – Advertising – Supply chain management. Pipeline concepts – logistic management. E-Commerce in apparel industry.

#### References

1. Ravichandran.P.S, Siva patha sekaran, “Textile Marketing and Merchandising”,S.S.M. Institute of Textile Technology , Komarapalayam, 2005.
2. Gini Stephens Frings “Fashion from concepts to consumer” , Pearson Publications, 2005.
- 4 . Leslie Davis Buns Nancy O. Bryant “The Business of Fashion “, Fairchild Publications, New York 2002.
5. Heannette A Jarrow “Inside the Fashion Business” , Macmillam , Publishing company, New York

### **HISTORY OF COSTUME**

**Preamble:** This course facilitates an understanding of traditional costumes used in different states of India and orients the learners in the field of woven textiles of India. The learners are expected to know the costume of ancient civilization in apparel industry.

#### **UNIT- I Origin and growth of costume**

Beginning and growth of costume - Painting, Cutting and Tattooing. Traditional Accessories and Ornaments used in India.

#### **UNIT-II Woven, Dyed and Printed Textiles of India**

Study of woven, dyed and printed textiles of India - Bhandhani, Patola, Ikkat, Kalamkari, Dacca Muslin, Banarasi, Chanderi brocades, Baluchar, Himrus and Amrus, Kashmir shawl, Pochampalli, Silk sarees of Kancheepuram.

#### **UNIT – III Traditional costume of different states in India**

Traditional costume of different states in India - Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, Maharashtra, Rajasthan, Haryana, Uttar Pradesh, Jammu and Kashmir, Gujarat.

#### **UNIT – IV Traditional costume of North East India**

Traditional costume of North East India – Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland, Tripura, Manipur.

#### **UNIT – V Costume of Ancient Civilization**

Costume of Ancient civilization – Egypt, Greece and Rome.

#### **References**

1. Indian Jewellery - M.L. Nigam, Lustre Press Pvt Ltd, India .
2. Costumes and Textiles of India – Jamila BrijBushan
3. Costumes of India – DorrisFlynn

**Semester – III**

**Core - V**

**FABRIC STRUCTURE AND DESIGN**

**Preamble:** This course facilitates an understanding of fabric forming techniques and orients the learners in the field of fabric design .The learners are expected to know the classification of looms ,construction of elementary weaves in textile industry.

**UNIT - I Weaving**

Fabric forming techniques – weaving. Definition – sequencing of weaving preparation process – Terms related to woven fabric – Loom – Definition – Important motions of a loom – classifications of looms – parts of loom – passage of material through looms – shuttle loom – shuttle less loom.

**UNIT - II Woven Design**

Elements of woven design, methods of fabric representation, draft and lifting plan, construction of elementary weaves – plain , warp, rib, weft rib, twill, modification of twills, satin and sateen weaves – their derivatives .

**UNIT - III Fancy weave**

Ordinary and brighten honey comb, its modification, huck – a – back and its modifications, crepe weaves, mock leno.

**UNIT - IV Extra warp and weft figuring**

Extra warp and weft figuring – single and two colors, comparison between extra warp and extra weft figuring.

**UNIT -V Pile fabric and Double cloth**

Pile fabric – basic structure, Weft plush, terry pile. Double cloth – classification, self stitched – face to back, back to face, stitched double cloth – warp and centre stitched double cloth.

**Reference:**

1. Watson’s Textile Design and Colour., Grosichkli . Z. Newness
2. Textiles – fibre to fabric, Corbmann .B.P.,
3. Fabric structure and Design, N.Gokarneshan.

**CONSTRUCTION OF WOMEN’S WEAR**

- Designing, drafting and constructing the following garments for the features prescribed.
- List the measurements required and materials suitable
- Calculate the cost of materials.
- Calculate the material require layout method and direct measurement method.

1. **Six Gore Saree Petticoat** -Six Panel, Frilled Edge
2. **Four Gore Saree Petticoat** - Four Panel, Frilled Edge
3. **Blouse** - Front Open, Fashion Neck, Waist Band, Any Sleeve
4. **Middi** – Waist Band or Elastic, Panel/ Gathered/Circular/Pleated
5. **Middi Top** – Back or Front Open, Collar, Fashion Sleeve
6. **Nighty** – With Yoke or Without Yoke, With Sleeve, With or Without Open, Attached Trimmings
7. **Night Dress** – Front Open, With or Without Collar, Elastic or Cord attached at waist
8. **Kurta** – Fashioned Neck, Fashioned Sleeve, Side seam slit
9. **Salwar** – Gathered Waist with Tape or Elastic, Bottom Design
10. **Kameez** – With or Without Flare, With or Without Panel, Fashioned Neck, Fashioned Sleeve

**Reference**

- a. Practical Clothing Construction Part-I & II – Mary Mathew
- b. Zarapkar System of Cutting – K.R.Zarapkar
- c. Easy Cutting – Juvekar
- d. Commercial system of cutting- Juvekar
- e. Dress making – smt. Thangam Subramanian

**Semester – III**

**Allied -III**

**APPAREL EXPORT TRADE DOCUMENTATION**

**Preamble:** This course facilitates an understanding of export trade and orients the learners in the field of marketing .The learners are expected to know globalization features, export promotion and institutional finance in apparel industry.

**UNIT-I Export Marketing**

Export marketing -Definition, features, importance of export marketing, Distinguish between domestic and export marketing, Present problems and difficulties faced by Indian exporters. Objective and Function of WTO.

**UNIT-II Export Policies**

A.E.P.C.'s function and role in the administration of export entitlement policy export promotional activities of A.E.P.C, Exim Policies.

**UNIT- III Export Marketing**

Cash Compensatory Support, Market Development Assistant, 100% Export Oriented Units, Free trade zone, Duty drawback.

