

**SNDT Women's University**

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## **Syllabus**

**M. Sc. -Textile Science and  
Apparel Design**



**Revised 2012-2013**

Approved in Academic Council Meeting held on 15<sup>th</sup> Oct. 2012

**Eligibility:**

Candidate with an overall average of B Grade or equivalent (55%) marks in B.Sc. Textile Science & Apparel Design, B.Sc. Apparel Design, B.Sc. Textiles & Clothing, B.Sc. Fashion Design, B.Sc. Fashion Apparel Design, B.Sc. Composite (Home Science) are eligible for this course.

Students with the following undergraduate degrees viz., B.Sc. Apparel Design, B.Sc. Fashion Design, B.Sc. Fashion Apparel Design, B.Sc. Composite (Home Science) are eligible provided they complete the required prerequisites by the end of Semester II i.e. FY M.Sc.

**Prerequisites required:**

Textile Testing, Textile Chemistry, Weaving (Theory & Practical)

**Objectives:**

- To impart knowledge and develop capacities of the students through state of art higher education with in-depth study of Textile Technology and Garment Production in the areas of Chemical Processing of Textiles, Quality Control in Textiles and Apparels, Knitting Technology and Knitwear Design and Grading and Draping of Patterns.
- To develop the process of critical and analytical thinking and encourage the students to pursue further Studies and Research in the areas of Textiles and Apparels.
- The overall emphasis is, to enrich the knowledge base, enhance research aptitude and to provide the students with inbuilt confidence in their professional field and cutting edge in the global scenario.

**ANNEXURE 'A'**  
**MASTERS PROGRAMME (M.Sc.) IN TEXTILE SCIENCE AND APPAREL DESIGN (2012-14)**

2 Years (4 Semesters)

TOTAL 96 Cr (24 Cr per Semester)

**SEMESTER-I**

| Code No. | Courses   | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|---|---------------|-------|-------|---------|---------|-------------|
| CC1      | Garment Design & Construction (Pr) ( U )                  | 4             | -     | 4     | 50      | 50      | 100         |
| CC2      | Chemical Processing of Textiles (Th) ( U )                | 4             | 4     | -     | 50      | 50      | 100         |
| CC3      | Chemical Processing of Textiles (Pr) ( C )                | 4             | -     | 4     | 50      | 50      | 100         |
| CC4      | Quality Control for Textile & Apparel Fabric(Th) (Pr) (U) | 4             | 2     | 2     | 50      | 50      | 100         |
| CC5      | Pattern Making & Grading (Pr) ( U )                       | 4             | -     | 4     | 100     | -       | 100         |
| CC6      | Global Costumes – retrospect & prospect (Th) ( C )        | 4             | 4     | -     | 100     | -       | 100         |
|          | <b>Total</b>  | <b>24</b>     |       |       |         |         | <b>600</b>  |

**SEMESTER-II**

| Code No     | Courses   | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|-------------|---|---------------|-------|-------|---------|---------|-------------|
| CC7         | Research Methodology (Th) ( U )                     | 4             | 4     | -     | 50      | 50      | 100         |
| CC8         | Fabric Structures & Fabric Analysis (Th) (Pr) ( U ) | 4             | 2     | 2     | 50      | 50      | 100         |
| CC9         | Fashion Illustration & Forecasting (Pr) ( C )       | 4             | -     | 4     | 100     | -       | 100         |
| CC10        | Garment Design through Draping (Pr) ( C )           | 4             | -     | 4     | 100     | -       | 100         |
| CC11        | Apparel Merchandising (Th) ( U )                    | 4             | 4     | -     | 50      | 50      | 100         |
| CC12/<br>E1 | * Elective I (Th) (C)                               | 4             | 4     | -     | 100     | -       | 100         |
|             | <b>Total</b>  | <b>24</b>     |       |       |         |         | <b>600</b>  |

**SEMESTER-III**

| Code No     | Courses   | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|-------------|---|---------------|-------|-------|---------|---------|-------------|
| CC13        | Research and Statistical Applications (Th) (Pr) ( U ) | 4             | 2     | 2     | 50      | 50      | 100         |
| CC14        | Knitting Technology (Th) ( U )                        | 4             | 4     | -     | 50      | 50      | 100         |
| CC15        | Garment Production Technology (Th) ( C )              | 4             | 4     | -     | 50      | 50      | 100         |
| CC16        | Garment Production Technology (Pr) ( C )              | 4             | -     | 4     | 100     | -       | 100         |
| CC17        | Technical Textiles (Th) ( U )                         | 4             | 4     | -     | 50      | 50      | 100         |
| CC18<br>/E2 | **Elective II (Th) ( C )                              | 4             | 4     | -     | 100     | -       | 100         |
|             | <b>Total</b>  | <b>24</b>     |       |       |         |         | <b>600</b>  |

### SEMESTER –IV

| Code No | Courses  | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--|---------------|-------|-------|---------|---------|-------------|
| CC19    | Dissertation (Pr) ( U )  | 8             | -     | 8     | 100     | 100     | 200         |
| CC20    | Internship (Pr) ( C )  | 8             | -     | 8     | 100     | 100     | 200         |
| CC21    | Recent Advances in Textile Science & Apparel Design (Seminar) (Th) ( C ) | 4             | 4     | -     | 100     | -       | 100         |
| CC22    | Project Work (Pr) ( C )  | 4             | -     | 4     | 100     | -       | 100         |
|         | <b>Total</b>   | <b>24</b>     |       |       |         |         | <b>600</b>  |

**Notes :**

I. CC- Core Courses

II. Electives are mandatory for all students

a. E-I - Elective within Home Science Faculty

b. E-II - Elective outside Home Science Faculty

\* Elective I a. Fashion Illustration & Forecasting (Semester II)

b. Home Textiles (Semester II)

\*\*Elective II Soft Skills Development (Semester III)

III. To be implemented w.e.f. Academic Year 2012-13

IV. Passing Criteria

- Internal & External separate passing, 50% passing for each
- Theory & Practical separate passing, 50% passing for each

U = University level exam, C = College level exam,

Th = Theory, Pr = Practical

Approved in BOS TSAD Meeting on 30<sup>th</sup> May 2012

Approved in Faculty Meeting on 12<sup>th</sup> June 2012

Approved in Academic Council Meeting on 27<sup>th</sup> June 2012

## SEMESTER I

### Garment Design and Construction (Practical) (University Exam)

#### Objectives:

1. To develop the skill and ability to design and develop draft patterns for different garments based on body measurements and adaptations.
2. To develop skills in handling different fabrics, embellishments and quality of finishing of garments.
3. To understand the commercial processes used in garment industry and quality control and assessment of readymade garments.

| Code No | Courses                       | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|-------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC1     | Garment Design & Construction | 4             | -     | 4     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | Construct garments using following theme - Ethnic wear or Party wear<br>• Salwar / Chudidar<br>• Kurta  | 30                      | 40             |
| 2       | Western or Indo -Western outfit<br>• Trousers and Top or<br>• Skirt and Top or<br>• Dress   | 50                      | 45             |
| 3       | To construct a garment using commercial pattern   | 30                      | 10             |
| 4       | Demonstration of cutting and stitching of gents shirt or trouser by a professional tailor and<br>Visit to a Readymade industry<br>(Construction details, machinery and Quality Control to be explained to the students who have to submit a report on the same) | 10                      | 5              |

#### References:

- 1 Brackman, Helen L. Theory of Fashion Design, New York John Wiley & Sons
- 2 Helen Joseph, Armstrong, Draping for Apparel Design – Fairchild Publication, New York
- 3 Hilde Jaffe and Norie Relis, Draping for Dress Design (4<sup>th</sup> ed.) – Pearson Prentice Hall, New Jersey
- 4 Hill House M.S. & Mansfield E.A., Dress Design – Draping & Flat Pattern London
- 5 Natalie Bray, Dress Fitting (2<sup>nd</sup> Ed.) Blackwell Science
- 6 Natalie Bray, More Dress Pattern Designing (4<sup>th</sup> Ed.) Blackwell Science
- 7 Nora Mac Donald – Prentice Hall, Principles of Flat Pattern Design (2<sup>nd</sup> Ed.) New Jersey
- 8 Popin, Harriet, Modern Pattern Design, New York
- 9 Sheldon Maratha Gene, Design through Draping, U.S.A. Burgers Publishing Company
- 10 Strickland Gertude, A Tailoring Manual, New York, Macmillan Company

## SEMESTER I

### Chemical Processing of Textiles (Theory) (University Exam)

#### Objectives:

1. To be acquainted with the polymers of which the textile fibers are made.
2. To familiarize with the principles of chemical processing i.e. from preparatory process to finishing of textiles
3. To understand the chemistry, production and fundamental properties of natural and synthetic dyes

| Code No | Course                          | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|---------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC2     | Chemical Processing of Textiles | 4             | 4     | -     | 50      | 50      | 100         |

#### Contents:

| Sr. No.   | Topic and Details  | No. of Periods assigned | Weightage in % |
|---|--|-------------------------|----------------|
| 1   | <b>Introduction</b> (In brief)   | 02                      | 5              |
|   | Relevance of chemical processing in apparel performance  |                         |                |
|   | <b>Fibre Science:</b>  |                         |                |
|   | Unit 1: Polymers and their essential requirements to be fibres for apparel; Filament extrusion techniques in relation to fibre properties.   | 03                      |                |
|   | Unit 2: Natural fibres such as cotton, viscose, wool and silk; Important features of their physical and chemical structure; Properties in relation to fabric/garment performance                         | 06                      |                |
| Unit 3: Synthetic fibres such as polyester, nylon, acrylic and polypropylene; Important features of their physical and chemical structure; Properties in relation to fabric/garment performance | 06   | 10                      |                |
| 2   | <b>Pre-treatment of textiles</b>   |                         |                |
|   | A. Importance of pre-treatments<br>B. Cotton: desizing, scouring, bleaching, Mercerization<br>C. Wool: scouring, bleaching<br>D. Silk: degumming, bleaching<br>E. Synthetics: scouring, heat setting     | 06                      | 10             |
|   | <b>Colouration of Textiles</b>   |                         |                |
|   | Unit 1: Colour perception, Hue, Chroma, Saturation; Dyes and pigments; Application wise classification of dyes;  | 03                      | 5              |
|   | Unit 2: Principles of dyeing and application of dyes<br>a. Direct, Reactive, Vat on cotton,<br>b. Disperse on polyester,<br>c. Acid on wool and nylon,<br>d. Basic on acrylic, silk,<br>e. Natural dyes. | 08                      | 10             |
| Unit 3: Performance of dyed textiles; Fastness requirements for different end uses  | 03   | 5                       |                |

|   |   |    |    |
|---|---|----|----|
|   | Unit 4: Printing of textiles:<br>Principles of printing, Printing using dyes and pigments on different fibre fabrics; fixation of prints using various methods; Techniques of printing. After treatments like fixation by steaming/curing, soaping, washing, etc. | 06 | 10 |
| 3 | <b>Finishing of textiles:</b><br>Classification of finishes; Mechanical and assisted finishes and machines used for; Specialty Finishes like wrinkle free, durable press, flame retardant, water proof, soil & stain release, antibacterial.                      | 04 | 10 |
|   | <b>Classification of auxiliary chemicals used in textile processing;</b><br>Properties of wetting agents, softeners, detergents, levelling agents, carriers, bleaching agents, thickeners, binders;<br>Eco-friendly chemicals                                     | 03 | 10 |
| 4 | <b>Introduction to equipment and machineries used in Processing,</b> such as kier/ J-box, winch, jigger, padding mangle, steamer, curing chamber, washing unit,   | 06 | 10 |
|   | <b>Environmental aspects of textile processing</b> (in brief):<br>Energy and water conservation; Pollution caused by textile processing and permissible limits of pollutants in water; Hazardous chemicals and their substitution.                                | 04 | 5  |
|   | <b>Smart Textiles</b> (Assignment to students)  |    |    |

