

WEAVING OF SILK & WOOLEN FABRICS

R. S. Lochan

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

MEMBERS OF THE TRADE COMMITTEE

Sl. No.	Name S/Shri ..	Organisation
1.	2.	3.

CONVENER :

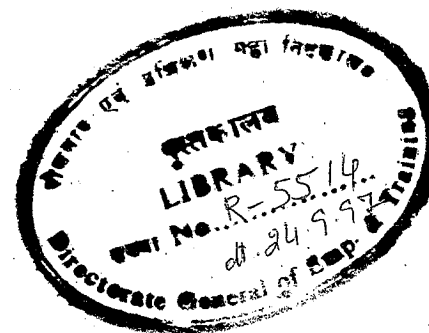
1. J.C.Aorra, Director. : Advanced Training Institute, Gill Road, Ludhiana.

MEMBERS :

2. Raj Bir Likhi, Lecturer (Knitting). : Govt. Institute of Textile, Chemistry of Knitting, Ludhiana.
3. Man Mohan Singh, Jr. Lecturer (Knitting). : Govt. Institute of Textile, Chemistry of Knitting, Ludhiana.
4. Bakhtawar Singh, Production Manager. (Fully Fashioned Sec.) : Oswal Woollen Mills-Unit No. 2, Industrial Area, Ludhiana.
5. Narang Lal, Production Manager. : Ludhiana Wool Syndicate, G.T. Road, Ludhiana.
6. Derinder Singh, Manager. : Govt. Hosiery Work Centre, Industrial Area B, Ludhiana.
7. Paul Chakraborty, Dy. Director of Trg. : N.V.T.I., Kasturba Gandhi Marg,, New Delhi.
8. Avtar Singh Gill, Lecturer in Weaving. : Punjab Institute of Textile, Technology, Hall Gate, Amritsar.
9. Gurbax Rai Saint, Instructor in Weaving. : Govt. Institute of Garment Technology, Hall Gate, Amritsar.

GENERAL INFORMATION

1. Name of the Trade : Weaving of Silk and Woollen Fabrics (CTS).
2. Entry Qualification : Pass in 8th class examination under 10+2 system of education or its equivalent.
3. Duration of Crafts-
manship Training. : One year.



SYLLABUS FOR THE TRADE OF
WEAVING OF SILK AND WOOLLEN FABRICS (C T S)

UNDER
CRAFTSMAN TRAINING SCHEME

Period of Trg.: 1 Year

Week No.	Practical	Theoretical
1.	2.	3.
1.	Familiarisation with Weaving machines, their uses, safety precautions to be observed while attending the operation on each machine.	<p>Description of textile fibres, their classifications.</p> <p><u>Arith :</u></p> <p>Addition of whole numbers & simple problems on addition.</p> <p><u>Drawing :</u></p> <p>Simple geometrical construction bisecting a given line with compass and set squares.</p>
2.	Identification of different types of fibres and their collections.	<p>Description of textile fibres and their identification, characteristic and their uses.</p> <p><u>Arith :</u></p> <p>Addition of whole numbers. Solution of problems on addition.</p> <p><u>Drawing :</u></p> <p>Simple geometrical construction bisecting a given Arc with compass.</p>
3.	-----do-----	<p>Commerical forms of yarn as per IS : 667.</p> <p><u>Arith :</u></p> <p>Addition of decimal and prob-</p>

1. 2. 3.

Drawing :

Free hand sketches of vertical line, horizontal lines.

4. Identification of different types of yarn and 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.

Drawing :

Free hand sketches of parallel lines, oblique lines.

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

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

Arith :

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

Drawing :

Erecting perpendicular to a given straight line AB from a given point C outside 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.

1.	2.	3.
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Arith :

Subtraction of whole numbers. Solving related shop problems.

Drawing :

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

7. 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 30° , 45° , 150° , 105° at a point A on the straight line AB.

8. Familiarisation with different parts of sley and uses.

Types of sleys, Construction and uses of sleys.

Arith :

Subtraction of decimal.

Drawing :

Construct an equal to given angle.

9. Familiarisation with different types of shuttle, parts and uses.

Types of shuttles. Construction and uses of shuttles.

Arith :

Division of whole numbers.

1.	2.	3.
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Drawing :

Draw free hand sketch of square, rectangle parallelogram.

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

Familiarisation with different warping 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 fraction into decimal fraction and vice-versa.

1.	2.	3.
		Size mixture and sizing methods.
		<u>Arith :</u>
		Conversion of vulgar fractions into decimal fraction and vice-versa.
15.	Different parts of primary motion and secondary motion of the looms and practice.	Weaving of fabrics, its principle processes. Primary motion and secondary motion of loom, description of each.
		<u>Arith :</u>
		Conversion of vulgar fractions into decimal fraction and vice-versa.
16.	Preparation of different designs for silk and woollen fabrics.	Description and classification of woollen fabrics grade, texture and weave.
		<u>Arith :</u>
		Conversion of vulgar fractions into decimal fraction and vice versa.
17.	Finding out defects in fabrics and understanding remedial measures.	Defects in woollen fabrics, their identification, causes and remedies of each.
		<u>Arith :</u>
		Multiplication of decimal numbers.
		<u>Drawing :</u>
		Draw a tangent of a circle at a given point P on it.
18.	Familiarisation with warp	Testing of yarn, its impor-

