5. TEXTILE DESIGNING

1. INTRODUCTION

India has a long tradition of textile especially hand woven and hand spun textiles. Textiles stand next to agriculture as an income generation activity for most of the rural population. The structure of the fabric is as much a determining factor in its functions, as it is the choice of raw material. Some structures of the fabric lend themselves to any specific end use where as many other structures are versatile lending them to a variety of functions and end uses. A good understanding of simple woven structures make it possible to apply them in the woven cloth in a variety of ways. The industries and employments expectations have now taken new dimensions and in this context there is a need for good innovating designers to cater the needs of the industry and handloom sector. The diversification of design in the handloom sector is the need of the hour. So this programme provides the basic knowledge about designing textiles through weaving along with other methods. Courses are framed with laying emphasis on weaving fabric structures incorporating various techniques to manage the design activity in the presently highly competitive environment.

2. OBJECTIVES

- To identify the glorious traditional crafts of India.
- To help students acquire skills in evaluating the designs available in the market.
- To develop skills in setting up looms.
- To know the different types of yarns available and yarn requirements.
- To teach the methods of weaving various weavers.
- To bring out the innovativeness of the student in aspects of design.
- To help the students in solving the design problems in the handloom sector.
- To acquire the skill in creating designs using software.
- To identify various quality aspects.
- To become an entrepreneur.

3. SKILLS TO BE PROVIDED

- Creating Designing ability
- Drawing, designing on the graph sheets
- Preparation of warp and weft for weaving
• Drafting, denting techniques
• Dyeing and Printing techniques
• Us of computer software
• Cost estimation

4. EMPLOYMENT OPPORTUNITIES
• As designers in the industry and handloom sector
• As entrepreneur
• Instructor
• Consultancy service to industry
• Setting up weaving unit

[A] WAGE EMPLOYMENT

• As designer
• Master weaver
• Assistant weaver
• Instructor in weaving unit

[B] SELF EMPLOYMENT

• As designer
• Setting up weaving unit
• Scheme of Instruction for Textile Designing

5. Schemes Of Instruction Per Module

<table>
<thead>
<tr>
<th>Module</th>
<th>Theory</th>
<th>On Job Training</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
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Schemes Of Instruction Per Week

<table>
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<tbody>
<tr>
<td>Modules I/II/III</td>
<td>6 Hours</td>
<td>18 Hours</td>
<td>24 Hours</td>
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6. **SYLLABUS**

**Module I**
**FABRIC WEAVING**
**Theory**
**Time: 72 Hrs.**

1.0. Introduction
1.1 Importance of textiles.
1.2 Reasons for studying textiles.
1.3 Textile Industries – its range and marketing facilities.

2.0. Terminology used in weaving.
2.1 Definition of fibers with examples.
2.2 Definition of yarn with examples.
2.3 Definition of fabric with examples.

3.0. Classification of fibers.
3.1 Natural cellulose fibers.
3.2 Natural protein fibers.
3.3 Man made fibers.
3.4 Synthetic fibers.
3.5 Mineral and miscellaneous fibers.

4.0. Classification of yarns.
4.1 Simple yarns.
4.2 Fancy or complex yarns.
4.3 Novelty yarns.

5.0. Properties of yarns.
(a) Yarn twist
(b) Yarn strength
(c) Yarn count

6.0. Types of fabric.
6.1 Woven fabrics.
6.2 Knitted fabrics.
6.3 Feltting fabrics.
6.4 Bonding fabrics.
6.5 Braided fabrics.

7.0. Introduction to Loom.
7.1 Parts of handloom.
7.2 Definition of weaving.
7.3 Preparation for weaving.
7.4 Essential weaving operations.
8.0. Weaving calculation – Thread count; Cloth count; Balanced cloth. -3Hrs.

9.0. Classification of weaves: - -16Hrs.
   9.1. Plain weave and variations.
   9.2. Twill weave and variations.
   9.3. Satin weave and variations.

10.0 Identification of woven fabrics and defects. -6Hrs
   11.1. Yarn defects.
   11.2. Weave defects
       (a) Broken pick
       (b) Thick and thin places.

11.0 Selvedges. -6Hrs.
   11.3. Plain selvedge.
   11.4. Tape selvedge.
   11.5. Split selvedge.
   11.6. Fused selvedge.
   11.7. Leno selvedge.
   11.8. Tucked selvedge.
   11.9. Regular weave.
   11.10. Crepe weave.
   11.11. Gauge weave.

