

Government of India  
Ministry of Textiles  
O/o. Development Commissioner for Handlooms  
Udyog Bhavan, New Delhi.

1	Name of the Module	Handloom Hand block Printer
2	Qualifications	<ul style="list-style-type: none"> <li>• Having Basic knowledge of weaving / dyeing / printing.</li> <li>• To be ascertain by certificate/RPL</li> </ul>
3.	Age Limit	Minimum 16 Yrs
4	No. of trainees per batch	20
5	Duration of Training	105 hrs (15 days) (Inclusive of 10 Hours RPL) *RPL will be conducted in case there is no certification of prior level available.
6	Nature of Training	Hands on practical training

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### **Job Profile:**

#### **Printer-**

- 1) The preparation of fabric before printing i.e. scouring, bleaching and wash-off treatment
- 2) Fabric pinning on the printing table
- 3) Demarcation on the fabric as per design/pattern
- 4) Chemical weighing and application as per process sequence
- 5) Printing paste preparation (either for synthetic or natural type of printing ingredients) as per required thickening of paste
- 6) Manual printing methods/techniques
- 7) Drying and curing of different type of printed fabric
- 8) Fabric handling techniques at each process step
- 9) Chemicals handling with safety compliances
- 10) Housekeeping of the work area including apparatus

#### **Outcome-** The Trainee should have acquired below skills:

- 1) Knowledge of printing recipe (chemicals and pigments dosage and use)
- 2) Knowledge of printing process sequence (fabric preparation, printing, drying and washoff)
- 3) Work practice to check the printing parameters
- 4) Able to handle the printing blocks/manual apparatus
- 5) Able to comply with safety norms

## SYLLABUS

### **1. TEXTILE PRINTING WITH SYNTHETIC DYES:**

(Any one or more of the below mentioned Printing)

- a) Pigment Printing
- b) Khadi Printing
- c) Metallic Printing
- d) Reactive Printing

**Process:**

#### **1.1 PRE-TREATMENT PROCESS**

- 1.1.1 Pre-treatment of Cellulosic fibers

#### **1.2 PRINTING PASTE PREPARATION**

- 1.2.1 Ingredients of Thickener
- 1.2.2 Role of Ingredients
- 1.2.3 Printing paste preparation

#### **1.3 HAND BLOCK PRINTING**

- 1.3.1 Fabric Pinning on Printing table
- 1.3.2 Marking on the fabric
- 1.3.3 Hand blocks selection as per Scheme or color paste
- 1.3.4 Type of Hand blocks (Outline and Fillers)
- 1.3.5 Printing of fabric

#### **1.4 AFTER TREATMENT PROCESS**

- 1.4.1 Drying of the Printed fabric
- 1.4.2 Steaming/Curing of the Printed fabric
- 1.4.3 Washing of Printed fabric

**(OR)**

### **2. TEXTILE PRINTING WITH NATURAL DYES:**

**PROCESS:**

#### **2.1 PRE-TREATMENT PROCESS**

- 2.1.1 Pre-treatment of Cellulosic fabric
- 2.1.2 Cellulosic fabric preparation for Printing

#### **2.2 PRINTING PASTE PREPARATION**

- 2.2.1 Thickener preparation
- 2.2.2 Mordant mixing with Thickener paste

#### **2.3 BLOCK PRINTING ON FABRIC**

- 2.3.1 Fabric Pinning on Printing table
- 2.3.2 Marking on the fabric
- 2.3.3 Hand blocks selection as per Scheme or color paste

2.3.4 Block Printing of Mordant

2.3.5 Drying of Printed fabric

2.3.6 Washing of Printed fabric

**2.4 DYEING OF FABRIC WITH NATURAL DYES**

2.4.1 Color Extraction

2.4.2 Color development with dye solution

**2.5 AFTER-TREATMENT PROCESS**

2.5.1 Wash off or Soaping Process

## DETAILED SYLLABUS

### 1. TEXTILE PRINTING:

(Any one or more of the below mentioned Printing)

- a) Pigment Printing (with the help of insoluble or pigment dyes)
- b) Khadi Printing (with the help of TiO<sub>2</sub> chemical)
- c) Metallic Printing (with the help of metals like- Gold, Silver or Bronze)
- d) Reactive Printing (with the help of reactive cold or hot dyes)
- e) Printing of wool/silk

#### **PROCESS:**

##### **1.1 PRE-TREATMENT PROCESS**

1.1.1 Pre-treatment of Cellulosic fibers -Scouring, Bleaching process and recipes: MLR – 1:20-30

**Scouring** or Boiling of Cellulosic material with Caustic Soda – 1gpl, Soda Ash – 0.5gpl, Soap – 0.5gpl at boiling temperature for 30-40min to remove hydrophobic impurities like- Oil, fat, wax and other trash content from the substrate and get water absorbent fiber/yarn or fabric.