#### References:

1. Cook, J. Gordon, Hand Book of Textile Fibers, Merrow Publishing Co. Ltd, England
2. Lewin, M. and Sello, Stephen B., Handbook of Fiber Science and Technology, Vol. II, Chemical Process of Fibres and Fabrics, Functional Finishes Part A, 1983, Marcel Decker, Inc, NY and Basel.
3. Mark H., Wooding N.S. & Atlas Smeeds, Chemicals after Treatment of Textiles, 1970, John Wiley & Sons Inc., NY.
4. Marsh, J.T. An Introduction to Textile Finishing, 1979, B. I. Publications.
5. Moncrief R.W, Manmade Fibres, John Wiley & Sons New York.
6. Shenai V.A. and Mehra, R.H. Evaluation of Textile Chemicals 1984; Vol.VIII,
7. Shenai V.A. and Saraf, N.M., Chemistry of Organic Textile Chemicals- Sevak Pub
8. Shenai V.A. Chemistry of Dyes & Principles of Dyes 1987; Vol.III, Edition III, Sevak Pub
9. Shenai V.A. Textile Fibers 1990; Vol. I, Edition III, Sevak Pub
10. Shenai V.A. and Saraf, N.M. Technology of Finishing 1990, Vol. X.II Edition
11. Shenai V.A. Technology of Dyeing, Vol.I, Edition III, 1984, Sevak Pub.
12. Shenai, V.A. Technology of Dyeing, Vol. VI, 1988; Sevak Pub
13. Shenai V.A. Technology of Textile Processing, 1984, Vol. IX, Sevak Publication
14. Shenai.V.A Fundamental Principles of Textile Processing, 1984; Vol. IX, I Edition, Sevak Pub
15. Trotman, E.R. Dyeing and Chemical Technology of Textile Fibers, 1975, Charles Griffino Company Ltd, London.

## SEMESTER I

### Chemical Processing of Textiles (Practical) (College exam)

#### Objectives:

1. To be acquainted with the polymers of which the textile fibres are made.
2. To familiarize with the principles of chemical processing i.e. from preparatory process to finishing of textiles
3. To understand the fastness requirements of dyed materials

| Code No | Course                          | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|---------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC3     | Chemical Processing of Textiles | 4             | -     | 4     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | a. Qualitative Identification of fibres – cotton, polyester, viscose, nylon, silk, wool and others by use of burning, microscopic, chemical tests.  | 16                      | 15             |
|         | b. De-sizing, scouring and bleaching of grey cotton fabric  | 24                      | 20             |
| 2       | Exhaust dyeing experiments:<br>3. Dyeing of cotton with direct dye<br>4. Dyeing of cotton with reactive dye<br>5. Dyeing of wool, silk and nylon with acid dye<br>6. Dyeing of polyester with disperse dye by carrier method<br>7. Dyeing of acrylic with basic dye<br>8. Dyeing of a natural dye on wool using mordant                         | 32                      | 25             |
| 3       | Direct style printing experiments:<br>9. Printing on cotton with reactive dye<br>10. Printing of cotton with pigment<br>11. Printing of nylon with acid dye<br><br>Discharge style printing experiments:<br>12. White discharge under direct dyed cotton<br><br>Mechanical resist printing experiments:<br>13. Batik style, tie & dye on cotton | 32                      | 25             |
| 4       | Finishing experiments :<br>14. Application of starch on cotton and stiffness measurement<br>15. Application of resin finish on cotton (pad-dry- cure) and crease recovery angle measurement<br>Cotton using method  | 16                      | 15             |



## References:

1. Cook, J. Gordon, Hand Book of Textile Fibers, Merrow Publishing Co. Ltd., England
2. Mohanty, Chandramouli, Naik, Natural dyeing process of India, 1987, Ahmedabad, Calico Museum of Textiles.
3. Gulrajani M.L. and Gupta, D. Natural Dyes and their Application to Textiles, (1982), IIT Delhi.
4. [India Horti business on line. http://www.agroindia.org/IHOL](http://www.agroindia.org/IHOL)
5. Lewin, M. and Selio, Stephen B., Handbook of fiber Science and Technology, Vol. II, Chemical Process of I and Fabrics, Functional Finishes Part A 1983 Marcel Dekker, Inc, NY and Basel.
6. Mark H., Wooding N.S. & Atlas Smeeds, Chemicals after Treatment of Textiles, 1970, John Wiley & Sons Inc., NY.
7. Marsh, J.T. An Introduction to Textile Finishing, 1979, B. I. Publications.
8. Moncrief: R.W., Manmade Fibers, John Wiley & Sons New York.
9. Shenai, V.A. Introduction to the Chemistry of Dyestuffs 1991, Sevak Prakashan
10. Shenai, V.A. Technology of Textile Processing, 1984, Vol.- IX, Sevak Publication
11. Shenai, V.A. Fundamental Principles of Textile Processing, 1984, Vol. IX, I Edition, Sevak Pub
12. Shenai, V.A. and Mehra R.H. , Evaluation of Textile Chemicals, 1984, Vol.VIII, Sevak Pub
13. Shenai, V.A. and Saraf, N.M. Technology of Finishing 1990, Vol. X.II Edition
14. Shenai, V.A. and Saraf, N.M., Chemistry of Organic Textile Chemicals- Sevak Pub
15. Shenai, V.A. Chemistry of Dyes & Principles of Dyes, 1987; Vol.III, Edition III, Sevak Pub
16. Shenai, V.A. History of Textile Design, 1988, Sevak Pub
17. Shenai, V.A. Technology of Dyeing, 1984, Vol.I, Edition III, Sevak Pub.
18. Shenai, V.A. Technology of Dyeing, 1988; Vol. VI, Sevak Pub
19. Shenai, V.A. Textile Fibers, 1990, Vol. I, Edition III, Sevak Pub
20. Trotman, E.R. Dyeing and Chemical Technology of Textile Fibers, 1975, Charles Griffino Company Ltd, London.

## SEMESTER I

### Quality Control for Textiles and Apparel Fabrics (Theory) (University Exam)

#### Objectives:

- To develop an understanding of methods and techniques used to analyse textile fibers, yarns and fabrics for end use performance
- To acquire knowledge and understanding of various structural properties of textiles and relate them to end use fabric performance and product
- To familiarize students with the different testing equipments, their underlying principles and the international accepted standards, test methods and the language of measurement
- To be able to analyse and interpret the results and predict the general textile behavior performance
- To develop understanding of the importance of quality control in textile testing

| Code No | Courses                                      | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--|---------------|-------|-------|---------|---------|-------------|
| CC4     | Quality Control for Textile & Apparel Fabric | 4             | 2     | 2     | 50      | 50      | 100         |

#### Contents

| Sr. No.  | Topic and Details   | No. of Periods assigned | Weightage in % |
|--|---|-------------------------|----------------|
| 1  | <b>Introduction</b>   | 05                      | 15             |
|  | Unit 1: Importance of Textile Testing and analysis, objectives (reasons) of textile testing, Uses of Testing information, Factors influencing Quality Control             |                         |                |
|  | Unit 2: Sampling, terms used in sampling, fiber sampling, yarn sampling, fabric sampling  |                         |                |
|  | Unit 3: Development of standard test methods, national and international organizations involved in textile testing, ISO Stds. and ISO – Series                            |                         |                |
|  | Unit 4: Precision and accuracy of testing methods, atmospheric conditions for textile testing, temperature and humidity, measurement of humidity and moisture in textiles | 03                      | 5              |
|  | <b>Fiber Dimensions</b>   |                         |                |
|  | Unit 1: Fiber Fineness, Methods of measuring fiber  |                         |                |
|  | Unit 2: Fiber length, methods of measuring fiber length   |                         |                |
| Unit 3: Fiber strength – Single fiber method, Bundle strength method |   |                         |                |