12.0 Defects in dyeing: - -6Hrs.
   (a) Barre
   (b) Bleeding
   (c) Crocking
   (d) Off shade
   (e) Shade bar
   (f) Shading
   (g) Stained fabrics
   (h) Streaked fabric

13.0 Woven - Patola, Banaras Brocades, Chanderi, Paithani, Pochampalli, Ikat, Maheswari. -10 hrs

Module I

ON THE JOB TRAINING (216 Hrs)

1.0. Market Survey -5 Hrs
   1.1. Collection of different types of fibers.
   1.2. Collection of different types of yarns.
   1.3. Collection of different types of fabrics.

2.0. Designing basic weaves on graph sheets. -5 Hrs

3.0. Preparation of draft and lifting plan for planned designs. -7 Hrs

4.0. Calculation of yarn requirements. -5 Hrs

5.0. Study of yarns – Single, Ply, Cable by Untwisting method. -5 Hrs

6.0. Setting up of loom, preparation of warp -9 Hrs
and weft yarns.

7.0. Drafting and denting of warp. -9 Hrs

8.0. Weaving of: Plain weave with sample. -22 Hrs

9.0. Weaving of: Twill weave with sample. -22 Hrs

10.0. Weaving of Satin weave with sample. -22 Hrs

11.0. Creating variations using different types of count and different types of color yarns in plain weave. -15 Hrs

12.0. Collection and development of motifs on Graph sheets – Suitable for allover patterns And other suitable designs for dresses. -15Hrs

13.0. Collection of motifs weaves and designs.(Floral, animal, Abstract, traditional designs, modern designs) - 30 hrs

14.0 Developing new designs from collected motifs for various end uses. (Dress materials for various age groups, furnishing materials) - 30 hrs

15.0 Preparation of sample record. -15 hrs

Module II
DYEING AND PRINTING

Theory
Time: 72Hrs

1. Introduction to dyeing and printing. -2 hrs

2. Classification of dye. -5 hrs

3. Dyes containing anionic functional groups. -10 hrs
   (Acid dyes, direct dyes, mordant dyes, reactive dyes)

4. Dyes containing Cationic groups (Basic dyes) -5 hrs
   (Vat dyes, Sulphur dyes, Azoic dyes)

5. Auxillaries used in dyeing and printing. -5 hrs

6. Distinguishing between printing and dyeing. -5 hrs

7. Types of dyeing – Fiber dyeing, yarn dyeing, fabric dyeing. - 8 hrs

8. Resist dyeing – Yarn – Pochampally, Patola, Ikat. -5 hrs

9. Fabric resist dyeing – Batik, Tie and dye. -5 hrs

10 Printing methods and their techniques – Stencil, Block printing, Screen printing, Flock printing, Transfer printing, discharge printing. -15 hrs

11 Study of traditional textiles of India.- Printed & Painted -Kalamkari, Madhubani,Plain woven fabrics
Module II
ON THE JOB TRAINING
Time: 216 Hrs

1. Preparation of gray fabrics. -6 hrs
2. Shade card preparation with any one type of dye. -30 hrs
3. Preparation of samples using Batik, Tie and dye, Stencil and Block printing techniques. -30 hrs
4. Preparation of one major article with Batik designs. -30 hrs
5. Preparation of one major article with tie and dye. -30 hrs
6. Preparation of one major article using mono, di, multi colours in stencils -30 hrs
7. Selecting designs for all over pattern, border designs for various end uses. -45 hrs
8. Preparation of Record. -15 hrs

Module – III
COMPUTER AIDED DESIGNING

Theory

1. INTRODUCTION TO COMPUTERS -2 hrs
2. FUNDAMENTALS OF COMPUTERS -4 hrs
3. INTRODUCTION TO WINDOWS OS -5 hrs
4. INTRODUCTION TO PHOTO SHOP AND CORAL DRAW SOFT WARES. -5 hrs
5. PHOTO SHOP -26 hrs
6. CORAL DRAW -30 hrs

Time: 72Hrs
Module III

ON THE JOB TRAINING

1. INTRODUCTION to COMPUTERS - 7 hrs
2. FUNDAMENTALS OF COMPUTERS - 7 hrs
3. INTRODUCTION TO WINDOWS OS - 9 hrs
4. INTRODUCTION TO PHOTO SHOP AND CORAL DRAW SOFT WARES - 4 hrs
5. PHOTO SHOP - 75 hrs
6. CORAL DRAW - 114 hrs

8. LIST OF TOOLS AND EQUIPMENTS

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>(For a batch of 25 students)</td>
<td></td>
</tr>
</tbody>
</table>