**UNIT-IV Export Finance**

Export Finance – Meaning and Features of Pre-Shipment Finance –Post-Shipment Finance, Export – Import bank of India (EXIM BANK) - Objective and Function, Export Credit Guarantee Corporation of India (ECGC) - Objective and Function.

**UNIT-V Export procedure and documentation**

Export procedure- Stages in export procedure, Excise clearance procedure, Shipping and custom formalities, Marine insurance, ISO 9000 certification. Export Documentation- Commercial invoice, Shipping bill, Certificate of origin, Mate's receipt, Bill of lading.

**Reference:**

1. Effective Export Marketing of Apparel – Darlie O. Koshy.
2. Export Marketing – A practical guide to exporters – S. Sivaramu.

## SURFACE EMBELLISHMENT

### Hand embroidery Stitches

Hand embroidery Stitches – Running, Stem, Back, Whipped, Blanket , Lazy daisy, Chain, Double chain, Couching, Herringbone, Fish bone, Feather – single and double, Rumanian, Cross, Fly, Satin , Long and Short, French knot, Bullion knot, Double knot, Seed, Straight, Lettering – Alphabets and Monogram work.

### Traditional Indian Embroidery

Kashida of Kashmir, Kantha of Bengal, Phulkari of Punjab, Embroidery of Kutch and Kathiawar, Zari embroidery, Kasuti of Karnataka, Chikankari of Luck now.

### Surface trimmings and Decorations

Creating style through surface trimmings and Bias trimmings, Ric-Rac, Ruffles, Smocking, Faggoting, Drawn thread work, Cutwork, Belts and Bows, Quilting, Patch work, Appliqué work – velvet, plain, printed appliqué. Mirror work, Sequins, patch work, Bead work, Shadow work, Fabric painting – using fabric colors, glitters, pastes.

### Reference

1. Nirmal C. Mistry, **Embroidery**, Naganeeth Publications Ltd., 1999.
2. Kit Pynan and Carole, **The Harmony Guide to Decorative Needle Craft**, Lyric Books Ltd., 1982.
3. Shailaja m. and Naik. D., **Traditional Embroideries of India**, KPH Publishing Corporation, 1996.
4. Ritu, **Attractive Embroidery Designs**, Indica Publishers, 1995.
5. **Modern Embroidery Series**, MBD Publishers, 1995.

## **Semester – III**

## **Skill based course - I**

### **EMBROIDERY AND SURFACE WORKING**

**Preamble:** This course facilitates an understanding of fundamentals of embroidery and orients the learners in the field of fashion design .The learners are expected to know the hand embroidery stitches, machine embroidery and traditional embroidery in apparel industry.

#### **UNIT – I Fundamentals of Embroidery**

Fundamentals of Embroidery – General rules for hand and machine embroidery.  
Selection of material, thread, and needle Methods of tracing design.

#### **UNIT – II Hand Embroidery Stitches**

Hand embroidery Stitches – Running, stem, Blanket , Lazy daisy, chain, couching, Herringbone, Fish bone, Feather – single and double, Rumanian seeds, Cross, Fly, Satin , Long and Short, French knot, Bullion knot, Double knot, Lettering – Alphabets and Monogram work.

#### **UNIT – III Machine Embroidery stitches**

Machine Embroidery stitches – Running, cording, Satin, Long and Short, Granite, Eyelet, Cutwork, Letters Monograms, appliqué on net.

#### **UNIT – IV Traditional Indian Embroidery**

Origin of Indian Embroidery .Embroidery stitches used – Kashida of Kashmir, kantha of Bengal, Phulkari of Punjab, Embroidery of Kutch and Kathiawar, Zari embroidery, Kasuti of Karnataka, Chikankari of Luck now – Types, Colours, Motiffs, Fabric used and their historical importance.

#### **UNIT – V Surface trimmings and Decorations**

Creating style through surface trimmings and Bias trimmings, Ric-Rac, Ruffles, Smocking, Faggoting, Drawn thread work, Cutwork, Belts and Bows, Quilting, Patch work, Appliqué work – velvet, plain, printed appliqué. Mirror work, Sequins, patch work, Bead work, Shadow work, Fabric painting –using fabric colors, glitters, pastes.

#### **Reference:**

1. Practical clothing construction Part I,II – Mary Mathews
2. Indian embroidery – Kamaladevi
3. Creative art of embroidery – Barbara snook.

**Semester – III**

**Skill based course - I**

**COSTUME DEVELOPMENT**

**Preamble:** This course facilitates an understanding of traditional costumes used in different states of India and orients the learners in the field of woven textiles of India. The learners are expected to know the costume of ancient civilization in apparel industry.

**UNIT – I Beginning of costume**

Beginning of costume – Growth of dress – Painting, cutting, scarring and tattooing.  
Origin of clothing. Factors influencing costume changes.

**UNIT – II Costume of Ancient civilization**

Costume of Ancient civilization – Egypt, Greece and Rome.

**UNIT – III Costume of India**

Costume of India. Traditional costumes of different states of India. Accessories and Ornaments used in India.

**UNIT – IV Traditional woven textiles of India**

Traditional woven textiles of India. Dacca Muslin, Jamdani, Chanderi, Brocades, Baluchijar, Himrus and Amrus.

**UNIT – V Traditional dyed and printed textiles of India**

Traditional dyed and printed textiles of India.

IKat textiles –Bandhani, patola.

Printed textiles – Kalamkari, Block Printed fabrics.

**Reference**

1. Das.N ‘‘Costumes of India and Pakistan’’ Taraporevelason,
2. JamilaBrijBhusan’’Costumes and Textiles of India’’.
3. DorrisFlynn ‘‘Costume of India –’’
4. Lesla k.T . ‘‘Historic Costume’’

**Semester – III**

**Non Major Elective - I**

**FASHION CONCEPT**

**Preamble:** This course facilitates an understanding of fashion design and orients the learners in the field of costume design. The learners are expected to know the elements of design, principles of design, fashion accessories and colors in fashion industry.

