

SYLLABUS FOR

# WEAVING OF WOOLEN FABRICS

Under

CRAFTSMEN TRAINING SCHEME

As approved by  
GOVERNMENT OF INDIA

In consultation with  
THE NATIONAL COUNCIL FOR  
VOCATIONAL TRAINING



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SHRAM SHAKTI BHAWAN, NEW DELHI-110001

1982

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FOR THE TRADE OF WEAVING OF WOOLEN FABRICS

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Industrial Area B,  
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GENERAL INFORMATION

1. Name of the Trade : Weaving of Woollen Fabrics
2. Entry Qualification : Pass in 8th class examination under 10+2 system of education or its equivalent.
3. Duration of Craftsmen Training : 1 Year.

SYLLABUS FOR THE TRADE OF WEAVING OF WOOLEN FABRICS UNDER  
CRAFTSMEN TRAINING SCHEME

Duration of Training : One Year

| Week No.<br>No. | Practical | Theoretical |
|-----------------|-----------|-------------|
| 1.              | 2.        | 3.          |

1. Familiaration with Weaving machines, their uses, safety precautions to be observed while attending the operation on each machine.

Arith :

Addition of whole numbers and simple problems on addition.

Drawing :

Simple geometrical construction bisecting a given line with compass and set squares.

2. Identification of different types of fibre and their collections.

Description of textile fibres and their identification, characteristic and their uses.

Arith :

Addition of whole numbers. Solution of problems on addition.

Drawing :

Simple geometrical construction bisecting a given arc with compass.

Commercial forms of yarn as per IS : 667-1955.

-do-

|    |    |    |
|----|----|----|
| 1. | 2. | 3. |
|----|----|----|

Arith :

Addition of decimal %, problems involving decimals addition.

Drawing :

Free hand sketches of vertical line, horizontal lines.

4. Identification of different types of yarn & formation of knots.

Familiarisation with the technical terms pertaining to yarn, count of yarn, reed, healds,lea etc.

Arith :

Addition of decimal. Addition of given number containing decimal and whole numbers.

5. Methods of finding out defects of heald and reed.

Familiarisation with the technical terms hand, knot, bundle, bale, end, pick, warp and weft.

Arith :

Subtraction of whole numbers. Subtracting given numbers from one another.

Drawing :

Erecting a perpendicular to a given straight line AS from a given point C out side the line.

6. Different parts of pit loom and frame loom. Practice on the looms.

Types of hand looms like pit loom, frame loom, multiple tape loom, newar loom and carpet loom.

Arith :

Subtraction of whole numbers. Solving shop problems.

2.

3.

Drawing :

Erecting perpendicular when the point C is nearly opposite to the middle point of AB.

Different parts of pit loom and frame loom. Practice on the looms.

Relative advantages and disadvantages of throw shuttles and fly shuttle looms. Construction, description of parts of frame loom. Uses of frame loom.

Arith :

Subtraction of decimal.

Drawing :

Construct an angle of  $300, 450, 1500$  at a point A on the straight line AB.

Familiarisation with different parts of sley and their uses.

Types of sleys. Construction and uses of sleys.

Arith :

Subtraction of decimal.

Drawing :

Construct an equal to given angle.

Familiarisation with different types of shuttles, parts and uses.

Types of shuttles, construction and uses of shuttles.

Arith :

Division of whole numbers.

Drawing :

Draw free hand sketch of square rectangle parallelogram.

1.

2.

3.

10. Preparation of bobbin and cones and methods of warping, beaming, drafting, denting and gaiting up of looms.

Preparatory processes, winding doubling, warping, beaming, peg warping, drafting denting and gaiting up of looms. Description of each process.

Arith :

Division of whole numbers. Solving simple problems on division.

11. -do-

Preparatory appliances, their type and gaiting up of loom. Construction of appliances and their uses.

Arith :

Division of whole numbers. Shop problems dealing with division.