|   |  |    |    |
|---|--|----|----|
|   | <b>Yarn Test</b>   |    |    |
|   | Unit 1: Linear Density – Direct & Indirect system, folded yarns, methods of measuring linear density of yarns from packages and skeins and from a fabric sample  |    |    |
|   | Unit 2: Yarn Crimp   | 04 | 15 |
|   | Unit 3: Yarn Twist – Level of twist and twist factor methods of measuring twist, yarn evenness and methods of assessing evenness   |    |    |
|   | Unit 4: Yarn strength – Single strand method skein method, count strength product (CSP)  |    |    |
|   | <b>Testing and Evaluation of Fabric and Garment</b>  |    |    |
| 2 | Unit 1: Strength properties of Textile & Apparel – Terminologies and definitions like force units, Breaking strength and Tensile strength, Stress, specific stress, Tenacity, Elongation, Strain, Extension, Extension percentage, Gauge length, Elastic recovery, Force and elongation curve<br>Factors affecting tensile testing, fabric characteristics affecting tensile properties, tensile testing machines and their working principles<br>Fabric Test Methods –<br>Breaking strength – Ravelled strip method, Cut strip method and Grab method<br>Tearing Strength – Tongue tear test, Trapezoid method, Elmendorf tear test<br>Bursting strength – Hydraulic / Diaphragm bursting test Seam strength and yarn slippage in woven fabrics at seams, seam slippage tests for woven and upholstery fabrics, needle cutting in a fabric, sewability of fabrics and seam efficiency | 04 | 65 |
|   | Unit 2: Fabric Stiffness, Handle and Drape -<br>Fabric Stiffness and Handle – definitions, methods of measuring fabric stiffness - Shirley stiffness test, Hanging loop method Drape – definitions, methods of measuring fabric drape – drape meter<br>Crease Resistance and Crease Recovery – definitions of terms, advantages of giving resin treatment to fabrics, fabric characteristics affecting wrinkle resistance, methods of measuring crease recovery – Total test, Shirley crease recovery test, visual comparison method i) Kawabata Evaluation system (KES) for fabrics<br>ii) Fabric Assurance by Simple Testing (FAST) system.  | 04 |    |
|   | Unit 3: Fabric / Garment Serviceability –<br>Definitions of terms – serviceability, wear durability Snagging – definition, methods for testing snag resistance of fabric   | 03 |    |

|  |    |  |
|--|----|--|
| <p>Pilling – definition, causes of pilling, stages in formation of pilling, remedies for reducing pilling, methods for testing pilling resistance of fabrics – brush and sponge pilling test, random tumble pilling test</p> <p>Abrasion – definition, types of abrasion, properties affecting abrasion resistance, Common abrasion instruments and methods used for evaluating abrasion method, flexing and abrasion method, rotary platform method, Accelerator method, edge and fold abrasion method (all in brief), assessment of abraded sample</p> |    |  |
| <p>Unit 4: Wear Comfort of Clothing –</p> <p>Air Permeability – definitions, air resistance, air porosity, fabric properties and air permeability, methods for measuring air permeability of fabrics - Shirley air permeability tester, Gurley Densometer, Frazier air flow tester</p>   |    |  |
| <p>Unit 5: Water Absorption of Fabrics –</p> <p>Water absorption, methods of measuring amount of water absorbed – static Immersion test</p> <p>Wettability of fabrics – definition, methods used or testing wettability of fabrics</p> <p>Sinking time test of fabrics</p>   | 01 |  |
| <p>Unit 6: Water Repellency of Fabrics –</p> <p>Definitions of waterproof shower proof, water repellent fabrics.</p> <p>Methods for measuring the water repellency of fabrics – Spray test, Bundesmann test, Drop Penetration test, WIRA shower test, Hydrostatic head test</p>  | 02 |  |
| <p>Unit 7: Dimensional Stability –</p> <p>Definition, Types of Shrinkage – Relaxation, Swelling, Felting, Thermal / Contraction, growth shrinkage in knits Methods used for evaluating dimensional change in fabrics and garments, dimensional change in washing and drying conditions in home laundering, commercial laundering</p> <p>Dimensional Restoration of Fabrics</p> <p>Durable press evaluation of Fabrics and Apparel</p>  | 02 |  |
| <p>Unit 8: Colour Fastness –</p> <p>Introduction, colour fastness test methods to washing, dry cleaning, light, crocking, perspiration, heat (hot pressing)</p>  | 02 |  |

**References:**

1. Billie J. Collier and Helen E. Epps, Textile Testing and Analysis, Prentice Hall, New Jersey
2. Brackenbury Terry, Knitted Clothing Technology, Blackwell Science Ltd.
3. George Stylios, Textile Objective measurement Automation in Garment Manufacture, Ellis Horwood Ltd, England
4. Groover and Hamby, Handbook of Textile Testing and Quality Control
5. J. E. Booth, Principles of Textile Testing, Newness Butterworth, London,
6. John H. Skinkle, Brooklyn, Textile Testing, New York
7. Pradip V. Mehta, An Introduction to Quality Control for Apparel Industry, Marcel Dekker, New York
8. Textile Testing & Quality Control Standards like – BIS, BS, ASTM, ISO, AATCC, etc.

## SEMESTER I

### Quality Control for Textiles and Apparel Fabrics (Practical) (University Exam)

#### Objectives:

- To develop an understanding of methods and techniques used to analyse textile fibers, yarns and fabrics for end use performance
- To acquire knowledge and understanding of various structural properties of textiles and relate them to end use fabric performance and product
- To familiarize students with the different testing equipments, their underlying principles and the international accepted standards, test methods and the language of measurement
- To be able to analyse and interpret the results and predict the general textile behavior performance
- To develop understanding of the importance of quality control in textile testing

| Code No | Course                                       | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--|---------------|-------|-------|---------|---------|-------------|
| CC4     | Quality Control for Textile & Apparel Fabric | 4             | 2     | 2     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | Yarn Testing<br>Measuring linear density of yarn from yarn package (skein method),<br>Yarn Crimp in woven fabrics<br>Yarn twist – i) Single spun yarn and ply yarn,<br>ii) twist factor<br>Yarn evenness<br>Yarn strength test – i) Single strand test and<br>ii) skein / lea strength test and CSP   | 10                      | 10             |
| 2       | Fabric and Garment Testing<br>Strength Properties of Textile and Apparels –<br>i) Fabric Strength Tests –<br>a) Breaking force and Elongation of fabrics<br>(Strip and grab test)<br>b) Tearing Strength of woven and non-woven fabrics<br>c) Bursting Strength of knitted fabrics.<br>ii) Seam Strength test for woven and knit fabrics-<br>Resistance to Slippage of yarns in woven fabrics using a std. seam | 50                      | 90             |

|   |  |  |
|---|--|--|
| <p>Failure in sewn seams of woven and knit fabrics</p> <p>Objective Evaluation of fabric handle –</p> <p>Fabric Stiffness (bending length)</p> <p>Fabric Drape</p> <p>Crease recovery –</p> <p style="padding-left: 40px;">i) Recovery angle<br/>method</p> <p style="padding-left: 40px;">ii) Appearance<br/>method.</p> <p>Fabric / Garment Serviceability –</p> <p>Pilling Test</p> <p>Abrasion Test</p> <p>Air Permeability</p> <p>Thickness Test – i) Woven and Knit fabrics</p> <p>i) Fabric Count and Cover factor - Woven Fabrics</p> <p>ii) Fabric Count (wales and courses / inch) and Stitch</p> <p>Mass / unit area (weight) of woven fabrics</p> <p>Fabric Density Ends &amp; Picks</p> <p>Evaluation of Color fastness of dyed fabrics / apparels to –</p> <p>Artificial Light</p> <p>Crocking</p> <p>Perspiration</p> <p>Washing in laundrometer</p> |  |  |
|---|--|--|

**References:**

1. Billie J. Collier and Helen E. Epps, Textile Testing and Analysis, Prentice Hall, New Jersey
2. Brackenbury Terry, Knitted Clothing Technology Blackwell Science Ltd.
3. George Stylios, Textile Objective measurement Automation in Garment Manufacture, Ellis Horwood Ltd, England
4. Groover and Hamby, Handbook of Textile Testing and Quality Control
5. J.E.Booth, Principles of Textile Testing, Newness Butterworth, London
6. John H. Skinkle, Textile Testing, Brooklyn, New York
7. Pradip V. Mehta, Marcel Dekker, An Introduction to Quality Control for Apparel Industry New York
8. Textile Testing & Quality Control Standards like – BIS, BS, ASTM, ISO, AATCC, etc.

## SEMESTER I

### Pattern Making & Grading (Practical) (University Exam)

#### Objectives:

- To acquire knowledge and understanding of the grading technique patterns
- To develop an understanding of a sample pattern using industrial sample room procedure
- To be able to understand and develop pattern envelopes

| Code No | Course                   | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--------------------------|---------------|-------|-------|---------|---------|-------------|
| CC 5    | Pattern Making & Grading | 4             | -     | 4     | 100     | -       | 100         |

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | <p>A) Elements of Pattern -</p> <p>a) Essential symbols and terms used, piece identification, grain line, notches, darts, centre front, centre back, fold line, lengthen/shorten.</p> <p>b) Helpful markings: cutting lines, stitching lines, stitching direction, lapline, pleats, tucks, hem with, edge finishes and clip</p> <p>B) Pattern Making &amp; Grading -</p> <p>a) Children - creating the given pattern for shirt using the above marker and grading</p> <p>b) Women - creating the given pattern for a Top using the above marker and grading</p> <p>c) Men - creating the given pattern for Trousers using the above marker and grading</p> | 30                      | 20             |
| 2       | <p>A) Development of basic blocks for -</p> <p>- Children - Shirts &amp; Shorts</p> <p>- Women - Top &amp; Skirt</p> <p>- Men - Shirt and Trouser</p> <p>B) Converting the above Basic blocks to Marker blocks</p>   | 15                      | 15             |
| 3       | <p>Pattern Envelope &amp; Guide Sheet -</p> <p>a) Pattern Envelope</p> <p>1) Envelope Front</p> <p>2) Envelope Back</p> <p>b) Guide Sheet:</p> <p>- General information, cutting layouts, sewing directions, pattern pieces, pattern preparation, pattern adjustments, pressing information</p>  | 5                       | 5              |
|         | Preparing a detailed Pattern Envelope and Guide Sheet for any one of the above patterns  | 10                      | 10             |
| 4       | <p>Introduction to Grading</p> <p>- Brief history, the awakening of the grading system</p> <p>- What is Grading?</p> <p>- Methods of grading patterns</p> <p>- Equipment for Grading</p>   | 10                      | 5              |

|   |    |    |
|---|----|----|
| Study of different body types and their measurement charts (infants, toddlers, pre-schoolers, pre-teens, adolescents, adults - men & women)   | 10 | 5  |
| <p>A. Grading the above Marker blocks to various sizes by vector Method using front and back markers</p> <p>1. Children –<br/> Shirt – a) Height varying and round chest constant<br/> b) Height constant and round chest varying<br/> Sleeve- a) Height varying and armhole constant<br/> b) Height constant and armhole varying</p> <p>2. Women –<br/> Skirt – a) Height varying and round hip constant<br/> b) Height constant and round hip varying<br/> Top - a) Height varying and round chest constant<br/> b) Height constant and round chest varying<br/> Sleeve- a) Height varying and armhole constant<br/> b) Height constant and armhole varying</p> <p>3. Men –<br/> Trousers- a) Height varying and round hip constant<br/> b) Height constant and round hip varying<br/> Shirt – a) Height varying and round chest constant<br/> b) Height constant and round chest varying<br/> Sleeve- a) Height varying and armhole constant<br/> b) Height constant and armhole varying</p> | 40 | 40 |
| Application of IT in the field of pattern making & grading (Demonstration of software used like, TUKATECH (CAD), Gerber Technology, Rich piece or other)  | -  | -  |

