

## 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**

Module	Theory		On Job Training		Total	
	Hours	Weightage	Hours	Weightage	Hours	Weightage
I	72	30	216	70	288	100
Total	72	30	216	70	288	100

## Schemes Of Instruction Per Week

Module	Theory	On the Job Training	Total
Modules I/II/III	6 Hours	18 Hours	24 Hours

## 6. SYLLABUS

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

- 1.0. Introduction -3Hrs.  
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. -3Hrs.  
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. -3Hrs.  
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. -3Hrs.  
4.1. Simple yarns.  
4.2. Fancy or complex yarns.  
4.3. Novelty yarns.
- 5.0. Properties of yarns. -3Hrs.  
(a) Yarn twist  
(b) Yarn strength  
(c) Yarn count
- 6.0. Types of fabric. -4Hrs.  
6.1. Woven fabrics.  
6.2. Knitted fabrics.  
6.3. Fettling fabrics.  
6.4. Bonding fabrics.  
6.5. Braided fabrics.
- 7.0. Introduction to Loom. -6Hrs.  
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: - 9.1. Plain weave and variations. 9.2. Twill weave and variations. 9.3. Satin weave and variations.	-16Hrs.
10.0	Identification of woven fabrics and defects. 11.1. Yarn defects. 11.2. Weave defects (a) Broken pick (b) Thick and thin places.	-6Hrs
11.0	Selvages. 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. 11.12. Swivel weave.	-6Hrs.
12.0	Defects in dyeing: - (a) Barre (b) Bleeding (c) Crocking (d) Off shade (e) Shade bar (f) Shading (g) Stained fabrics (h) Streaked fabric	-6Hrs.
13.0	Woven - Patola, Banaras Brocades, Chanderi, Paithani, Pochampalli, Ikat, Maheswari.	-10 hrs

### Module I

<b>ON THE JOB TRAINING</b>		<b><u>(216 Hrs)</u></b>
1.0.	Market Survey 1.1. Collection of different types of fibers. 1.2. Collection of different types of yarns. 1.3. Collection of different types of fabrics.	-5 Hrs
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. (Acid dyes, direct dyes, mordant dyes, reactive dyes)	-10 hrs
4.	Dyes containing Cationic groups (Basic dyes) (Vat dyes, Sulphur dyes, Azoic dyes)	-5 hrs
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	

– Daccamuslin, Calcico and chitz, Tassar and Kota -7 hrs

**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**

<b>Theory</b>	<b>Time: 72Hrs</b>	
1.	INTRODUCTION TO COMPUTERS	-2 hrs
2.	FUNDAMENTALS OF COMPUTERS	-4 hrs
3.	INTRODUCTION TO WONDOWS 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

### Module III

#### ON THE JOB TRAINING

**Time: 216 Hrs**

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

#### **8. LIST OF TOOLS AND EQUIPMENTS**

<u>ITEMS</u>	<u>QUANTITY</u> (For a batch of 25 students)
<b>Dyeing and Printing Lab</b>	
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.	4
2. Printing Trolley Small tool like table with four Wheels. (1 ½ *1 ½ *2 ½ ft)(L*B*H)	15
3. Printing Tray Enamel tray similar to Biological tray or traditional Wooden printing trays Size- 38cm.*27cm.	25
4. Tracing Table Glass top table for tracing (with tube lights) Size- (2 ½*4*2 ½ ft)	4
5. Weighing Balance Small and Big both.	4
6. Gas/Oil stove	6
7. Screen Exposing Tables Glass top with tube lights Size – (2ft*4ft)	4