12. -do-

Familiarisation with different warpin methods.

Arith :

Division of whole numbers.

13. Practice on sizing by hands.

Ingredients of sizing, description of each ingredient and uses.

Arith :

Conversion of vulgar fractions into decimal fraction & vice versa.

Drawing :

Draw free hand sketch of square, rectangle, parallelogram

14. Practice on sizing by hands.

Sizing, ingredients for different textile fibres. Size mixture and sizing methods.

3.

2.

Arith :

Conversion of vulgar fractions into decimal fraction and vice versa.

15. Different parts of primary motion and secondary motion of the loom, and practice.

Arith :

Conversion of vulgar fractions into decimal fraction and vice versa.

16. Preparation of different designs for woollen fabrics.

Arith :

Conversion of vulgar fractions into decimal fraction and vice versa.

17. Finding out defects in fabrics and understanding remedial measures.

Arith :

Multiplication of decimal numbers.

Testing of yarn, its importance and tests procedure adopted.

Arith :

Multiplication of whole numbers. To multiply the given numbers.

Description of instruments used in testing of yarn, warp reed, yarn assorting balance, yarn and cloth quadrants.

2.

3.

Arith :

Multiplication of whole numbers.

20. Familiarisation with single yarn tester and practice.

Arith :

Multiplication of whole numbers.

21. Analysis of woollen fabrics.

Arith :

Multiplication of decimal fractions. Problems on multiplication.

22. Finishing and dyeing of woollen fabrics.

Arith :

Multiplication of decimal fractions.

Dyeing of woollen fabrics.

Arith :

Multiplication of whole numbers and decimal fractions.

Dyeing of woollen fabrics.

Arith :

Multiplication of whole numbers and decimal fractions.

| 1.  | 2.   | 3.  |
|-----|--|---|
| 25. | Understanding simple design and preparation of different design on graph papers. | Designing of plain weave and its ornamentation, derivatives of plain weave such as warp and weft rib.   |
| 26. | -do-   | Arith :<br>Simple calculation an area of circle, sector polygon and pentagon.<br>Derivatives of plain weave, mat or hop sack weave. Combination of weft ribs. |
| 27. | Understanding simple design and preparation of different design on graph papers. | Derivatives of plain weave continued regular pointed zig zag, herring-bone and broken twill etc.  |
| 28. | Calculation regarding woollen yarns.   | Counting system and calculation involved.   |
| 29. | -do-   | Counting system in woollen yarn and union yarn.   |
| 30. | -do-   | Determination of counts, weight of short length of yarn, count of short length of yarn.   |
| 31. | -do-   | Determination of counts continued, count of short length of yarn, length count of folded yarn (Resultant count) of same length.                               |
| 32. | Calculation and conversion of different yarns.                                   | Calculation involved to determine cost of folded yarn adopting IS : 3689-1966. Conversion factors and consultation of conversion table for yarn counts.       |
| 33. | Familiarisation with finishing methods.  | Finishing methods used for different cloths. Hand milling calendering, stamping, marketing methods.   |

| 1.  | 2.  | 3.   |
|-----|---|--|
| 34. | Familiarisation with different parts of power loom.   | Constructional feature of the power loom, various components of the power loom and their functions.                                    |
| 35. | Familiarisation with special features of power loom and tuning of loom for woollen fabrics.               | Constructional and functional features of woollen loom. Tuning of power loom.  |
| 36. | Familiarisation with different parts of weft fork motion % seven wheel take up motion.                    | Study of working of primary motion and weft fork motion and seven wheel take up motion.  |
| 37. | Familiarisation with different types of dobbies and preparation of dobby chain.                           | Dobbies used in weaving such as chain and single left and their working mechanism.   |
| 38. | Familiarisation with the Working jacquard used and jacquard and its working.                              | Dobbies used in weaving such as chain and single left and their uses, single left, cylinder jacquard, its parts and working mechanism. |
| 39. | -do-  | Study of various sizes of Jacquard used in weaving.  |
| 40. | Preparation of jacquard design on graph papers and harness mounting and card cutting.                     | Card cutting from design, lacing, harness ties and different harness drafts.   |
| 41. | Preparation of design on graph papers using satin weaves.   | Construction of satin weaves, regular and irregular.   |
| 42. | -do-  | Satin diapordice and figured design.   |
| 43. | Preparation of design on graph papers using different weaves such as broken cork screw and combine twill. | Broken cork screw and combined twills.   |