**UNIT-I Terms in Fashion Industry**

Definition of fashion, Style, Classic, Fad, Fashion cycle. Term related to fashion industry, mannequin, Boutique, Collection, Fashion shows, apparel catalogue, Fashion Clinic.

**UNIT – II Elements of design**

Design – definition and types. Elements of design –Line, Shape, Size, texture, Colour. Creating Variety in dress through elements of design.

**UNIT – III Principles of design**

Design principles – Harmony, proportion, balance, Rhythm, Emphasis. Application of principles in dress.

**UNIT – IV Colour**

Colour – definition and qualities. Prang colour chart. Colour harmony – Monochromatic, Analogous, Complementary, Triad and Tetrad colour harmony.

**UNIT – V Fashion accessories**

Fashion accessories –shoes, handbags, hats, ties –different types and shapes.

**Reference**

1. Giny Stephen, Frings’’Fashion from Concept to Consumer’’ Pearson Educations 2008.
2. Leste Davis Burns, Naran O Bryant ’’The business of Fashion’’, Fairchild Publications, Newyork 2002.
3. Ravichandran P and Narasima R ’’Textile Marketing and Merchandising’’, SSM Institute of textile Technology, 2005.

**Semester – III**

**Non Major Elective - II**

**EMBROIDERY AND SURFACE WORKING**

**Preamble:** This course facilitates an understanding of traditional embroidery used in different states of India and orients the learners in the field of woven textiles of India. The learners are expected to know the hand embroidery stitches, machine embroidery stitches and surface trimmings.

**UNIT – I Fundamentals of Embroidery**

Fundamentals of Embroidery – General rules for hand and machine embroidery.

Selection of material, thread, and needle. Methods of tracing design.

**UNIT – II Origin of Indian Embroidery**

Origin of Indian Embroidery. Embroidery stitches used – Kashida of Kashmir, kantha of Bengal, Phulkari of Punjab, Embroidery of Kutch and Kathiawar, Zari embroidery, kasuti of Karnataka, Chikankari of Luck now –Types, Colours, Motiffs, Fabric used and their historical importance.

**UNIT – III Hand embroidery stitches**

Hand embroidery stitches- Running Stem, Blanket, Lazy daisy, chain, Couching, Herringbone, Fish bone, Feather – single and double, Rumanian seeds, Cross, Fly, Satin, Long and short, French Knot, Bullion Knot, Double Knot, Lettering- Alphabets and Monogram work.

**UNIT – IV Machine Embroidery stitches**

Machine Embroidery stitches – Running, Cording, Satin, Long and short, Granite, Eyelet, Cutwork, Letters Monograms, appliqué on net.

**UNIT – V Surface trimmings and Decorations**

Creating style through surface trimmings and Bias trimmings, Ric –Rac, Ruffles, Smocking, Faggoting, Drawn thread work, Cut work, Lace, Lace motif, Belts and Bows, Quilting, Crocheting, Tatting, Hand Kitting – Elements and formation of Knit, Purl. Patch work, Appliqué work – Velvet, Plain, Printed appliqué. Mirror work, Sequins, Patchwork, Bead work, Shadow work, Fabric painting – using fabric colors, glitters, Pastes.

**Reference:**

1. Practical clothing construction Part I,II – Mary Mathews
2. Indian embroidery – Kamaladevi
3. Creative art of embroidery – Barbara snook

**Semester – IV**

**Core - VI**

**TECHNOLOGY OF KNITTING**

**Preamble:** This course facilitates an understanding of fabric forming techniques and orients the learners in the field of knitting .The learners are expected to know the classification of knitting, elements and functions of knitting machines in textile industry.

**UNIT – I Knitting**

Knitting – Definition, Differentiate weaving and knitting, Classification of knitting, Comparison of warp and weft knitting, Basic knitting elements.

**UNIT – II Weft Knitting**

Weft knitting – Definition, Yarn passage diagram of a circular knitting machine – knitting elements and mechanism. Rib, interlock, Purl structure. Ornamentation – derivatives. Pique – variations. Major types of yarns for weft knitting, Defects in weft knitted fabrics.

**UNIT – III Knitting machines**

Circular rib knitted machine – Elements and functions, Interlock knitting machine - Elements and function, Non – apparel use of knit goods.

**UNIT – IV Jacquard knitting**

Jacquard knitting – Needle selection for jacquard and non – jacquard pattern making – pattern wheel, pattern drum, programmed tape.

Calculations – Methods of finding courses per inch, wales per inch and loop length – GSM calculation – count and gauge relationship – efficiency calculation – tightness factor – production in length and weight units.

**UNIT – V Warp knitting**

Warp knitting – Definition – Knitting machines – Variations in warp knitting – Tricot – Variations in guide bars – knitting cycle. Rachel - Variations in guide bars – knitting cycle. Differentiate Tricot from Rachel. Yarns for warp knitting – common faults in fabrics.

**Reference :**

1. Knitting Technology – D.B.Ajgoankar
2. Knitting Technology – David . J. Spencer
3. Textile Mathematics – J.E. Booth

**Semester – IV**

**Core - VII**

**COMPUTER IN GARMENT INDUSTRY**

**Preamble:** This course facilitates an understanding the role of computer in garment industry and orients the learners in the field of design .The learners are expected to know the application of computer in pattern making and grading in textile industry.

**UNIT – I Classification of computers**

Classification of computers, computer generations, computer specification, organization of computer sections. Types of storage devices (Primary and Secondary), input devices, output devices.