**Bleaching** or Decolorization of cellulosic material with Hydrogen Peroxide (60% strength) – 2gpl, Sodium Silicate – 2gpl at boiling temperature for 25-30min to remove natural coloring ingredients from the substrate and get colorless fiber/yarn or fabric.

**Wash off** - Hot wash with water is done at 80-85°C followed by Cold wash at room temperature and Neutralization with Acetic Acid (1gpl).

##### **1.2 PRINTING PASTE PREPARATION**

1.2.1 Ingredients of Printing paste (Binder, Fixer, Urea, Softener, Oil etc): Binder 5%, Fixer 1-2%, Urea 1-2%, Softener 1-2%, Oil 0.5-1% as ingredients in the printing paste.

1.2.2 Role of ingredients: Binder to get the desired viscosity of paste, Fixer to improve fastness of print paste, Urea for hygroscopic property, Softener for smooth paste and Oil for shiny appearance of paste etc.

1.2.3 Printing paste preparation: Cold or Hot mixing of printing ingredients as per Thickener nature.

##### **1.3 HAND BLOCK PRINTING**

1.3.1 Fabric Pinning on Printing table: Pins to be outward direction from fabric for uninterrupted printing on fabric.

1.3.2 Marking on the fabric: Marking with the help of marka to align the fabric layout.

1.3.3 Hand blocks selection as per Scheme or color paste: As per design or shade-wise color paste availability, selection of block sets.

1.3.4 Type of Hand blocks (Outline and Fillers): Outline with dark color and Fillers with different color paste.

1.3.5 Printing of fabric: First printing with Outline followed by Outer to Inner Fillers to get the print effect.

## **1.4 AFTER TREATMENT PROCESS OF HAND BLOCK PRINTING**

- 1.4.1 Drying of the Printed fabric: Room temperature or Oven dry
- 1.4.2 Steaming/Curing of the Printed fabric: Reactive dyes needs steaming for color diffusion in the fabric while rest other dyes needs curing at high temperature for color fixation for Cellulosic material while Wool/silk prints require steaming.
- 1.4.3 Washing of Printed fabric: Soaping of printed fabric at 60-95°C as per dyestuff used.

**(OR)**

## **2. TEXTILE PRINTING WITH NATURAL DYES:**

### **PROCESS:**

#### **2.1 PRE-TREATMENT PROCESS**

- 2.1.1 Pre-treatment of Cellulosic fabric:

**Scouring** or Boiling of Cellulosic material with Caustic Soda – 1gpl, Soda Ash – 0.5gpl, Soap – 0.5gpl at boiling temperature for 30-40min to remove hydrophobic impurities like- Oil, fat, wax and other trash content from the substrate material and get water absorbent fiber/yarn or fabric.

**Wash off-** Hot wash with water is done at 80-85°C followed by Cold wash at room temperature and Neutralization with Acetic Acid (1gpl).

- 2.1.2 Cellulosic fabric preparation for printing (Harda treatment):

Cellulosic fabric to be treated with 10-20gpl Harda at 40-45°C for 20-25min followed by drying and cold wash.

#### **2.2 PRINTING PASTE PREPARATION**

- 2.2.1 Thickener preparation with Gum Arabic, TKP (Tamarind Kernel Powder) etc.
- 2.2.2 Mordant mixing with Thickener paste: (Mordants, mordanting techniques and recipes) Different mordants like- Alum, Copper Sulphate or Ferrous Sulphate are used as per desired shade tone of print effect.

#### **2.3 BLOCK PRINTING ON FABRIC**

- 2.3.1 Fabric Pinning on Printing table: Pins to be outward direction from fabric for uninterrupted printing on fabric.
- 2.3.2 Marking on the fabric: Marking with the help of marka to align the fabric layout.
- 2.3.3 Hand blocks selection as per Scheme or color paste: As per design or shade-wise color paste availability, selection of block sets.
- 2.3.4 Printing of fabric: Fabric is printed with the help of printing paste to get the designs/pattern as per scheme.
- 2.3.5 Drying of Printed fabric (Time to expose etc): Printed fabric is dried at room temperature.
- 2.3.6 Washing of Printed fabric: Washing temperature 40-45°C

#### **2.4 DYEING OF FABRIC WITH NATURAL COLOR**

- 2.4.1 Color Extraction (different form of vegetable matters and their processing to extract color, recipes and temperature etc): Color is extracted after boiling the plant material for 10-60min as per raw material hardness and plant part like- root, resin, bark etc
- 2.4.2 Fabric treatment with color solution (Color application techniques along with dyeing parameters like – temperature, time, natural ingredients etc): Fabric is treated with color extract at 80°C for 45-50min.

## **2.5 AFTER-TREATMENT PROCESS**

2.5.1 Wash off or Soaping Process: Soap recipe 0.5-1.5gpl, temperature 60-80°C and time 10-15min.