# LIST OF TOOLS AND EQUIPMENTS FOR THE TRADE OF WEAVING OF WOOLLEN FABRICS

| Sl. No. | Name of the articles with specifications, if any.   | Quantity                |
|---------|---|-------------------------|
| 1.      | Winding wheel with stand cycle rims.  | 8 Nos.                  |
| 2.      | Warper's bobbins.   | 1000 Nos.               |
| 3.      | Warping drum complete with creels.  | 2 Nos.                  |
| 4.      | Frame looms standard sizes.   | 12 Nos.                 |
| 5.      | Pit looms.  | 2 Nos.                  |
| 6.      | Shuttles (Plain and roller)   | 50 Nos.                 |
| 7.      | Pirns.  | 1000 Nos.               |
| 8.      | Heald hooks.  | 32 Nos.                 |
| 9.      | Combs (Weaver).   | 15 Nos.                 |
| 10.     | Spare beams.  | 16 Nos.                 |
| 11.     | (a) Dobbies single lift 8 levers.<br>(b) Dobbies single lift 12 levers.<br>(c) Dobbies gingle lift 16 levers. | 1 No.<br>1 No.<br>1 No. |
| 12.     | Card punching plates.   | 1 No.                   |
| 13.     | Piano card cutting machine.   | 1 No.                   |
| 14.     | Sleys with multiple box.  | 8 Nos.                  |
| 15.     | Wire heald frames (4 frames in each set with 5000 healds in each set).  | 8 Nos.                  |
| 16.     | Twisting machine 24 spindles.   | 1 No.                   |
| 17.     | Jacquard 200 hooks and 100 hooks one each.  | 2 Nos. RS               |

44. Familiarisation with the analysis of woollen fabrics.
45. Determination of picks and ends for woollen yarns.
46. Practice on finishing of woollen fabrics.
47. Finishing methods of woollen fabrics.
48. Hand milling.
49. Arith.
50. Revision.
51. Drawing.
52. Practice on free hand sketches.
53. Calendaring, stamping and marketing.
54. Arith.
55. Revision.
56. Drawing.
57. Practice on free hand sketches.
58. Revision and Industrial visits.
59. Final Trade Test.

NOTE : During the last sixteen weeks the trainees will practice on weaving of woollen shawls, laides scarf in fancy and artistic designs, weaving of fabrics in check texture, blankets and rugs. Weaving of pushminas and other popular varieties of woollen design.

## SOCIAL STUDIES

The syllabus has already been approved and is same for all the trades.

| 1.  | 2.   | 3.       |
|-----|--|----------|
| 19. | Power looms, plain with extra twill tappet arrangement (1300 MM and 1500 MM) one each. | 1 No.    |
| 20. | Cottage milling machine.   | 1 No.    |
| 21. | Fabrics samples cutting machine.   | 1 No.    |
| 22. | Microscope 1 : 200   | 1 No.    |
| 23. | Yarn strength tester.  | 1 No.    |
| 24. | Twist tester.  | 1 No.    |
| 25. | Reeds iron sizes.  | 1 No.    |
| 26. | Sarp reel.   | 100 Nos. |
| 27. | Healds cotton of different sizes.  | 100 Nos. |
| 28. | Yarn balance.  | 100 Nos. |
| 29. | Spanner set, hammers, chisels screw driver, pliers piecers.                            | 4 Sets.  |
| 30. | Scissors 8"  | 4 Nos.   |
| 31. | Scissors 10"   | 4 Nos.   |
| 32. | Measuring tapes 100 metres.  | 14 Nos.  |
| 33. | Counting glasses 1" and 25 mm (1 each).  | 8 Nos.   |
| 34. | Yarn stand.  | 2 Nos.   |
| 35. | Balance ordinary with weights from 50 gram to 5 Kg.                                    | 2 Sets.  |
| 36. | Kit boxes.   | 14 Sets. |
| 37. | Almirahs   | 2 Nos.   |
| 38. | Durries 16" x 12".   | 2 Nos.   |
| 39. | Table for yarn sizing 2½" x ½ x ½"   | 1 No.    |
| 40. | Fire oven.   | 1 Set.   |