Dyeing and Printing Lab

1. Work Tables
   Teak or Kail wooden with Mica or Aluminium top table-for 6 students. Size: 10*4*3 ft. (L*W*H)
   covered with 6 layers of jute cloth and one layer of Markeen cloth.
   Quantity: 4

2. Printing Trolley
   Small tool like table with four Wheels.
   (1 ½ *1 ½ *2 ½ ft)(L*B*H)
   Quantity: 15

3. Printing Tray
   Enamel tray similar to Biological tray or traditional Wooden printing trays Size-38cm.*27cm.
   Quantity: 25

4. Tracing Table
   Glass top table for tracing (with tube lights) Size-(2 ½*4*2 ½ ft)
   Quantity: 4

5. Weighing Balance Small and Big both.
   Quantity: 4

6. Gas/Oil stove
   Quantity: 6

7. Screen Exposing Tables
   Glass top with tube lights Size – (2ft*4ft)
   Quantity: 4
<table>
<thead>
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<th>No.</th>
<th>Item Description</th>
<th>Quantity</th>
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<tr>
<td>8</td>
<td>Screen and Block Racks</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Ironing Boards</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>Black Boards</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>Display Boards Size – (3ft*5ft)</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Instructor Table</td>
<td>1</td>
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<tr>
<td>13</td>
<td>Chairs</td>
<td>4</td>
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<tr>
<td>14</td>
<td>Stools Size-(1<em>1</em>2 ½ ft)</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>Cupboard Size (5<em>3</em>1 ½ft)</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Water tank of cement</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Big Enamel Dyeing utensils with open mouth</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>Wash Basin with fitting and Fixtures Ceramic</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Buckets</td>
<td>6</td>
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<tr>
<td>20</td>
<td>Air Tight Container For storing Readymade colours (with mouthed bottles)</td>
<td>25</td>
</tr>
<tr>
<td>21</td>
<td>Brushes No.0,1,3,6 Moghair/sable hair</td>
<td>25 each</td>
</tr>
<tr>
<td>22</td>
<td>Linwood cutting Tool Set of Leno cutters</td>
<td>6</td>
</tr>
<tr>
<td>23</td>
<td>Wooden Block In set of 3</td>
<td>6</td>
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<tr>
<td>24</td>
<td>Linoleum sheet as per the space</td>
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<tr>
<td>25</td>
<td>Chemical for coating and Developing screens</td>
<td>---</td>
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<tr>
<td>26</td>
<td>Measuring beakers</td>
<td>25</td>
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<tr>
<td>27</td>
<td>Measuring cylinders</td>
<td>25</td>
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<tr>
<td>28</td>
<td>Spoons</td>
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<tr>
<td>29</td>
<td>Measuring Tapes and scales</td>
<td>25</td>
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<tr>
<td>30</td>
<td>Soft wooden frames for hand Painting Size (40’*100’’)</td>
<td>25</td>
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<tr>
<td>31</td>
<td>Enamel bowl 16-12” dia 5-6’ dia with open mouth</td>
<td>25</td>
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</table>
32. Thermometer of Industrial use 6
33. Stencil 1
Scissor 2
Pinking scissors 3

COMPUTER LAB

1. 5 NO’S OF COMPUTERS WITH LATEST CONFIGURATION ALONG WIN OS AND OTHER REQUIRED SOFTWARES
2. 5 NO’S OF COMPUTER TABLES AND 5 NO’S OF COMPUTER CHAIRS.
3. CONCERNED SUBJECT WISE TEACHING STAFF.

WEAVING LAB
FOR HAND WEAVING

1. Spindle Charkha 6
2. Amber charkha 6

Testing Instruments

3. Twist Tester 1
4. Beesley’s direct count Tester 1
5. Yarn evenness (seriplane) Tester 1
6. Single yarn Strength tester 1
7. Pick glass or thread counter 6

FOR LOOM WEAVING

8. Winding charkha with cycle chain 1
9. Swift and swift stand (hand stand) 1
10. Warp-bobbins plastic
    (i) 2 ½” 25
    (ii) 5” 25
11. Drum warping machine with Creel Capacity of 160 bobbins of 2½” plastic hook with 100 eyes, Guide Reed 4” space with beaming flame attached 60”*80” dia 1
12. Drafting flame (Hainesses) According to the 100m width 10
13. Fly shuttle frame loom 60’
   Reed space 8 shafts capacity
   Complete in running order.