**UNIT – II Role of computers**

Role of computers in fashion industry-Information flow – CAD,CAM,CIM,CAA, PDC – Definition and Functions, Computers in production planning and production scheduling, computerized colour matching system.

**UNIT – III CAD in Designing**

CAD in Designing, Textile designing – Weaving, knitting and printing, Creating embroidery designs, Garment designing -2D and 3D forms.

**UNIT – IVCAD in Pattern making and grading**

CAD in Pattern making and grading – system description – information flow – process involved pattern making, process involved in pattern grading.

**UNIT – V Computer application**

Computer application in fabric defect checking, laying / spreading, cutting marker planning, labelling –parts and functions, Computerized sewing machines.

**References:**

1. Clothing Technology – HanneloreEberle et – al, Verlaag Europa – Lehrmittel, Vollmer Gmbh&Co4287, Haan – Gruilen.
2. Computer Fundamentals – P K Sinha, BPB Publications, Delhi (1992)
3. The technology of clothing manufacture – Harold Carr ad Barbara Latham, Blackwell Ltd (1994)
4. Pattern Grading for Women’s Cloths The Technology of sizing – Gerry Cooklin, Blackwell Science Ltd (1990)

### FASHION ACCESSORIES

**Preamble:** The aim of this course is to imbibe knowledge in the field of accessory industry and to study about the various styles of accessories.

#### UNIT – I Introduction to fashion Accessories

Introduction to fashion, Accessories-Accessories-Definition, Importance and classification of fashion accessories.

Foot wear, Footwear-industrial setup, shoe component parts, concept to construction, styles, judging the fit, caring for footwear.

#### UNIT – II Hand bags and Belts

Hand bags –industrial setup, component parts, construction and styles. Belts- construction and styles

Suspenders- Necktie-styles. Handkerchiefs-wallets-Briefcase-Hair accessories.

#### UNIT-III Gloves and Hats

Gloves, Hats and Hosiery: Gloves-industrial setup, component parts, construction, size, styles and care.

Hats-industrial setup, construction size, styles and care.

#### UNIT-IV Hosiery and Scarves

Hosiery-industrial setup, construction, material, sizes and styles.

Scarves- industrial setup, construction, styles and care.

#### UNIT-V Jewellery and Umbrella

Jewellery-industrial setup, historical overview, production techniques, stone setting and styles.

Umbrella-industrial setup, styles. Eyewear-frame styles, frame materials, lens types and lens marketing and merchandising eyewear.

#### Reference:

1. Jay Diamond and Ellen Diamond; Fashion Apparel, Accessories and Home Furnishings, Pearson Education Publication, (2007).
2. Dr. Navneet Kaur, Comdex fashion design, Vol-I Fashion concepts, Dream tech press, Delhi-2010.
3. Heannette A Jarnow et-al., Inside the fashion Business, Macmillan Publishing company, New York.

**COMPUTER AIDED APPAREL DESIGNING**

**Create the following designs**

**1. Motifs / small designs.**

Embroidery designs for kerchiefs, Neck lines

Chest Prints for T – shirts

**2. Children’s Garments**

Jabla – different styles

Frocks –different styles

Middi and Tops – different styles

**3. Women’s Garments**

Churidhar – different styles

Full gowns - different styles

Middi&Tops - different styles

Princess line Dress - different styles

House coats, Aprons, Nighties

**4. Men’s Wear**

S B Vest

T- Shirt - different styles

Shirts - different styles

Kurta pyjama – different

styles

**5. Create logos for branded companies.**

**6. Create label for garments / companies**

**7. Prepare charts for production planning and scheduling.**

**Semester – IV**

**Allied - IV**

**TECHNOLOGY OF DYEING AND PRINTING**

**Preamble:** This course facilitates an understanding of dyeing and printing techniques and orients the learners in the field of wet processing .The learners are expected to know the dyeing machine ,styles of printing and printing methods in textile industry.

**UNIT – I Typical sequence of process Singeing**

Typical sequence of process Singeing – objects ad types – Machines. Desizing – objects, types. Scouring – objects and processes carried out during scouring.

Wet processing equipment – Kier, J – Box, Stenter.

Bleaching – Definition and objectives – Bleaching methods using Hypo chlorites, hydrogen peroxide, Sodium chlorite. Mercerisation- Theory process, Methods – Chain and Chainless process.

**UNIT – II Dyeing**

Dyeing – Definition, Theory of dyeing. Properties required for dye stuff - classification of colorants. Dyeing procedure using various dye stuffs – Direct dyes, Reactive dyes, Acid dyes, basic dyes, Azo dyes, Vat dyes, Sulphur dyes, Disperse dyes.

**UNIT – III: Dyeing machines:**

Brief study on Dyeing machines for Loose cotton fibre dyeing. Yarn dyeing, Package dyeing, Fabric dyeing and garment dyeing.

**UNIT – IV: Printing:**

Printing – definition differentiate dyeing and printing. Essential ingredients used in printing paste. Basic styles of printing – direct, Discharge, Resist style.

Printing of Cellulose Fabric, Printing of wool and silk, Printing of Polyester and Nylon.

**UNIT – V: Printing methods:**

Printing methods – Stencil, Batik, Block, tie and Dye. Printing techniques in Industries – Screen-Had screen, Flat Screen, Rotary Screen, Transfer Printing, Flock printing, Photo Printing etc.