| 1.  | 2.                                 | 3.      |
|-----|------------------------------------|---------|
| 40. | Kundi cottage.                     | 1 No.   |
| 41. | Cold callender 40" wide rollers.   | 1 No.   |
| 42. | Black board with graph.            | 1 No.   |
| 43. | Instructor's desk/table and chair. | 1 Set   |
| 44. | Trainee's desk/tables and stools.  | 14 Nos. |
| 45. | Drafting frames.                   | 4 Nos.  |



# INDIAN STANDARDS FOR HOSIERY

1. Briefs, cotton knitted, gents' (First revision). 4044 - 1977
2. Hose tops, worsted. 2522 - 1963
3. Jerseys, round-neck (First revision). 3604 - 1977
4. Jerseys, V-neck, plain knitted (Second revision). 2360 - 1977
5. Mufflers, worsted, knitted, one-piece. 2522 - 1963
6. Pullovers, worsted, gents', one-piece (Interlock-knitted). 3617 - 1965
7. Short drawers, gents', cotton, men's plain-knitted. 4374 - 1967
8. Short drawers, wool-cotton, men's (First revision). 2100 - 1960
9. Slipovers, gents'. 4044 - 1967
10. Socks, cotton (First revision). 3329 - 1972
11. Socks, nylon. 5004 - 1960
12. Socks, wool (Worsted) (First revision). 2107 - 1972
13. Sports shirts, cotton knitted (First revision). 4375 - 1975
14. Stockings cotton rib-knitted. 3530 - 1965
15. Stockings, nylon, rib-knitted, gents' (First revision). 4022 - 1977
16. Underpants, wool-cotton (First revision). 5524 - 1960
17. Vests, interlock-knitted :  
Part-I Fabric (First revision). 4045 - (Part-I) - 1975  
Part-II Vests (First revision). 4065 - (Part-II) - 1975

19. Vests, cotton, plain-knitted (Part-I) Fabric (Second Revision). 4044 - 1960
19. Vests, string, cotton-knitted. 4000 - 1959
20. Vests, wool-cotton (First revision). 3329 - 1972
21. Yarn, cotton, grey, for hosiery (Second revision). 2974 - 1975
22. Yarn, hosiery worsted. 7026 - 1972
23. Glossary of terms pertaining to defects in fabrics. 4125 - 1967
24. Glossary of terms pertaining to textile processing. 4502 - 1960
25. Glossary of terms relating to hosiery. 3506 - 1967
26. Glossary of textile terms - fabrics made from natural fibres (First revision). 2364 - 1970
27. Glossary of textile terms - natural fibres (First revision). 2322 - 1967
28. Glossary of textile terms relating to man made fibre and fabric industry (First revision). 1924 - 1965

S/Shri.

10. Dina Nath Aggarwal,

The Amber,  
Mall Road,  
Ludhiana.

11. Naresh Goel,

Naresh Weaving Factory,  
Bharat Nagar Chowk,  
Ludhiana.

12. Kundan Lal

Partner,  
M/s Ganesh Textile Mills,  
Near Chas Mandi,  
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SECRETARY

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