### References

1. Adele P., The complete book of Tailoring, Margolis
2. David J. Tyler, Material Management in Clothing Production
3. Gerry Cooklin, Pattern Grading for children's/ women's/ men's clothing technology of sizing. Oxford B.S.P. PROFESSIONAL BOOKS, London
4. Gerry Cooklin, Garment Technology for Fashion Designers, Blackwell Science Ltd.
5. Harold Carr & Barbara Latham, The Technology of clothing manufacture
6. Jeanette Weber, Clothing - Fashion Fabrics Construction
7. Natalie Bray, Dress Fitting, 2nd Edition, Blackwell Science
8. Patrick John, Fashion Design Illustration: Men- Ireland
9. Pradeep Gupta, Apparel Technology
10. Winifred Aldrich, Metric Pattern Cutting for children's wear (2-14years) 2nd edition
11. Winifred Aldrich, Metric Pattern Cutting for men's wear 3rd edition
12. Winifred Aldrich, Metric Pattern Cutting for women's wear 3rd edition



## SEMESTER I

### Global Costumes - Retrospect and Prospect (Theory) (College exam)

#### Objectives

- To gain knowledge of the significant development in production of textiles in the World.
- To study textiles of historical significance that influenced other cultures and civilizations.
- To develop sound attitude and interest regarding styles and patterns of costumes of India.
- To enable students to focus on design details, creation of styles and accessories used from the ancient period till present century.
- To study the changes happened in clothing styles from 3000 BC till 21<sup>st</sup> century.

| Code No | Course                                  | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|---|---------------|-------|-------|---------|---------|-------------|
| CC6     | Global Costumes – retrospect & prospect | 4             | 4     | -     | 100     | -       | 100         |

#### Contents:

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | <b>History of Fashion from 18<sup>th</sup> Century till date</b><br>Unit: 1 Couture: <ul style="list-style-type: none"><li>- France</li><li>- Italy</li><li>- England</li><li>- America</li><li>- Japan</li><li>- India</li></ul>   | 5                       | 5              |
|         | <b>Importance of textiles in historical perspective</b><br>Unit: 1 Early fibers and their products, their use in early civilization: <ul style="list-style-type: none"><li>- India</li><li>- China</li><li>- Egypt</li><li>- Persia</li><li>- Crete</li><li>- Greek</li><li>- Rome</li><li>- Peru</li></ul> | 15                      | 25             |
| 2       | <b>Indian Traditional Costumes:</b><br>Maharashtra, Rajasthan, Gujarat, Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Kanataka, Kerala, Tamil Nadu, Meghalaya, Assam   | 12                      | 25             |

|   |  |    |    |
|---|--|----|----|
|   | <p><b>Costume in ancient civilization:</b><br/> Unit:1 Emphasize on fabric, Garment features, Use of color and decoration.<br/> Unit: 2 Accessories used in costumes with reference to design, material, color, texture and suitability:<br/> - Indian<br/> - Egyptian<br/> - Greek<br/> - Roman</p>   | 12 | 25 |
| 3 | <p><b>Couture from 18<sup>th</sup> century till date:</b><br/> - France<br/> - Italy<br/> - England<br/> - American<br/> - Japanese<br/> - Indian</p>  | 8  | 10 |
| 4 | <p><b>Changes happened in clothing style from 3000 BC till 21<sup>st</sup> century:</b><br/> Unit 1: Modern Age - Renaissance Fashion<br/> - Spanish Fashion<br/> - Netherland Fashion<br/> - Rhineland Fashion<br/> - Rococo Fashion<br/> - English Fashion<br/> Unit 2: Present Day : 20<sup>th</sup> century<br/> The Twenties<br/> The Thirties<br/> The Forties<br/> The Fifties<br/> The Sixties<br/> The seventies<br/> The Eighties<br/> The Nineties<br/> 21<sup>st</sup> century</p> | 8  | 10 |

**Evaluation:**

1. 2 Assignments of 25 marks each
2. Project on Case Study of Fashion Designer: 50 Marks

## References:

- 1 Anderson Black, Midge Garland, A History of Fashion, Orbis Publishing Limited, London.
- 2 Akazi R., Ancient Indian Costumes, New Delhi, Art Heritage
- 3 Bhushan Brij J, Costumes and Textiles of India, Bombay, Taraporwala and Co.
- 4 Boucher Francois, A History of Costume in the West, Thames and Hudson.
- 5 Chandra M., Costumes, Textiles, Cosmetics and Coiffure in Ancient and Medieval India, New Delhi, 1973, Orient Publisher,
- 6 Exan, C.C., Costumes through Ages, Crown Publishers, N. Y.
- 7 Georgina O Hara: The Encyclopedia of Fashion, Thames and Hudson
- 8 Ghure G. S., Indian Costume, 1951, Popular Prakashan, Bombay
- 9 Gillow John and Sentence Bryan, World Textiles, 1999, Thames and Hudson, London,
- 10 Gillow John, Traditional Indonesian Textiles, 1992, Thames and Hudson, London,
- 11 Gini Stephenes Frings, Fashion from Concept to Consumer, 2002 Prentice Hall, N. Jersey, Inc
- 12 Guy John, Woven Cargos, 1998, Thames and Hudson, London
- 13 Harris Jennifer, Textiles 5000 years, 1993, Henry and Brans Inc., New York,
- 14 Harvey Janet, Traditional Textiles of Central Asia, 1996, Thames and Hudson, London.
- 15 Jones Owen, The Grammar of Ornament, 1997, Bernard Quatrach, London
- 16 Kemper R. H., The History of Costume
- 17 Laver James, Costume through the Ages, 1968, Simon and Schuster, N.Y.
- 18 Laver James; The Concise History of Costume and Fashion, 1969, Harry Abrahams, N. Y.
- 19 Paine Shelia, Embroidered Textiles Traditions, 1990, Thames and Hudson, London
- 20 R Turner Wilcox, The Dictionary of Costume, B. T. Batsford Ltd.
- 21 Reader's Digest, History of Man- The Last Two Miliion Years, 1973

## SEMESTER II

### RESEARCH METHODOLOGY (Theory) (University Exam)

#### Objectives:

This course will enable students to:

- develop a scientific approach and know the processes of research
- develop the competence for selecting methods and tools appropriate for research topics

| Code No | Course               | Total Credits | Th Cr | Pr Cr | Int M | Ext M | Total Marks |
|---------|----------------------|---------------|-------|-------|-------|-------|-------------|
| CC6     | Research Methodology | 4             | 4     | -     | 50    | 50    | 100         |

#### Contents:

| Sr. No. | Topic and Details   |
|---------|---|
| 1       | <p><b>The Research Process</b></p> <p>a. Scientific approach to enquiry in comparison to native, common sense approach<br/>b. Knowledge, theory and research<br/>c. Role, need and scope of research in the discipline of Home Science</p> <p><i>Assignment : Differentiate between investigative reporting and research report (with examples to be brought by students as exercise)</i></p> <p><b>Steps in Research Process and Elements of Research</b></p> <p>a. Identifying interest areas and prioritizing<br/>Selection of topic and considerations in selection<br/>b. Review of related literature and research<br/>c. Variables- types of variables including discrete and continuous variables<br/>Conceptual definitions and operational definitions<br/>d. Concepts, hypotheses and theories<br/>e Hypothesis- meaning, attributes of a sound hypothesis, Stating the hypothesis and types of hypothesis<br/>Hypothesis testing- null hypothesis, sample distribution, level of significance, critical regions, Type I and Type II errors<br/>f. Research Design<br/>Research questions, objectives and assumptions</p> <p><i>Assignment: Types of variables<br/>Hypothesis formations and research questions from Research readings – students identify hypothesis/research questions – Discussion</i></p> <p><b>Ethics in Research</b></p> |
| 2       | <p><b>Types of Research</b></p> <p>a. Basic and Applied research, Qualitative and Quantitative research (brief review of differences)<br/>b. Historical research<br/>c. Descriptive research methods – survey, case study, correlational study, content analysis, causal-comparative research</p>   |

|   |   |
|---|---|
|   | <p>d. Analytic studies- pre-experimental, experimental research, quasi experimental research</p> <p>e. Qualitative research, Ethnography</p> <p>f. Evaluative research- general characteristics, use of qualitative methods in enquiry</p> <p>Scope and importance in Home Science</p> <p><b>Assignment:</b> <i>Differentiate between (a) basic and applied research (Exercise to be based on actual research papers published in accredited journals)</i><br/> <i>(b) qualitative and quantitative research</i></p> <p><i>Based on Journal contents undertake a critical appraisal of studies/research papers and discuss types of Research with examples</i></p>  |
| 3 | <p><b>Sampling</b></p> <p>a. Rationale, characteristics- meaning, concept of population and sample, and utility</p> <p>b. Types of sampling and generalizability of results</p> <p>c. Probability sampling - simple random sample, systematic random sample, stratified random sampling etc - random and non-random samples, random numbers and use</p> <p>d.. Non-probability sampling - purposive samples, incidental samples, quota samples, snowball samples</p> <p>e.. General consideration in determination of sample size</p>   |
| 4 | <p><b>Tools for Data Collection</b></p> <p>a. Primary and secondary methods of data collection</p> <p>b. Different types of questionnaires, rating scales, check lists, schedules, attitude scales, inventories, standardized tests, interviews, observation</p> <p>c. Development of tools, estimation of reliability and validity of tools</p> <p>d. Procedure for preparation of the tool, administration of tools for data collection</p> <p>e. Procedure for data collection</p> <p>f. Planning for data analysis-coding of responses</p> <p><b>Assignment :</b> <i>Construction of tools for data collection a) types of questions b) Questionnaire c) interview schedule d) observation d) scales</i></p> <p><i>For a given topic students to frame and discuss the different possibilities of methods and tools</i></p> |