**Reference:**

1. Technology of textile processing Vol III, V, VII, VIII – V.A.Shenai.
2. Hand book of Textiles – P.V.Vidyasagar.

**TEXTILE WET PROCESSING**

Preparation of samples for,

1. Desizing
2. Scouring
3. Bleaching
4. Dyeing of cotton with direct dyes, Reactive dyes, Vat dyes, sulphur dyes,
5. Dyeing of wool, silk with Acid and basic dyes.
6. Dyeing of polyester
7. Hand Screen Printing
8. Stencil Printing
9. Block Printing
10. Batik Printing
11. Tie and dye
12. Flock printing

**B.Sc., Costume Design and Fashion 2020-2021 onwards – MSU- Affiliated Colleges**  
**Semester – IV** **Skill based course - II**

**ART PORTFOLIO**

**Preamble:** This course facilitates an understanding of portfolio presentation and orients the learners in the field of fashion .The learners are expected to know the concept of portfolio development in fashion industry.

**UNIT –I Concept of Portfolio Development**

Concept of Portfolio Development – Environment (Natural Factors), Season, Colour, Culture, Fabric design, Occasion, Presentation Technique.

**UNIT –II Study of boards**

Study of Mood board, fabric Board, Theme Board, and Story Board

**UNIT –III Portfolio Presentation of Kid’s Wear**

Mood board – Colour Paletter – Customer Profile – fabric development Chart – Design Development Chart – Specification Sheet.

**UNIT –IV Portfolio Presentation of Women’s Wear**

Mood board – Colour Paletter – Customer Profile – fabric development Chart – Design Development Chart – Specification Sheet.

**UNIT –V Portfolio Presentation of Men’s Wear**

Mood board – Colour Paletter – Customer Profile – fabric development Chart – Design Development Chart – Specification Sheet.

**Reference**

1. NirupamaPundir – Fashion Technology Today and tomorrow Mittal Publication, 2007.
2. Jenny Devis – A Complete Guide to Fashion designing, Abishek, Publications, 2007

**Semester – IV**

**Skill based course - II**

**FASHION PHOTOGRAPHY**

**Preamble:** This course facilitates an understanding of fashion Photography and orients the learners in the field of fashion .The learners are expected to know about digital camera, techniques and developing of Photography in fashion industry.

**UNIT – I Photography**

Photography - Basics – General Principle – Rules – indoor Photography – Needs and methods lighting techniques for indoor photography – methods and equipment’s – advantage and disadvantages – out door photography –methods – lighting techniques – methods and equipments – comparison of outdoor photography with indoor.

**UNIT – II Camera definition**

Camera definition – parts of camera – classification ad types of camera – Applications Disadvantages.

**UNIT – III Photography techniques**

Photography techniques and equipment for different fields. Modelling, News paper, Magazines – occasions – Fashion shows.

**UNIT – IV Photography Developing**

Developing – Definition – Different techniques in developing. Printing – definitions – Methods of printing for black & White color.

**UNIT – V Digital cameras**

Photography using digital cameras – Video photography – image mixing – applications of computers in photography

**Reference:**

1. W.R. Miller, ‘ ‘ Basic Industrial Arts, Plastics, Graphics Arts, Power Mechanics, Photography’’, McKnight Publishing Company, Illionois, 1978.
2. John Hedge, ‘ ‘ photography Course’’, John Hedge Co, 1992.

**B.Sc., Costume Design and Fashion 2020-2021 onwards – MSU- Affiliated Colleges**  
**Semester – IV** **Non Major Elective - II**

**FASHION ILLUSTRATION**

**Preamble:** This course facilitates an understanding of fashion illustration and orients the learners in the field of fashion design. The learners are expected to know the human anatomy and stylized drawing in fashion industry.

**UNIT- I**

Human anatomy – study of human anatomy in terms of shapes, size and movements. 8 head theory

**UNIT- II**

Drawing the average figure, stick figure and fleshy figure. Basic figures of men, Women and children.

**UNIT -III**

Line drawings, head and face. Drawing the faces – proportions and placement of facial features. Drawing hair style and accessories.

**UNIT –IV**

Stylised drawing – drawing from photograph, pattern and textures. Drawing a range of fashion garments.

**UNIT –V**

Fashion designing for persons having unusual figures – stout figure, tall figure, short figure, long neck, large bust, small waist, large hip.

**Reference**

1. Grace Prakasan ‘‘ Figure drawing made easy’’ VikramP. Ubale Ltd, 2000
2. Julian Seaman ‘‘ Fahion Illustration ‘’ B.T. Bats ford Ltd.,1996.
3. Patrick John Ireland, Fashion Design Illustration ‘‘ B.T. Bats ford Ltd.,1996.

**FIBRE TO FABRIC**

**Preamble:** This course facilitates an understanding of fibre to fabric and orients the learners in the field of textile. The learners are expected to know the Properties and uses of natural fibres, spinning and yarns in textile industry.

**UNIT- I**

**Introduction to the field of textiles** – classification of fibres – natural and chemical – Primary and secondary characteristics of textile fibers.

**UNIT- II**

**Manufacturing Process**, Properties and uses of natural fibres –cotton, linen, Jute, pineapple, hemp, silk, wool, hair fibres, man- made fibres- Viscose rayon, acetate rayon, nylon, polyester, acrylic.

**UNIT – II**

**Spinning-** Definition, Classification – Chemical and mechanical spinning – blending, opening, cleaning, doubling, carding, drawing, roving, spinning.

Yarn classification – definition, classification – simple and fancy yarns, Sewing threads and its properties.

**UNIT – IV**

**Wovens** – basic weaves – plain, twill, stain.

Fancy weaves – pile, double cloth, leno, swivel, dobby and jacquard.

**UNIT – V**

**Non – wovens** – felting, fusing, bonding, lamination, netting, braiding and calico, tating and crocheting.

**References**

1. Textiles – fibre to fabric, Corbmann B.P, International student’s edition, McGraw Hill 2. Book company, Singapore 1985.
2. Fabric Science 5<sup>th</sup>edition, Joseph J Pretal, Fairchild Publications, Newyork 1990.