8.	Screen and Block Racks	5
9.	Ironing Boards	25
10.	Black Boards	5
11.	Display Boards Size – (3ft*5ft)	2
12.	Instructor Table	1
13.	Chairs	4
14.	Stools Size-(1*1*2 ½ ft)	10
15.	Cupboard Size (5*3*1 ½ft)	2
16.	Water tank of cement	1
17.	Big Enamel Dyeing utensils with open mouth	6
18.	Wash Basin with fitting and Fixtures Ceramic	2
19.	Buckets	6
20.	Air Tight Container For storing Readymade colours (with mouthed bottles)	25
21.	Brushes No.0,1,3,6 Moghair/sable hair	25 each
22.	Linwood cutting Tool Set of Leno cutters	6
23.	Wooden Block In set of 3	6
24.	Linoleum sheet	as per the space
25.	Chemical for coating and Developing screens	---
26.	Measuring beakers	25
27.	Measuring cylinders	25
28.	Spoons	50
29.	Measuring Tapes and scales	25
30.	Soft wooden frames for hand Painting Size (40*100")	25
31.	Enamel bowl 16-12" dia 5-6" dia with open mouth	25



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.	1
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. Shuttleles	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

27.	Wooden spoons	2
28.	Drying racks	2
29.	Gas stove	1
30.	Hot plates	2

### **FINISHING MATERIALS**

31.	Electric press	12
32.	Ironing Boards	12

### **ADDITIONAL TOOLS**

33.	Hammer	1
34.	Plier	1
35.	Hand saw	1
36.	Hack saw	1
37.	Hand drill	1
38.	Spinner	1 set
39.	Screw drivers	
	Big	2
	Medium	2
	Small	2
40.	Chissel	1
41.	Leveller	1
42.	Measuring Tapes	6
43.	Scissors	6
44.	Knife	6
45.	Sand paper sheets	6
46.	Files	6 dozens

### **EMBROIDERY ACCESSORIES**

47.	Embroidery loops Medium size	12
48.	Embroidery sessiors	12
49.	Paper cutting sessiors	12
50.	Pinking shears	2
51.	Shears Medium size	6

52.	Shears Big size	6
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#### **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**

##### ITEM

##### QUANTITY

(for a batch of 25 students)

#### **Raw material for loom weaving**

1.	Different types of yarn for weaving Carpet making and knitting cotton Wool jute, staple and synthetic nylon, Plastic thread, etc.	5Kg each
2.	Different varieties of yarn Single ply, Cable, hoop, slub knotyarn, grendril Yarn fancy yarn, 'S' twist 'Z' twist yarn etc.	5Kg each
3.	Different counts of yarn 4S,6S,10S,20S, 40S,2/6S,3/6S,2/10S,2/18S,2/20S, 3/20S,2/40S,1ply,2ply,3ply,wool	1 cone each

#### **Raw material for sizing**

4.	Flour Wheat powder, arrorte, rice etc	1Kg each
5.	Adhesive substance, Chalk powder or clay powder	1Kg each
6.	Coconut oil	1 liter
7.	Gum Arabic or Acacia	1Kg

- |     |  |         |
|-----|--|---------|
| 8.  | Anti worm poison Neela thotha<br>(Copper sulphate) | 1Kg     |
| 9.  | Blues or tinopol                                   | 2 Dabba |
| 10. | Soaps and Detergents                               | 1Kg     |

**9. QUALIFICATION FOR TEACHING FACULTY**

1. M.Sc.(Home Science) in Textiles and Clothing.
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**

1. Gosh G.K.& Shukul Gosh(1993) Indian Textiles – Past and Present APH, New Delhi.
2. Kamaladevi Chattopadhyay(1977) Traditional Embroidery,Wiley Eastern, New Delhi.
3. Shailaja D.Naik(1996) Traditional Embroideries of India, APH, New Delhi.
4. Prayag R.S(1980) Textile Printing
5. Watson's textile design and color.
6. Brij Bhusan(1958) The costumes and Textiles of India.D.B. Traraporewala, Bombay.
7. Winifred Aldrich(1994)CDA in clothing and Textiles-2nd Edition
8. Wynne, Motivate Series – Textiles
9. Corbman B.P.(1983) Textiles – Fibre to Fabric.McGraw Hill Company, Singapore.
10. Hollen N.&Saddler J.(1995) Textiles Macmillan.NY
11. Joseph M L (1980) Essentials of Textiles Halt, Reinhert, USA
12. Kefgen M(1971) Individuality in Clothing – Selection and peraonal Appearance.
13. Kefgen M (1976) Individuality in Dress. Macmillan,NY

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