## References:

1. Bell, J. (1997) "Doing Your Research Project: A Guide for First-time Researchers in Education and Social Science", Viva Books, New Delhi.
2. Bell, J. (1997): How to Complete Your Research Project Successfully: A Guide for First-time Researchers, UBSPD, New Delhi.
3. Bulmer, M.C. (1984): Sociological Research Methods: An Introduction, Macmillan, HongKong
4. Chakravoti, S.R. and Giri, N. (1997) "Basic Statistics", South Asian Pub., New Delhi.
5. Das, M.N. (1989) "Statistical Methods and Concepts", New Age, New Delhi.
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8. Festinger, L. and Katz, D. (ed.) (1977): Research Methods in the Behavioral Sciences, Amerind Publishing, New Delhi.
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12. Gupta, S.P. (1996) "Practical Statistics", 37th ed., S. Chand, New Delhi.
13. Gupta, S.C. (2000) "Fundamentals of Statistics", Himalaya Pub., Mumbai.
14. Gupta, S.P. (2000) "Statistical Methods", Sultan Chand & Sons, New Delhi.
15. Gupta, S. (2001) "Research Methodology and Statistical Techniques", Deep and Deep, New Delhi.
16. Holloway, I. (1997): Basic Concepts of Qualitative Research, Blackwell Science, London.
17. Hooda, R.P. (2003) "Statistics for Business and Economics", 3rd ed., Macmillan India Ltd., Delhi.
18. Jain, G. (1998): Research Methodology: Methods and Techniques, Mangal Deep, Jaipur.
19. Kothari, C.R. (2000): Research Methodology: Methods and Techniques, WishwaPrakashan, New Delhi.
20. Kumar, A. (1997): Social Research Method (The Art of Scientific Investigation), Anmol Publication, New Delhi.
21. Kumar, A. (2002): Research Methodology in Social Sciences, Sarup and Sons, New Delhi.
22. McBurney, D.H. (2001): Research Methodology, Thomson-Wadsworth, Australia.
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24. Pande, G.C. (1999): Research Methodology in Social Sciences, Anmol Publication, New Delhi.
25. Richard A. (1992) "Applied Multivariate Statistical Analysis", Prentice-Hall, New Delhi.
26. Sarma, K.V.S. (2001) "Statistics made Simple: Do it yourself on PC", Prentice-Hall, New Delhi
27. Shenoy, G.V. and Pant, M. (2006) "Statistical Methods in Business and Social Sciences", MacMillan India Ltd., Delhi.
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30. Triola and Mario F. (1998) "Elementary Statistics", 7th ed., Addison Wesley Longman, America.
31. UGC Model Curriculum: Statistics/UGC (2001) New Delhi: University Grant Commission

## SEMESTER II

### Fabric Structures and Fabric Analysis (Theory) (University Exam)

#### Objectives:

- To help students to understand the different yarn numbering systems and weaving calculations
- To enable the students to gain knowledge of different weaving machines and weaving mechanism.
- To acquire knowledge of the different types of fabric structures and design and be able to prepare woven designs with suitable draft and peg plan.
- To enable the students to analyze different types of weave patterns
- To learn the principles of creating different colour and weave effects in weaving.
- To learn to set the sample looms and weave different designs

| Code No. | Course                              | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|-------------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC8      | Fabric Structures & Fabric Analysis | 4             | 2     | 2     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | Cloth Calculations - Factors involved in cloth calculations – Calculation of weight of Warp & Weft calculation, Quantity of material required for a piece (Grey fabric, bleached and dyed fabric), per linear and square meter   | 8                       | 25             |
| 2       | Elements of cloth structure – Weave and weave notation, Warp and weft crimp, Warp and weft weight calculation, Cover Factor, Yarn and fabric strength relationships  | 02                      | 10             |
| 3       | Elementary Weaves<br>Plain Weave – Introduction, Classification of plain cloth, Derivatives - Warp rib weave, weft rib weave, matt, Ornamentation of plain weave<br>Twill weave – Introduction, Balance and unbalance twill, angle of twill, Weaves constructed on twill bases- waved twill, Herringbone twill, broken twill, transposed twill, elongated twill, combination of twill weave<br>Sateen and satin weaves – General characteristics, regular and irregular sateens and satin<br>Other weaves – Diamonds and Diapers, Crepe, Honeycomb, Huckaback, Mockleno, moss crepe, Honeycomb, Brighton Honeycomb/Bedford cord, Welts and Pique | 20                      | 65             |

|  |   |  |  |
|--|---|--|--|
|  | <p>Extra weft and extra war figuring effects<br/> Lappet and swivel figured fabrics<br/> Warp, weft pile fabric and terry &amp; Turkish towels<br/> Gauze and net leno<br/> Damask Double cloth<br/> Triaxial weave<br/> Simple colour and weave effects – General considerations, combining weave with colour, representation of colour and weave effect on graph paper, classification of colour and weave effect, producing variety of effects using same weave and colour – continuous line effect , Hound’s tooth effect, Bird’s eye and spot, all over effect<br/> Compound colour and weave effect - Stripe and checks colour and weave effect</p> |  |  |
|--|---|--|--|

**References:**

- 1 Allen Fannin, Van Nostrand, Handloom weaving technology
- 2 Amalsar D.M. Fabric Structure and Cloth Analysis
- 3 Amalsar D.M. Handloom Weaving
- 4 Amalsar D.M. Yarn and Cloth Calculation
- 5 B. P. Corbman, Textiles – Fibre to Fabric
- 6 Grosicki, Z.J, Watson Textile Design and Colour, Newness Butter Worths.
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- 11 R. Sengupta, Weaving Calculations, Taraporewale Sons and Co., Bombay
- 12 Robinson and Mark, Woven Cloth Construction, Butter Worth and Co. Ltd, London.
- 13 Singh R. H., Modern Weaving, Mahanjan Book Distributors, Ahmedabad.
- 14 T.S. Ingold and K. S. Miller, Geotextiles Handbook, Thomas Telford
- 15 Thorpe, Azaba, Elements of Weaving, Doubleday and Co. New York
- 16 William Watson Advance Textile Design, Longmans Green and Co. Ltd.



## SEMESTER II

### Fabric Structures and Fabric Analysis (Practical) (College exam)

#### Objectives:

- To help students to understand the different yarn numbering systems and weaving calculations
- To enable the students to gain knowledge of different weaving machines and weaving mechanism.
- To acquire knowledge of the different types of fabric structures and design and be able to prepare woven designs with suitable draft and peg plan
- To enable the students to analyze different types of weave patterns
- To learn the principles of creating different colour and weave effects in weaving.
- To learn to set the sample looms and weave different designs

| Code No. | Course                              | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|-------------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC8      | Fabric Structures & Fabric Analysis | 4             | 2     | 2     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | Analysis of different woven samples studied in theory for design, repeat, draft, peg plan and other details, on inch graph paper | 30                      | 100            |

#### References:

1. Allen Fannin, Handloom Weaving Technology, Van Nostrand
2. Amalsar D.M, Yarn and Cloth Calculation
3. Amalsar D.M. Handloom Weaving
4. Amalsar D.M. Fabric Structure and Cloth Analysis
5. Azaba, Elements of Weaving, Thorpe, Doubleday and Co. New York
6. B. P. Corbman, Textiles - Fibre to Fabric
7. Grosicki, Z.J, Watson Textile Design and Colour, Newness Butter Worths
8. K.T. Aswani, Weaving Mechanisms , Mahajan Book Distributors, Ahmedabad
9. Kulkarni M.M., Weaving Technology, Virinda Publication, Jalgaon
10. N. Hollen and J.Saddler, Textiles 3rd edition
11. Nisbet H., Grammar of Textile Design, Taraporewale Sons and Co., Bombay
12. R. Sengupta, Weaving Calculation, Taraporewale Sons and Co., Bombay
13. Robinson and Mark, Woven Cloth Construction, Butter Worth and Co. Ltd, London
14. Singh R. H. Modern Weaving, Mahanjan Book Distributors, Ahmedabad.
15. T.S. Ingold and K. S. Miller, Geotextiles Handbook, Thomas Telford
16. William Watson, Advance Textile Design, Longmans Green and Co. Ltd.

## SEMESTER II

### Fashion Illustration and Forecasting (Practical) (College exam)

#### Objectives:

- To enable the students to focus on design details, creation of styles and rendering techniques using different media and themes.
- To interpret and analyze forecast trends to design fashion communication in sync with the forecast.
- To understand the importance of forecasting in creating a fashion communication campaign for the forthcoming fashion collections.

| Code No | Course                             | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|------------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC9     | Fashion Illustration & Forecasting | 4             | -     | 4     | 100     | -       | 100         |

#### Contents:

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | Sketching of different action croqui (front , back and side view)  | 20                      | 25             |
|         | Basic Rendering Techniques:-<br>Color matching using different mediums<br>Stripes<br>Checks, gingham and plaids Patterns and textures<br>Reducing a print<br>Shading   | 10                      | 10             |
| 2       | Sketching of Garments and Garments Details:-<br>1. Necklines and collars      4.Blouses, coats and jackets<br>2. Sleeves details              5.Pleats, cowls and cascades<br>3. Skirts and pants              6. Yokes and underskirts  | 20                      | 25             |
|         | Sketching of Accessories:-<br>Hats and headgears<br>Footwear<br>Bags and purses<br>Jewellery<br>Any other accessories  | 10                      | 10             |
| 3       | Based on fashion forecast, Develop a mood board and colour board and design a line of 6 ensembles for women's wear – with reference to<br>Sourcing of raw materials<br>Developing line based on the fabric and theme selected<br>Spec sheet study<br>Sampling<br>Garment analysis<br>Costing – construction of garments<br>Line presentation<br>Use of sale promotion material | 30                      | 30             |

**References:**

1. Abling Bina, Fashion Sketchbook, Fairchild Publishers, New York
2. Carr, H. and Pomery, J. Fashion Design and Product Development 1992, Blackwell Scientific Publications, London, Edinburgh, Boston,
3. Carter, E ,The Changing World of Fashion ,1977, G.P. Putnam's Sons, New York
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## SEMESTER II

### Garment Design through Draping (Practical) (College exam)

#### Objectives:

1. To impart knowledge to the students on the principles of draping fabric on the dress form for making patterns
2. To develop an understanding of designing in three dimensions with the understanding of the pattern.
3. To develop and understand the principles of pattern making through the combination of flat pattern and draping

| Code No | Courses                        | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC10    | Garment Design through Draping | 4             | -     | 4     | 100     | -       | 100         |