14. Table loom
    1. 18” Reed Space 4 shafts capacity   1
    2. 24” Reed Space 6 shafts capacity   1
    3. 18” Reed Space 6 shafts capacity   1
    4. 18” Reed Space 8 shafts capacity   1

15. Heald hooks       12

16. Reed hooks       12

17. Pirns 5” plastic  24

18. Shuttles 6”, 8”, 12” 4 each

19. Steel reeds
    18”, 28”, 32”, 30”, 44”,
    44”, 56”, length 7

20. Graph Board
    1”*1” square
    6’*4’ in one piece of hard
    board wood. 1

21. Spare parts of handloom
    a. Heald flames 10
    b. Shuttlels 4
    c. Reeds 6
    d. Peddles 6 pairs
    e. Jacks pair 2
    f. Lamb Rods 2
    g. Lease Rods 6
    h. Elastic cords 2
    i. Pickers 2
    j. Lungoes 2
    k. Heald wires 4 sets
    l. Leather pickers 2
    m. Lacing flames 2

SIZING MATERIAL

22. Tub for Boiling Galvanised
    4 lits cap. 6

23. Enamel Basins 6

24. Enamel Trays 12

25. Boiler copper 1

26. Wooden rods 2
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<tr>
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<tr>
<td>27</td>
<td>Wooden spoons</td>
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<td>Drying racks</td>
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<td>29</td>
<td>Gas stove</td>
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<tr>
<td>30</td>
<td>Hot plates</td>
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<td>31</td>
<td>Electric press</td>
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<td>Ironing Boards</td>
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<td>33</td>
<td>Hammer</td>
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<td>34</td>
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<td>35</td>
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<td>36</td>
<td>Hack saw</td>
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<td>37</td>
<td>Hand drill</td>
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<td>38</td>
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<td>42</td>
<td>Measuring Tapes</td>
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<td>Scissors</td>
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<td>48</td>
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<tr>
<td>49</td>
<td>Paper cutting sessions</td>
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<td>50</td>
<td>Pinking shears</td>
<td>2</td>
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<td>51</td>
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</table>
52. Shears
   Big size 6

FURNITURE AND ALMIRAH

53. Steel Almirah 6
54. Chemical racks wooden 5
55. Printing Tables 2
56. Drawing boards 12

DISPLAY BOARDS

57. Display Board Hard Board Covered with coloured cloth 2
58. Display board 2ft*3ft soft board with wooden frame 2
59. Flannel boards 2
60. Show cases with glass doors 2

B. LIST OF CONSUMABLE ITEMS

<table>
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<tr>
<th>ITEM</th>
<th>QUANTITY</th>
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<td>(for a batch of 25 students)</td>
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</table>

Raw material for loom weaving

1. Different types of yarn for weaving 5Kg each
   Carpet making and knitting cotton
   Wool jute, staple and synthetic nylon,
   Plastic thread, etc.

2. Different varieties of yarn Single ply, 5Kg each
   Cable, hoop, slub knotyarn, grendril
   Yarn fancy yarn, ‘S’ twist ‘Z’ twist yarn etc.

3. Different counts of yarn 4S, 6S, 10S, 20S, 1 cone each
   40S, 2/6S, 3/6S, 2/10S, 2/18S, 2/20S,
   3/20S, 2/40S, 1ply, 2ply, 3ply, wool

Raw material for sizing

4. Flour 1Kg each
   Wheat powder, arrorte, rice etc

5. Adhesive substance, Chalk powder or clay powder 1Kg each

6. Coconut oil 1 liter

7. Gum 1Kg
   Arabic or Acacia
8. Anti worm poison Neela thotha
   (Copper sulphate) 1Kg
9. Blues or tinopol 2 Dabba
10. Soaps and Detergents 1Kg

9. QUALIFICATION FOR TEACHING FACULTY

2. Diploma in Textile Designing with knowledge of Computers
3. Vocational teacher (part time – Experts from industries, designers and those with practical experience in the professional field)
4. Lab Assistant with knowledge in setting up of looms.

10. REFERENCE BOOKS

   APH, New Delhi.
   Eastern, New Delhi.
3. Shailaja D.Naik(1996) Traditional Embroideries of India, APH,
   New Delhi.
5. Watson's textile design and color.
   Traraporewala, Bombay.
8. Wynne, Motivate Series – Textiles
    Appearance.
11. **LIST OF PARTICIPANTS**

1. MRS. GEETHA SAMPATH M.SC.H.SC.
DEPT. OF APPAREL AND TEXTILES,
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2. MRS. R. MANJULA VANI,
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3. MR. K.Y. VIKRAM,
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HYDERABAD,
ANDHRA PRADESH.

4. MRS. K. NAGESWARA BHASKAR,
READER (Rtd)
STATE INSTITUTE OF VOCATIONAL EDUCATION,
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