**APPAREL PRODUCTION MANAGEMENT**

**Preamble:** This course facilitates an understanding of structure and sectors of clothing industry and orients the learners in the field of clothing industry. The learners are expected to know the production systems, Production planning and control of raw material in garment industry.

**UNIT – I**

Introduction to structure and sectors of clothing industry – functions and types of organizational structure. Introduction to garment industry plant location. Types of plant layout – process, product and combination layout.

**UNIT – II**

Study of different production systems – batch – group- individual systems – advantages and disadvantages of complete garment system. Individual part system – Progressive bundling system – synchronized straight line products.

**UNIT – III**

Study and planning of process involved up to fabric storage, study and planning for processing involved in the process for various garments. Preparation

Of production process flow charts. Preparation of production schedule for children's, women's and men's wear. Difference between production schedule for woven and knitted garment production.

**UNIT – IV**

Production planning and control of raw material – machinery – labour. Estimation of machinery requirements. Estimation of labour requirements. Study of

Fabric waste and utilization of fabric waste – Maintenance of machinery and equipments – Maintenance schedule for preventive maintenance.

**UNIT – V**

Job shop, open job shop, closed job shop, forecasting, technological forecasting, planning to meet seasonal sales of demand. Economical batch quantity various records, charts and data used in garment industry. Production planning for Export markets.

**Reference**

1. Rajesh Bheda Managing Productivity in the Apparel industry'' CBS Publications 2003.
2. Chuter A.J. ''Introduction to clothing production management Blackwell Publishing House 1995.
3. Harold Carr and Barbara Latham '' Technology of clothing Manufactures'' Blackwell Publishing House, 1994

### **GARMENT COSTING**

**Preamble:** This course facilitates an understanding Principles of costing and Elements of costing and orients the learners in the field of clothing industry. The learners are expected to know the Cost estimation , Cost of product development in garment industry.

#### **UNIT – I Principles of costing**

Principles of costing – requirement of good costing system – cost unit- types of cost – Fixed cost – Variable cost – Semi variable cost – Conversion cost – Replacement cost – Differential cost – Imputed cost – Sunk cost – Research cost – Development cost – Policy cost – Shutdown cost.

#### **UNIT – II Elements of cost**

Elements of cost – Direct material cost – Direct expenses – Direct wages – Indirect material cost – Indirect expenses – Indirect labour overheads – Production overhead - Administrative overhead – selling overhead – Distribution overhead – Work cost – Cost of production – Total cost.

#### **UNIT – III Cost estimation**

Cost estimation of yarn, fabric and components, dyeing, printing and finishing. Cost estimation for cutting, stitching, checking, packing, forwarding, shipping and insurance.

#### **UNIT – IV Cost of product development**

Cost of product development- Analysis of Design cost – profit design – product profitability. Function of cost control – Apparel manufacturing cost categories – sales cost control – purchasing cost control – production cost control – Administration cost control –cost rating policies. Manufacturing budget. Cash flow control – standard cost sheet – Break even Charts.

#### **UNIT – V Costing of various garments**

**Costing of various garments** – Children’s wear, Women’s wear, Men’s wear.

#### **Reference**

1. Apparel Manufacturing Analysis – Solinger Jacob
2. Production Costing – Khanna Publications
3. Development Banks and Enterprises
4. Fashion Design and product Development – Harold Carr/ John
5. Garment Technology for fashion Designer - Gerry Cooklin.

**Semester – V**

**Core - XI**

**TEXTILE TESTING AND QUALITY CONTROL**

**Preamble:** This course facilitates an understanding textile and quality control and Identification of Textile Fibre and orients the learners in the field of textile industry. The learners are expected to know the fibre analysis, yarn analysis and fabric analysis in textile industry.

**UNIT – I Textile and Quality Control**

Introduction to Textile and Quality Control – Definition, General aspects of Textile testing and quality control, Routine tests performed in Textile Industry. Benefits of testing, International standards for textile and apparel testing.

**UNIT – II**

**FIBRE ANALYSIS:**

Identification of Textile Fibre – Burning, Solvent , Longitudinal and cross sectional view of Cotton, Wool, Polyester, Nylon, Acrylic fibres. Cotton fibre length, Cotton fibre strength, Fibre fineness and Nep Potential –Trash.

**UNIT – III**

**YARN ANALYSIS:**

Yarn numbering, yarn strength, Twist testing, Additional test for fibres and yarn – Microscope, Weight method, Air flow method, Wet strength and elongation of filament yarn, Crimp.

**UNIT – IV**

**FABRIC ANALYSIS:**

Length, Width, Bow, Skew ness, Weight, Thickness, Breaking Strength, Abrasion Resistance, Crease Recovery, Stiffness of fabrics and drapability.

**UNIT –V**

Standards and specification in Textile Industry,Qualitycontrol aspects,colour fastness tests in Textiles-Crocking, perspiration, sunlight, laundering.

**Reference**

1. Booth J.E. Principles of Textile Testing, CBS Publishers,1996.
2. Elliot. B.Grover and Hamby. D.S. Textile Testing and Quality Control, Eastern Ltd.,
3. Satish K. Bhardwaj and Pradip, V. Metha, Managing Quality in Apparel Industry, New age International Publishers, 2000.

### **CONSTRUCTION OF MEN’S WEAR**

- Designing, drafting and constructing the following garments for the features prescribed.
  - List the measurements required and materials suitable
  - Calculate the cost of materials.
  - Calculate the material require layout method and direct measurement method.
1. **Slack Shirt** – Collar, patch pocket, Half sleeve.
  2. **T – Shirts** - Front half open, Zip attached, Collar.
  3. **Full Sleeve Shirt** – Collar, Patch pockets, Full sleeve with cuff.
  4. **Pleated Trousers** – Pleats in front, Draft at back, Side pockets, Fly with buttons (or) zip, Belt with adjustable strap
  5. **Bell Bottom** - Bell bottom, Pleatless, Side Pockets, Fly with Zip/button
  6. **Kalidar Kurta** – Kali piece, Side pocket, round neck, Half open
  7. **Nehru Kurta** – Half open, stand collar, With (or) without pockets, Full sleeve
  8. **Jeans** – Tight fitting, Jeans cut, Pockets
  9. **Pyjama** –Tape (or) Elastic attach waist, Fly
  10. **Single Breast Vest**- With or without Collar, Sleeveless, Button attached

#### **References**

Easy Cutting –JUVEKAR.