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | a) Introduction to dress form, draping tools and equipment required (including pressing equipment for draping.<br>b) Preparation of muslin for draping – grain, tearing, ing, pressing, seam allowance  | 2                       | 5              |
|         | Draping of foundation on dress form<br>a) Basic Bodice (Front & Back) – Preparation of muslin, shaping steps, marking, truing, check fitting<br>b) Basic Skirt (Front & Back) – Preparation of muslin, shaping steps, marking, truing, check fitting of the finished skirt<br>c) Basic Sleeve (Front & Back) – Preparation of muslin, shaping steps, marking, truing, check fitting | 10                      | 10             |
| 2       | A. Dart variation using basic (front)<br>- Waistline dart, French dart, side seam dart, armhole dart, flange dart, shoulder dart, neckline dart, bustline (centre front) dart, combination of any 2 darts (one pattern)<br>- Sewing and Pressing darts  | 40                      | 25             |
|         | B. Tucks, pleats and gathers – one pattern each   |                         |                |
|         | C. a) Neckline variation (front) – draping of various necklines using style tape (back) – lower back neckline (one pattern)<br>b) Halter – Preparation of muslin and draping steps for different halter variations, checking the fit  |                         |                |
|         | D. Bodice yoke variations   |                         |                |
|         | E. Waistline variations   |                         |                |
|         | F. Princess line Bodice – Variations – Preparation for muslin for front and back, draping steps for front and back, check the fit   |                         |                |
|         | G. Cowls – i) Basic cowls – preparation of fabric, draping steps, checking the fit<br>ii) Cowl variation – draped, pleated, gathered  |                         |                |

|   |   |    |    |
|---|---|----|----|
| 3 | Skirts – Variations like (any three)<br>a) One piece basic skirt with darts<br>b) Eased / A-line skirt<br>c) Flare skirt<br>d) Skirt with hip yoke<br>e) Circular skirt<br>f) Wrap skirt<br>g) Tiered skirt<br>h) Any other | 25 | 20 |
| 4 | Collars - i) Open / Convertible collar<br>ii) Mandarin collar<br>iii) Sailor collar<br>iv) Turtle neck /neck<br>v) Any other  | 10 | 10 |
|   | Sleeves - i) Set in sleeve with variation (bell, puff, etc.)<br>ii) Raglan sleeve<br>iii) Cap/Magyar sleeve<br>iv) Circular hemline sleeve<br>v) Petal sleeve<br>vi) Any other  | 15 | 15 |
|   | Assignment – To drape and stitch shaped one piece dress or two piece dress  | 10 | 10 |
|   | To develop using draping method Basic body (Torso foundation) for Knitted Tops (like T-Shirts or Camisoles using cotton knit or any other fibre type fabric)  | 8  | 5  |

### References

1. Brackman, Helen L. Theory of Fashion Design, New York John Wiley & Sons
2. Helen Joseph, Armstrong, Draping for Apparel Design – Fairchild Publication, New York
3. Hilde Jaffe and Norie Relis, Draping for Dress Design (4th ed.) – Pearson Prentice Hall, New Jersey
4. Hill House M.S. & Mansfield E.A., Dress Design – Draping & Flat Pattern London
5. Natalie Bray, Dress Fitting (2nd Ed.) Blackwell Science
6. Natalie Bray, More Dress Pattern Designing (4th Ed.) Blackwell Science
7. Nora Mac Donald – Prentice Hall, Principles of Flat Pattern Design (2nd Ed.) New Jersey
8. Popin, Harriet, Modern Pattern Design, New York
9. Sheldon Maratha Gene, Design through Draping, U.S.A. Burgers Publishing Company
10. Strickland Gertude, A Tailoring Manual, New York, Macmillan Company

## SEMESTER II

### Apparel Merchandising (Theory) (University Exam)

#### Objectives

- To get acquainted with role of merchandiser
- To learn about markets, consumers, marketing
- To learn selection of material and costing of goods

| Code No. | Course                | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|-----------------------|---------------|-------|-------|---------|---------|-------------|
| CC11     | Apparel Merchandising | 4             | 4     | -     | 50      | 50      | 100         |

#### Content

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | Principles Of Marketing<br>Functions Of Fashion Merchandising & Marketing<br>Merchandising In Apparel Industry<br>Merchandising Concepts & Terminology | 10                      | 16             |
| 2       | Visual Merchandising & Store Image<br>Elements Of Merchandise Display<br>Types Of Window Display<br>Lighting Techniques<br>Visual Presentation         | 10                      | 16             |
| 3       | Apparel Production & Quality Management  | 8                       | 12             |
| 4       | Fashion Buying<br>Role Of Fashion Buyer<br>Predicting Fashion Trends<br>Fabric And Garment Sourcing<br>Working With Vendors                            | 10                      | 16             |
| 5       | Production, Planning & Control<br>The Fashion Merchandising Assortment Plan<br>Working With Budget.<br>Analyzing And Selecting Resources.              | 10                      | 16             |
| 6       | Apparel Costing<br>Definition Of Cost & Other Common Terms.<br>Discounts-Types<br>Negotiations & Specifications  | 12                      | 24             |

#### Evaluation

| Assignment 1 | Assignment 2 | Written Exam | Total |
|--------------|--------------|--------------|-------|
| 25           | 25           | 50           | 100   |

#### References

1. A.J.Chuter, Introduction to Clothing Production Management

2. Chapman, Fundamentals of Production Planning & Control
3. Cost Control and Accounting for Textile Industry, 1990, TAIRO, Edition
4. Elaine Store, Fashion Buying
5. Fashion Merchandising
6. Frings, Gini S., Fashion : From Concept To Consumer
7. Introduction to Production Control, Gene Levine Associates
8. Mehta and Bharadwaj S.K., Managing Quality in the Apparel Handbook
9. Packed, S, Winters, A & Axelrod, Principles of Fashion Merchandising, 1990, Fairchild Publications, New York
10. Stantan & Futrell, Essentials of Marketing

## SEMESTER II

### Home Textiles (Theory) (College exam)

#### Elective I

#### Objectives:

1. To acquaint the students with different varieties and sizes available in bed linen and table linen.
2. To acquaint the students with different types of floor coverings.
3. To acquaint the students with different types of curtains and draperies.
4. To acquaint the students with different sizes of towels, manufacturing process & care of towels.
5. To enable the students to properly select household textile material according to their end use.
6. To impart knowledge to the students regarding proper laundering methods and storage of various textiles.

| Code No | Course                | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|-----------------------|---------------|-------|-------|---------|---------|-------------|
| CC12/E1 | * Elective I (Th) (C) | 4             | 4     | -     | 100     | -       | 100         |

#### Contents:

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | <b>Table Linen</b><br>Unit- 1: Different types of fabrics used for table linen.<br>Unit- 2: Factors affecting the selection – weave, fibre content, size, suitability, aesthetic value, cost, material used, care, handling, laundering, ironing, storage.   | 10                      | 20             |
| 2       | <b>Towels</b><br>Unit- 1: Manufacturing of terry towel.<br>Unit- 2: Different types of towelling material, sizes available.<br>Types of towels as per the end use.<br>Unit-3: Different factors affecting selection-age, season, durability, serviceability, comfort and cost.<br>Unit-4: Maintenance and care of towel.                 | 12                      | 20             |
| 3       | <b>Bed Linen</b><br>Unit- 1: Selection, use and care of bed linen.<br>a) Types of bed linen-bed sheets, bed covers and pillow cases.<br>b) Fabrics used for bed linen.<br>c) Market information- brand name, cost and size.<br>d) Factors governing selection – age, season – durability, serviceability, comfort, maintenance and cost. | 12                      | 20             |
| 4       | <b>Floor Coverings</b><br>Unit- 1:Definition and classification.<br>Unit- 2:Production technique, material used, design and motifs and finishing treatments.<br>Unit- 3:Selection, maintenance and care.   | 10                      | 15             |
|         | <b>Curtains &amp; Draperies</b><br>Unit- 1:Difference between curtains and draperies.<br>Unit- 2:Types of curtains, methods of hanging curtains.<br>Unit- 3:Selection of curtains and draperies with reference to the uses and sizes of rooms, size and shape of window, style of furniture, ventilation.                                | 16                      | 25             |



|  |  |  |  |
|--|--|--|--|
|  | Unit- 4:Selection of fabric – fibre content, weave, design, colour combination etc.<br>Unit-5:Use and care of curtains.<br>A) Use - energy efficiency, privacy.<br>B) Care – handing, laundering, storage. |  |  |
|--|--|--|--|

**Evaluation:**

One internal assignment of 25 marks

**Reference:**

1. Bernard L Corbman, Textiles - Fiber to Fabric, 6<sup>th</sup> Ed, Mc Graw Hill Co.
2. Bindu L Daftary, Curtains, SVT Mumbai.
3. Bindu L Daftary, Floor Coverings, SVT Mumbai.
4. Isabel B Wingate, June F Mohler, Textile Fabrics and their Selection, 1976, 8<sup>th</sup> ED, Engel Wood Cliffs Prentice Hall of Inc,
5. Katherine Paddock Hess, Textile Fibers and their use, 6<sup>th</sup> Ed, Oxford and IBH publishing.
6. Majory J.: Essentials of Textiles, 1976, Holt Rinehart & Winston, New York, Holt, Rinehart & Winston.
7. Noemia D’Souza, Fabric Care, New Age International Publication.
8. Paine M: Textile Art in Interior Design, 1990, Siemen & Schuster, New York, Siemen & Schuster.
9. Tortora: Understanding textiles, 1992, Macmillan Publishing Company, New York.

