

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

1	Name of the Module	Handloom Hand Dyer (TC HLM 12)
2	Qualifications	<ul style="list-style-type: none"> • Having Basic knowledge of weaving / dyeing / printing • To be ascertain by certificate/RPL
3.	Age Limit	Minimum 16 years
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:

Dyer-

- 1) Preparation of yarn before dyeing i.e. scouring/ bleaching/ degumming
- 2) Preparation of dye solution (either for synthetic or natural dye)
- 3) Dyes/Chemical weighing
- 4) Manual dyeing with reactive/acid/vat/metal complex/ natural dyes application etc.
- 5) After-treatment of dyed yarn like- soaping/fixer treatment/ softener treatment etc.
- 6) Drying of yarn
- 7) Manual handling of yarn while dyeing in the utensil or dyeing pot.
- 8) Chemicals handling with safety compliances
- 9) Housekeeping of the work area including apparatus.

Outcomes- The trainee should have acquired below skills:

- 1) Knowledge of pretreatment of yarn
- 2) Knowledge of dyeing recipe (chemicals and dyes dosage and use) for reactive/acid/vat/metal complex/ natural dyes.
- 3) Knowledge of dyeing process sequence (pre-treatment, dyeing, after-treatment, drying)
- 4) Able to handle the manual apparatus.
- 5) Able to comply with safety norms.

SYLLABUS

1) PROCESS:

a. PRE-TREATMENT PROCESS

- i. Pre-treatment of Cellulosic Yarn
(OR)
- ii. Pre-treatment of Protein Yarn

b. DIFFERENT DYESTUFFS APPLICATION (Any one or more of the below mentioned dyes)

- i. Reactive dyes
- ii. Vat dyes
- iii. Acid dyes
- iv. Metal complex dyes
- v. Natural dyes

c. AFTER-TREATMENT PROCESS

- i. Soaping Process
- ii. Dye Fixing Process
- iii. Softener application
- iv. Scrooping (in case of silk yarn)

DETAILED SYLLABUS

1. PROCESS:

1.1 PRE-TREATMENT PROCESS

- 1.1.1 Pre-treatment of Cellulosic fibers/Yarn- 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 material and get water absorbent fiber/yarn or fabric.

Bleaching of cellulosic material with Hydrogen Peroxide (60% strength) – 2gpl, Sodium Silicate – 2gpl at boiling temperature for 25-30min to remove natural coloring pigments 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).

(OR)

- 1.1.2 Pre-treatment of Protein fibers/Yarn- Scouring/Degumming, Bleaching process and recipes:

Scouring of wool with non-ionic soap 1-2gpl at room temperature for 30-35min followed by cold water washing.

Bleaching of wool with hydrogen peroxide 1-2gpl at 50-60°C for 15-20min followed by cold water washing.

(OR)

Degumming of Silk with Soap 1-2gpl and Soda ash 0.25-0.50 gpl at 80-85°C for 30-40min followed by hot wash and cold wash with water.

1.2 DIFFERENT DYESTUFFS APPLICATION

(Any one or more of the below mentioned dyes)

- 1.2.1 Reactive Dye - Application pH, temperature, time and chemicals dosage: There are two major categories of Reactive dyes – Cold brand and Hot brand reactive dyes, these can be applied over the fabric at low temperature (45-50°C) and hot temperatures (60-80°C) with the help of Salt and Alkali dosage as per shade depth.
- 1.2.2 Vat Dye - Application pH, temperature, time and chemicals dosage: Vat dyes are water insoluble so first of all the dyestuffs are converted into water soluble leuco paste with the help of TRO (Turkey Red Oil) – 5% of color, Caustic Soda 2-4gpl, Sodium hydro sulphite 3-6gpl and material is dyed in this solution followed by oxidation in open air.
- 1.2.3 Acid Dye - Application pH, temperature, time and chemicals dosage: These dyes are applied over Protein fibers like – Wool, Silk etc at high temperature upto 95°C for 30-50min in the presence of acids (Acetic acid, Formic acid, Sulphuric acid) as per shade depth .
- 1.2.4 Metal complex dyes – Application pH, temperature, time and chemicals dosage: These dyes are applied over Protein fibers like – Wool, Silk etc at high temperature upto 95°C for 30-50min in the presence of acids (Acetic acid, Formic acid, Sulphuric acid) as per shade depth .
- 1.2.5 Natural Dye - Color Extraction (different form of vegetable matters and their processing to extract color), Fabric preparation for Dyeing (Harda treatment, Mordanting with different type of mordants and recipes), Color application on fabric (Color application techniques along with dyeing parameters like – temperature, time, natural ingredients etc)

1.3 AFTER-TREATMENT PROCESS

- 1.3.1 Soaping Process – Application temperature 50-95°C, time 10-15min and chemical dosage of Soaping agent 0.5-2.5gpl etc.
- 1.3.2 Fixer Process - Application temperature 45-50°C, time 15-20min and chemical dosage of Fixing agent 0.5-2.5% etc.
- 1.3.3 Softener Application - Application temperature 40-45°C, time 15-20min and chemical dosage of Softener 0.5-2.5% etc.
- 1.3.4 Scrooping of Silk – Immersion of Silk Yarn in Acetic or Tartaric Acid for crunching sound and cohesiveness.