Commercial System of Cutting - JUVEKAR.

Zarapkar System of Cutting – K.R.ZARAPKAR.

Practical Clothing Construction Part I and II – MARY MATHEW.

### **TECHNOLOGY OF TEXTILE FINISHING**

**Preamble:** This course facilitates an understanding textile finishing in the field of textile industry. The learners are expected to know the chemical finishing, functional finishes and effluent plant in textile industry.

#### **UNIT - I Introduction to finishing**

Introduction to finishing – Definition, Importance, Classification.

Mechanical Finishing – Sanforising – calendaring – Brushing – Decating – Milling.

#### **UNIT - II Chemical finishing**

Chemical finishing – wash and wear finishing. Anti – crease finish, durable finish, Stiff Finish, Denim Finish, stone wash finish.

Application of silicones in finishing processes.

**(12L)**

#### **UNIT - III Functional finishes**

Functional finishes –water proof finishes – water repellent finish – flame retardant finish – soil release finish, antimicrobial finish.

Nano Technology in Textile finishing.

#### **UNIT - IV Eco – friendly processing**

Eco – friendly processing – Definition and importance. Study of conventional processing with eco – friendly processing. Enzymes – characteristics, Types. Application of enzymes in textile

#### **UNIT - V Effluent plant**

Effluent plant – effects from various plants –various process for treating waste water.

#### **Reference:**

1. Shenai V.A. “ Technology of Finishing” Sevek Publications, Mumbai (1996)
2. Manivasaga. N. Treatment of Textile Processing Effluents”, Sakti Publications.
3. Bernard. P. Corbmann” Textile Fibre to Fabric” – McGraw Hill, 1983.

**CLOTHING CARE**

**Preamble:** This course facilitates an understanding care and maintenance of textiles and orients the learners in the field of clothing industry. The learners are expected to know the laundry soaps, Laundry equipment and dry cleaning in textile industry.

**UNIT - I Water**

Water – hard and soft water, methods of softening water. Laundry soaps - Manufacture of soap (Hot process, cold process), composition of soap types of soap, soap less detergents, chemical action, detergent manufacture, advantages of detergents

**UNIT – II Finishes**

Finishes – Stiffening Agents – Starch (cold water and hot water), Other stiffening agents, preparation of starch. Laundry blues, their application.

**UNIT - III Laundry equipment**

Laundry equipment – for storage, for steeping and Washing –Wash board, suction Washer, Wash boiler, Washing machine. Drying equipments – outdoor and indoor types. Irons and ironing board- types of iron (box, flat, automatic, steam iron).Ironing board –different types.

**UNIT -IV Principles of washing**

Principles of washing – suction washing, washing by kneading and squeezing, washing by machine – process details and machine details.

Laundering of different fabrics- cotton and linen, woollens, coloured fabrics, silks, rayon and nylon

**UNIT - V Dry cleaning**

Dry cleaning – using absorbents, using grease solvents. Storing - Stain removal – food stains, lead pencil, lipstick, mildew, nose drops, paint, perfume, Perspiration / mildew, tar, turmeric and Kum- Kum. Care labels- washing, bleaching, Drying, ironing and different placements of label in garments.

**References:**

1. Textiles fabrics and their Selection – Wingate I B, Allied publishers Ltd, Chennai
2. Fundamentals of Textiles and their Care - Susheela Dantygai , Orient Longmann Ltd (1980).
3. Family Clothing – Tate of Glession, John Wiley & Sons I n c, Illinois.
4. Household Textiles and Laundry Work – Durga Duelkar, Amla ram & Sons, Delhi

**TECHNICAL TEXTILES**

**Preamble:** This course facilitates an understanding technical textiles and orients the learners in the field of textile industry. The learners are expected to know the medical textiles, geo textiles and protective textiles in garment industry.

**UNIT – I Technical Textiles**

Technical Textiles – Definition and Scope. Categories of Technical Textiles

**UNIT – II Medical Textiles**

Medical Textiles – Classification. Fibres used and their properties required. Medical textile Products – Properties, functions.

**UNIT – III Geo textiles**

Geo textiles – Definition, Fibers used in geo textiles –requirement of fibers. Functions of Geo Textiles – separation, Filtration, Drainage, Reinforcement.

**UNIT - IV Textiles for automotive industry**

Textiles for automotive industry - Suitable fibers for automotive industry  
Safety devices –Airbags – Materials used- types of fabric – Seat belts – Types, Fabrics used.

**UNIT - V Brief study on Protective textiles**

Brief study on Protective textiles – Bullet Proof fabrics –fire retarding fabrics- high temperature fabrics –High visibility clothing. Fibers used and Properties of fabrics, smart textiles and intelligent textiles.

**Reference:**

1. The design of Textiles for Industrial Application – P.W.Harrison
2. Protective Clothing – Bajaj. P. And Sengupta A.K
3. Textiles : Fibre to fabric – Corbmann. B.P.
4. Performance of Protective Clothing – Johnson. J.S. and Mansdork. S.Z

**Semester – VI**

**Core - XIV**

**QUALITY CONTROL IN APPAREL PRODUCTION**

**Preamble:** This course facilitates an understanding quality control and orients the learners in the field of apparel industry. The learners are expected to know the Statistical quality control, Standards for quality and Production Control in apparel industry.