## SEMESTER III

### Research and Statistical Applications (Th) (Pr) (U)

#### Objectives:

This course will enable students to:

- Discriminate between parametric and non-parametric tests
- Learn to apply statistical tests for data analysis for both large and small samples
- Know how to interpret the results of statistical analysis of data
- Be able to summarize data and present it using tables and graphs
- Develop skills for preparation of research proposals
- Understand the components of a research report

| Code No. | Courses                             | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|-------------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC13     | Research & Statistical Applications | 4             | 2     | 2     | 50      | 50      | 100         |

| Sr. No. | Topic and Details  |
|---------|--|
| 1       | <p><b>Introduction to Statistics</b><br/>Definition, conceptual understanding of statistical measures, popular concepts and misuse of statistics</p> <p><b>Normal Distribution and its Properties</b><br/>a. Normal distribution<br/>b. Binomial distribution<br/>c. Probability, use of normal probability tables, area under normal distribution curve<br/>d. Parametric and non-parametric tests</p> <p><b>Data Management</b><br/>Planning for data analysis – coding of responses, preparation of code book<br/>Coding of data<br/>Use of statistical programs<br/>- MS Excel<br/>- SPSS</p>  |
| 2       | <p><b>Data Analysis</b><br/>a. Quantitative analysis, descriptive statistics, inferential statistics :<br/>Uses and limitations, Summation sign and its properties<br/>b. Proportions, percentages, ratios<br/>c. Measures of central tendency-mean, median, mode-arithmetic mean and its uses, mid – range, geometric mean, weighted mean<br/>d. Measures of dispersion /variability- range, variance, standard deviation, standard error, coefficient of variation, Kurtosis, skewness<br/>Grouped data-frequency distribution, histogram, frequency polygons, percentiles, quartiles, tertiles, ogive</p> <p>e. Large and Small Sample tests and interpretation</p> |

|          |  |
|----------|--|
|          | <ul style="list-style-type: none"> <li>- Z-test for single proportions and difference between proportions</li> <li>- Large sample test for single mean and difference between means</li> <li>- Small sample tests- 't'-test, paired 't'-test, 'F' Test</li> </ul>  |
| <b>3</b> | <p><b>Chi square test and its interpretation</b></p> <ul style="list-style-type: none"> <li>a. General features, goodness of fit</li> <li>b. Independence of Attributes</li> </ul> <p><b>Correlation and Regression and its interpretation</b></p> <ul style="list-style-type: none"> <li>a. Basic concepts</li> <li>b. Linear regression and correlation coefficient</li> </ul> <p>Regression and prediction</p> <ul style="list-style-type: none"> <li>c. Rank correlation, Product-moment method</li> </ul> <p><b>Analysis of Variance and its interpretation</b></p> <ul style="list-style-type: none"> <li>a. One-factor analysis of variance</li> <li>b. Two-factor analysis of variance</li> </ul> <p><b>Design of Experiments</b></p> <ul style="list-style-type: none"> <li>a. Completely randomized design</li> <li>b. Randomized block design</li> <li>c. Latin square design</li> <li>d. Factorial design</li> </ul>   |
| <b>4</b> | <p><b>Presentation of Data</b></p> <ul style="list-style-type: none"> <li>a. Tabulation and Organization of data- frequency distributions, cumulative frequency distribution, contingency tables</li> <li>b. Graphical presentation of data- histogram, frequency polygon, ogive, stem and leaf plot, box and whiskers plot, Graphs for nominal and ordinal data- pie diagram, bar graphs of different types, graphs for relation between two variables, line diagram.</li> </ul> <p>Use of illustrations<br/>Cautions in visual display of data</p> <p><b>The Research Report</b></p> <p>Basic components of a research report- prefatory material, introduction and Review of Related Literature, Methodology, Results, Discussion, Conclusion, Summary, Abstract, Bibliography and Appendices</p> <p><b>Students to design a research study on a topic-</b></p> <ul style="list-style-type: none"> <li>- specify type of research</li> <li>- sample selection</li> <li>- protocol/operationalization</li> <li>- tools</li> <li>- tests for statistical analysis</li> </ul> <p><b>Preparation of a Research Proposal</b></p> |

## SEMESTER III

### Knitting Technology (Theory) (University exam)

**Objectives:** After completing this paper learners will:

- Be aware about knitting techniques.
- Know about Indian knitting industry.
- Develop an understanding of the various knitting structures.
- Gain knowledge about the different electronic machines used in knitting.
- Be able to analyze different knitted structures.

| Code No. | Course                       | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC14     | Knitting Technology (Theory) | 4             | 4     | -     | 50      | 50      | 100         |

#### Theory

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1.      | <ul style="list-style-type: none"><li>• Introduction to knitting – definition of knitting, basic structural terms and Principle of knitting technology.</li><li>• Differences between knits and woven.</li><li>• Development of knitting from hand knitting to machine knitting and further developments.</li><li>• An overview of Indian knitting industry</li><li>• Basic mechanical principles of knitting technology, elements of knitted loop structure, four primary base structures (plain, rib, interlock, purl)</li></ul>   | 9                       | 15%            |
| 2.      | <ul style="list-style-type: none"><li>• Weft knitting and warp knitting – terms and definition used related to weft and warp knitting, comparison of weft and warp knitting.</li><li>• Weft knitting – basic structure, stiches, designing of weft knit structures, needle and yarn selection for weft knitting.</li><li>• Quality control of weft knit fabrics, general calculation for weft knits.</li><li>• Warp knitting – development of warp knitting machines, basic warp knit structures and their representation, patterning mechanisms for warp designs, yarns for warp knits.</li><li>• General calculation for warp knits. Tricot and Rachel knits – principle, machines and production methods.</li></ul> | 24                      | 40%            |
| 3.      | <ul style="list-style-type: none"><li>• Knitted structures, structured knits, jacquard knitting, intarsia knitting – basic principle and stiches and their application</li></ul>   | 15                      | 25%            |

|    |   |    |     |
|----|---|----|-----|
|    | <ul style="list-style-type: none"> <li>• The structure of a flat knitting machine: Needle bed assembly, the carriage, Yarn feeding, Needle brushes, Fabric takedown.</li> <li>• Manual operation of a flat knitting machine and circular knitting machine</li> <li>• Electronics in knitting.</li> </ul>                                    |    |     |
| 4. | <ul style="list-style-type: none"> <li>• Fashion knit garments</li> <li>• Analysis of knitted fabrics- 10 samples</li> <li>• Source book/Swatch book of 20 samples with details of knitting notations, name, cost and other technical details. - to be developed by college.</li> <li>• Visit to knitting units and visit report</li> </ul> | 12 | 20% |

**References:**

1. D. B. Ajgoankar, Knitting Technology, University Publishing Co-operation, Mumbai
2. David J. Spencer, Knitting Technology, Pergeman Press, U.K.
3. Samuel Raz, Flat Knitting Technology, Germany.
4. A Wynne, Textiles, Motivate Series, Macmillan, Education Ltd, London and Basingstoke, 1997.
5. Brackenbury Terry, Knitted Clothing Technology, Oxford Blackwell Science Ltd., 1992.
6. Iyer, Mammel , Schach, Circular Knitting, Meisenbach Bamberg.
7. J.J Pizzuto's Fabric Science, Fairchild Publications, New York.
8. NCUTE – Programmes Series, Knitting Technology, Indian Institute of Technology, New Delhi.
9. Pam Dawson, Encyclopedia of Knitting, London: Orbis Publishing Ltd., 1984

## SEMESTER III

### Garment Production Technology (Theory)(College Exam)

#### OBJECTIVES:

- To enable the students to get acquainted with the latest garment / clothing manufacturing technology related to the current practice in the clothing industry
- To make the students aware of the influence of garment retailing on the clothing production process
- To impart knowledge about the latest modern equipments and machines used in the garment industry
- To make students aware of the importance of maintaining quality standards during production

| Code No. | Course                        | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|-------------------------------|---------------|-------|-------|---------|---------|-------------|
| CC 15    | Garment Production Technology | 4             | 4     | -     | 100     | -       | 100         |

| Sr. No. | Topics and Details  | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | Introduction to the background and structure of the garment/clothing industry.  | 3                       | 10             |
| 2       | The Organizational Structure of a Garment Factory<br>Principles of management<br>Various departments<br>Design Department<br>Marketing Department<br>Finance Department<br>Purchasing Department<br>Production Department<br>Operations Department  | 10                      | 15             |
| 3       | Manufacturing technology –<br>A) Placement & Cutting Room -<br>1) Marker Planning<br>2) Efficiency, Methods and use of worker plan<br>3) Methods of spreading of fabric and requirements of the spreading process<br>4)Cutting the fabric – objectives and methods of cutting fabric<br>B) Fusing Technology<br>C) Sewing technology<br>1) Sewing – properties, types<br>2) Stitch – types<br>3) Sewing Machines – Feed mechanisms, machine needles | 30                      | 35             |

|    |   |   |    |
|----|---|---|----|
|    | 4) Sewing Threads – type of fibre, construction and finish, thread size, thread package, thread costs, thread properties and seam performance<br>5) Sewing problems – stitch formations, damage along the seam line puckering<br>6) Testing for sewability and tailorability<br>D) Sewing Machinery |   |    |
| 4  | Use of components and trims   | 3 | 5  |
| 5  | Alternative method of joining materials<br>Fusing<br>Welding and adhesives<br>Moulding  | 3 | 10 |
| 6  | Pressing Technology   | 3 | 10 |
| 7  | Production Technology<br>a) How output is lost<br>b) Balancing<br>c) Production & People  | 3 | 10 |
| 8  | Warehousing   | 3 | 5  |
| 9  | Charting & Layout   | 3 | 5  |
| 10 | Quality Control<br>1) Principles of Quality Control<br>2) Quality from Design to dispatch<br>3) Total Quality Control   | 3 | 5  |

#### REFERENCES:

1. Gerry Cooklin, Introduction to Clothing Manufacture, Blackwell Science
2. Harold Carr & Barbara Latham, The Technology of Clothing Manufacture, Blackwell Science.
3. Chuter. A.J., Introduction to Clothing Production Management , Blackwell Science
4. D. J. Tyles, Material Management in Clothing Production –Blackwell Science
5. Harold Carr & Barbara Latham, Fashion Design and Product Development, Blackwell Science.
6. Mike Easey, Fashion Marketing, Blackwell Science
7. Stylios. G, Textiles objective Measurement and Automation in Garment Manufacture, Ellis Horword Ltd.
8. Sarabhai V., Management for Development.
9. Phillips Kotler, Marketing.