**UNIT – I**

**Statistical quality control**

Quality definition – Quality and its importance – Meaning of Quality control – SQC – Control Charts. Sampling – Importance and types of sampling techniques. (14L)

**UNIT – II**

**Standards for quality**

Established Merchandising Standards – Standards for Quality – ISO implementation  
Procedure ISO 9000 and ISO 14000 – six sigma

**UNIT – III**

**Quality Systems**

Total Quality Management- Objective and phases of TQM, Quality Circle – AQL – Accepted Quality Level.

**UNIT - IV**

**Production Control**

Types pf Control forms –Basic Production systems, flow process grids for production – Control Scheduling Calculation – types of Schedule.

**UNIT - V**

**Quality control in apparel industry**

Quality control in designing, Pattern making. Warehousing. Quality Control Trims, Fasteners, Sewing thread, Needle and Accessories. Inspection – stages and systems of inspection.

**Reference**

1. Pradip V.Metha, Introduction to quality control for Apparel Industry ASQC Quality Press, Marcel Dekker, Inc. 1992
2. Chuter A.J. Introduction to clothing Production Management, Blackwell Publishing House, 1995
3. Preadip. V. Metha, Managing Quality the Apparel industry, Satish K. Bhardwaj, New age International (P) Ltd, Publishers, 2006.

**ENTREPRENEURIAL DEVELOPMENT**

**Preamble:** This course facilitates an understanding Concept of Entrepreneurship and orients the learners in the field of clothing industry. The learners are expected to know the Project Identification, Institutional service to Entrepreneur and Institutional finance to Entrepreneur in garment industry.

**UNIT - I**

Concept of Entrepreneurship: Definition Nature and Characteristics of Entrepreneurship – Functions and types of Entrepreneurship phases of EDP. Development of women Entrepreneur and rural Entrepreneur – including self employment of women council scheme.

**UNIT – II**

The Start- up process, Project Identification – Selection of the product – Project formulation evaluation – Feasibility Analysis, Project Report.

**UNIT - III**

Institutional service to Entrepreneur – DIC, SIDO, SIC, SISI, SSIC, SIDCO, ITCOT, IIC, KUIIC and commercial Bank.

**UNIT –IV**

Institutional finance to Entrepreneur – IFCI, SFC, IDBI, ICICI, TIIC, SIDCS, LIC AND GIC, UIT, SIPCOT – SIDBI and commercial Bank venture capitals.

**UNIT –V**

Incentives and subsidies – Subsidised Services – Subsidy for market. Transport – seed capital assistance – Taxation benefit to SSI – role of Entrepreneur in export promotion and import substitution.

**REFERENCES:**

1. Entrepreneurial Development – C.B.Gupta ad N.P. Srinivasan
2. Fundamentals of Entrepreneurship and small Business – Renu Arora ad S.KI. Sood
3. Entrepreneurial Development – S.S. Khanka
4. Entrepreneurial Development – p. Saravana Vel
5. Entrepreneurial Development – S.G. Bhanushali
6. Entrepreneurial Development – Dr. N. Ramu

### **HOME TEXTILE**

**Preamble:** This course facilitates an understanding of furnishing materials and orients the learner in the field of home textile. The learners are expected to know the Floor coverings, Living room furnishing and doors and windows of textile industry.

**Unit – I Different types of furnishing materials:**

Definition – Different types of furnishing materials – Woven and Non-woven, Factors affecting selection of home furnishes. Recent Trends in Home Furnishing

**Unit – II Floor coverings:**

Floor coverings – Hard floor coverings, Resilient floor coverings. Soft floor coverings – Rugs and carpets, Use and care. Wall covering – Use and care.

**Unit – III Doors and Windows:**

Doors and Windows – Definition, Different types of doors and windows, their application. Curtains and Draperies – Choice of fabrics, calculating the amount of material needed, hints on making curtains hang well, methods of finishing draperies at the top – Use of drapery rods, hooks, tape rings and pins.

**Unit – IV Living room furnishing:**

Living room furnishing – sofa covers, wall hangers, cushion, cushion covers, upholsteries, Bolster and Bolster covers. Bed Linens – Definition, Different types of bed linens, sheets, blanket covers, comfort covers, bed spreads, mattress covers and pads, pillows and pillow covers, use and care.

**Unit – V Kitchen and Table Linens:**

Kitchen and Table Linens – Definition – Types of Kitchen linens, Dish cloth, Hand towels, Fridge cover, Fridge handles, Mixi cover, Grinder cover, their use and care.

**Reference :**

1. Jay Diamond, Ellen Diamond – Fashion Apparel Accessories and Home Furnishings.
2. Premavathy Seetharaman, Praveen Pannu – Interior Design and Decoration.

**TEXTILE TESTING AND CARE**

**Fiber**

- Fiber Testing
- Longitudinal view test using Microscope
- Fibre Length using Baer Sorter
- Fineness test using Sheffield Micronaire
- Bundle Strength using Stelometer

**Yarn Testing**

- Yarn Count using Wrap Reel and Electronic Balance
- Yarn Count Beesley Balance and Quadrant Balance
- Yarn Twist using Twist tester
- Yarn Strength using Lea Strength Tester

**Fabric Testing**

- Fabric length and Width
- Fabric thickness
- Fabric Weight
- Bursting Strength
- Crease Recovery
- Stiffness
- Drape
- Fabric warp and weft Crimp
- Rubbing fastness
- Washing fastness
- Perspiration Fastness
- Light Fastness

**Clothing care**

- Preparation of Soap by Hot and Cold Process
- Preparation of Detergent
- Starch Preparation by Hot and Cold Process
- Blue Preparation
- Stain removal.