## SEMESTER III

### Garment Production Technology (Practical) (College Exam)

#### OBJECTIVES:

- To enable the students to get acquainted with the latest garment / clothing manufacturing technology related to the current practice in the clothing industry
- To make the students aware of the influence of garment retailing on the clothing production process
- To impart knowledge about the latest modern equipments and machines used in the garment industry
- To make students aware of the importance of maintaining quality standards during production

| Code No. | Course                                 | Total Credits | Th (Cr) | Pr (Cr) | Int (M) | Ext (M) | Total Marks |
|----------|--|---------------|---------|---------|---------|---------|-------------|
| CC16     | Garment Production Technology (Pr) (C) | 4             | -       | 4       | 100     | -       | 100         |

| Sr. No. | Topic & Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1)      | Field visit to an export house & presentation of the report              | 32                      | 25             |
| 2)      | Field visit to a garment manufacturing unit & presentation of the report | 32                      | 25             |
| 3)      | Field visit to a warehouse & presentation of the report                  | 32                      | 25             |
| 4)      | Field visit to a retail mall & presentation of the report                | 32                      | 25             |



## SEMESTER III

### Technical Textiles (Theory) (University)

#### Objectives:

- To familiarise the students with technical textiles and its future prospects
- To acquaint the students with technical fibers, yarns and fabric structure
- To familiarise student with various application of technical textiles

| Code No | Course             | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|--------------------|---------------|-------|-------|---------|---------|-------------|
| CC17    | Technical Textiles | 4             | 4     | -     | 50      | 50      | 100         |

#### Contents:

| Sr. No. | Topic and Details  | No. of Periods assigned | Weightage in % |
|---------|--|-------------------------|----------------|
| 1       | Technical Textiles<br>Introduction Definition & Scope, Development Processes, Applications, Globalizations, Future prospects of technical textile industry   | 08                      | 15             |
| 2       | Brief introduction to Technical fibers<br>- Conventional and New developed fibers and their applications   | 08                      | 5              |
| 3       | Brief introduction to Technical yarns  | 04                      | 10             |
| 4       | Technical Fabric Structures<br>a) Brief study of woven and knitted fabrics<br>b) Detailed study of Non woven structure – Introduction, methods of batt production, different methods of web laying, flash spinning, melt blown, different methods of bonding, Hydro entanglement process | 20                      | 25             |
| 5       | Brief introduction to Textile Reinforced – Composite material  | 04                      | 5              |
| 6       | Finishing of Technical Textiles<br>- Introduction, Processes, Mechanical, Heat setting and Chemical process  | 05                      | 10             |
| 7       | Coating of Technical textiles<br>- Introduction, methods of coating, fusible interlining and laminating  | 03                      | 10             |
| 8       | Application of Technical Textiles – (Assignments to be given to students )<br>- Medical textiles, Geo textiles, Defence textiles, Transport textiles, Automotive textiles and others   | 08                      | 20             |

## References:

1. A Newton & J E Ford, Production & Properties of Non – Woven, 1973, Textile Progression
2. A T Purdy, Developments in Non – woven fabrics, 1980, Textile Progression
3. AT Robinson and R Marsh, Woven Cloth Construction, 1973, The Textile Institute Manchester
4. C Byrne, Technical Textiles, 1995, Textiles Marg issue 2.95,
5. Conference of Technical Textiles Group, The Textile Institute, Manchester
6. F Bohin et al., Coated Fabrics , 1998
7. F L Mathews & R Rawlings, Composite Materials: Engineering and Science ,1994, Chapman and Hall, London
8. Handbook of Technical Textiles, Edited by A R Horrocks and S C Anand
9. J E McIntyre, Specialty Fibers for Technical Textiles, Dept. of Textile Industry, University of Leeds
10. J G Cook Handbook of Textile Fibers, Manmade Fibers, 5th edition, 1984, Merrow
11. K Krishna J, Coated Fabrics,1995
12. M G Bader, An Introduction to Composite Materials, 1997, University of Surrey
13. S C Anand, Contribution of Knitting to Current & Future Developments in Technical Textiles, 1988
14. S J Krishnan, Coated Fabric, 1991
15. Related Published bound book of papers from SASMIRA & BTRA

## SEMESTER III

### Soft Skills Development (Theory) (College exam)

#### Objectives:

- To improve confidence level of the student by enhancing their communication skills
- To equip students with employability skills so as to enhance career opportunities
- To enable students to make timely and productive decisions so as to enable their career advancement
- To train students on how to project a professional image at the workplace

| Code No | Course                  | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|---------|-------------------------|---------------|-------|-------|---------|---------|-------------|
| CC18    | Soft Skills Development | 4             | 4     | -     | 100     | -       | 100         |

#### Contents:

| Sr. No. | Topic and Details   | No. of Periods assigned | Weightage in % |
|---------|---|-------------------------|----------------|
| 1       | <b>Effective Communication skills</b><br>1. Processes of Communication<br>2. Barriers to Communication- external and<br>3. psychological<br>4. Hints for effective verbal delivery<br>5. Preparing an outline for a formal presentation   |                         | 25             |
| 2       | <b>Image building</b><br>Self-Esteem<br>1. Impact of Body Language<br>2. Power dressing/grooming<br>3. Etiquette/Cross cultural interactions<br>4. Managing Stress<br>Students are required to convey the required<br>etiquette in given professional /cross cultural<br>situations<br>Stress management techniques of student's choice |                         | 25             |

|   |  |  |    |
|---|--|--|----|
| 3 | <p><b>Enhancing Employability</b></p> <ol style="list-style-type: none"> <li>1. Preparing for an interview</li> <li>2. Appearing for an interview</li> <li>3. Writing an effective resume</li> <li>4. Methods and procedures in group discussions</li> <li>5. Assessment Criteria <ul style="list-style-type: none"> <li>• preferably conducted by an expert from the industry</li> <li>• Students must submit it in stipulated format. A group of 10 students are asked to discuss a given topic for duration of 15 minutes. The remaining students will act as evaluators</li> </ul> </li> </ol> |  | 25 |
| 4 | <p><b>Decision Making</b></p> <ol style="list-style-type: none"> <li>1. Goals - short term and long term</li> <li>2. Setting personal goals</li> <li>3. Importance of Time Management in achieving goals</li> <li>4. Steps towards making an effective decision <ul style="list-style-type: none"> <li>• Analytical skills and potential problem analysis</li> </ul> </li> </ol> <p>Students will be given a case study wherein they will have to come to root cause/ arrive at a situational analysis.</p>  |  | 25 |

### References

1. Agrawal, Deepak. (2011) Group discussion: theory and technique. Jaipur: Yking.
2. Atkinson, Jacqueline. (1993). Better time management New Delhi: Indus.
3. Bhatia, R.L . (1998). Developing presentation skills: A handy guide for executives (2nd ed.).
4. New Delhi: A.H. Wheeler & Co. Ltd.
5. Clegg, Brian. (2000). Just in time stress management. New Delhi: Kogan Page India Pvt. Ltd
6. Corfield, Rebecca . (2010). Successful interview skills how to prepare, answer tough questions and get your ideal job 5th ed New Delhi: Kogan Page.
7. Corfield, Rebecca. (2010) Preparing the perfect CV : How to make a great impression and get the job you want New Delhi: Kogan Page.
8. De Bono, Edward . (1992.) Six action shoes. New Delhi: Indus
9. De Bono, Edward. (2008) The free mind: a lateral thinking approach Mumbai: Jaico Publishing House.
10. Forsyth, Patrick. .(1997). Thirty minutes ... before a presentation. New Delhi: Kogan Page India Pvt. Ltd.
11. Hindle, Ti. (1998). Interviewing skills. London: Dorling Kindersley.
12. Lines, June . .(1997). Thirty minutes ... before your job interview New Delhi: Kogan Page India Pvt. Ltd.
13. Mitra, Barun K. (2011). Personality Development and Soft Skills. New Delhi: Oxford.

14. Neogy, Jayant . (2003)Winning resume: how to write an impressive curriculam vitae [CV] that guarantees an interview call.. New Delhi: Unicorn books.
15. Onkar, R.M. (2010). Managing career by discovering your personality a pragmatic perspective of soft skills New Delhi: S.Chand & Co. Ltd.
16. Sabharwal, D.P. .(2009). Personality development handbook. New Delhi: Prakash Books.
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## SEMESTER IV

### Dissertation (Practical) (University)

#### Objectives

| Code No. | Course       | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|--------------|---------------|-------|-------|---------|---------|-------------|
| CC19     | Dissertation | 8             | -     | 8     | 100     | 100     | 200         |

#### Content

## SEMESTER IV

### Internship (Practical) (College exam)

#### Objectives

| <b>Code No.</b> | <b>Course</b> | <b>Total Credits</b> | <b>Th Cr</b> | <b>Pr Cr</b> | <b>Int (M)</b> | <b>Ext (M)</b> | <b>Total Marks</b> |
|-----------------|---------------|----------------------|--------------|--------------|----------------|----------------|--------------------|
| CC20            | Internship    | 8                    | -            | 8            | 100            | 100            | 200                |

#### Content

## SEMESTER IV

### Recent Advances in Textile Science & Apparel Design (Seminar)

#### Objectives

- To prepare and present important developments on recent topics/research in field of TSAD at the seminar to departmental colleagues.
- To further raise awareness about learning latest developments and research in the identified field
- To gain an insight through group discussion
- To learn and share knowledge about how the new development / technology / fields will benefit the existing set of knowledge

| Code No. | Course  | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|---|---------------|-------|-------|---------|---------|-------------|
| CC21     | Recent Advances in Textile Science & Apparel Design (Seminar) | 4             | 2     | 2     | 100     | -       | 100         |

#### Content:

Presentation is the practice of showing and explaining the content of a topic to an audience or learner in a given time frame

The important aspects of presentation at a Seminar are -

- Public speaking skills
- Presentation ideas
- Language skills
- PPT
- Contact with audience
- Attitude
- Confidence
- Self image

#### Seminar Guidelines

Plan an approximately a 40 minute presentation with about 10 minutes for questions

- Practice giving presentations
- Exposure to ongoing research
- Exposure to research conducted outside

#### Expectations

As a seminar learner, the student will take responsibility for -

- Identifying the topic
- Planning the event
- Providing the scholarly framework
- Devising the learning stimulus
- Helping participants to learn
- Encouraging the learning reflection for others as well as your self

These activities can be organized in 3 stages

- Preparation
- Implementation
- Review and evaluators

#### Evaluation of the Seminar

Selection of topic = planning the event  
Content of topic = providing scholarly frame work  
Reference lot = devising the learning stimulator



## SEMESTER IV

### Project Work (Practical) (College)

#### Objectives

| Code No. | Course       | Total Credits | Th Cr | Pr Cr | Int (M) | Ext (M) | Total Marks |
|----------|--------------|---------------|-------|-------|---------|---------|-------------|
| CC22     | Project Work | 4             | -     | 4     | 100     | -       | 100         |

Projects may be undertaken on the following topics:

- Window Display
- Technical Textiles
- Colour & Weave effect
- Knitted fabric swatches
- Documentary film on Textile Craft
- Any Other