1.	2.	3.
		<u>Arith :</u>
		Multiplication of whole numbers. To multiply the given numbers.
19.	Familiarisation with warp reed, yarn assorting balance, yarn and cloth quadrants and practice.	Description of instruments used in testing of yarn, warp reed, yarn assorting balance yarn and cloth quadrants.
		<u>Arith :</u>
		Multiplication of whole numbers.
20.	Familiarisation with single yarn tester and practice.	Description of instruments used for testing of yarn, single yarn tester, yarn tester, for evenness.
		<u>Arith :</u>
		Multiplication of whole numbers.
21.	Analysis of silk and woollen fabrics.	Analysis of different patterns adopted in weaving of the silk and woollen fabrics.
		<u>Arith :</u>
		Multiplication of decimal fractions. Problems on multiplication.
22.	Degumming of silk and dyeing. Finishing and dyeing of woollen fabrics.	Degumming of silk.
		<u>Arith :</u>
		Multiplication of decimal fractions.
23.	-dn-	Dyeing of silk.

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		Arith :
		Multiplication of whole numbers and decimal fractions.
24.	Degumming of silk and dyeing. Finishing and dyeing of woollen fabrics.	Dyeing of woollen fabrics.
		Arith :
		Multiplication of whole numbers and decimal fractions.
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.
		Arith :
		Simple calculation involving of area of circle, sector polygon and pentagon.
26.	-do-	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 silk and woollen yarns.	Counting system and calculation involved.
29.	-do-	Counting system in spun silk rayon raw silk, 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

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		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. 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.
34.	Familiarisation with different parts of power loom.	Constructional feature of the power loom, various components of the power loom and their function.
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 and seven weave take up motion.	Study of working of primary motion and weft fork motion and seven weave 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 jacquard and its working.	Working jacquard used, 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	Card cutting from design

1.	2.	3.
41.	Preparation of design on graph papers using satin weaves.	Construction of satin weaves, regular and irregular.
42.	-do-	Satin diaperdise 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.
44.	Familiarisation with the analysis of woollen fabrics.	Determination of picks and ends for woollen yarns.
45.	Practice on finishing of silk.	Finishing methods of silk fabrics.
46.	Practice on finishing of woollen cloth.	Finishing methods of woollen fabrics.
47.	Familiarisation with hand milling and calendering.	Hand milling. <u>Arith :</u> Revision. <u>Drawing :</u> Practice on free hand sketches.
48.	Familiarisation with hand milling and calendering.	Calendering, stamping and marketing. <u>Arith :</u> Revision. <u>Drawing :</u> Practice on free hand sketches.

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During last four months of training, the trainees will practice exercises on weaving of plain silk series, silk scarf, weaving of plain woollen shawls, plain and twill with spot effective designs and fancy patterns, weaving of ladies woollen scarf in fancy pattern, weaving of dress material of woollen yarn in artistic designs, weaving of woollen blankets in artistic designs with light and heavy textures.

SOCIAL STUDIES :

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

LIST OF TOOLS AND EQUIPMENT FOR THE TRADE OF
WEAVING OF SILK AND WOOLLEN FABRICS

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Sl. No.	Name of the articles with specifications	Quantity
1.	2.	3.
1.	Winding wheels with swift and stand.	2 Nos.
2.	Warpers bobbins.	100 Nos.
3.	Warping drum complete with reel and beaming arrangement for woollen and silken warps.	2 Nos.
4.	Frame looms for woollen fabrics.	4 Nos.
5.	Frame looms silken fabrics.	4 Nos.
6.	Pit loom for woollen and silken fabrics (2 Each).	4 Nos.
7.	Power looms plain with twill tappets 54" R.S.	2 Nos.
8.	Power looms for silk weaving 60 R.S.	2 Nos.
9.	(a) Shuttle plain.	16 Nos.
	(b) Shuttles furlined for hand loom silk weaving.	8 Nos.
	(c) Shuttles roller for woollen fabrics.	2 Nos.
	(d) Shuttles for power loom ordinary and furlined (4 Each).	2 Nos.
10.	Pirns for hand looms and power loom.	1000 Nos.
11.	Heald hooks.	32 Nos.
12.	Weaver's comb.	16 Nos.
13.	Dobbies single lift 2 lever and 15 lever (1 Each).	2 Nos.
14.	Card punching plate.	1 Set
15.	Piano card cutting machine.	1 No.
16.	Jacquard 100 hooks.	1 No.
17.	Wire heald frames of 4 frames each.	2 Sets.
18.	Jacquard 200 hooks.	1 No.
19.	Cottage milling machine.	1 Set.

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20.	Fabrics sample cutting machine.	1 Set.
21.	Yarn strength tester.	1 No.
22.	Microscope.	1 No.
23.	Twist tester.	1 No.
24.	Reed steel of various counts and sizes.	40 Nos.
25.	Reed brass of various counts and sizes.	10 Nos.
26.	Reed bamboo of various counts and sizes.	10 Nos.
27.	Wrap reel.	1 No.
28.	Cotton healds varnished various sizes.	40 Nos.
29.	Yarn balance.	1 No.
30.	Spanner set, hammers, chisels, screw driver, pliers, pincer.	4 Sets.
31.	Scissors 20 cms. and 25 cms. (2 Each).	4 Nos.
32.	Measuring tapes 2 meters.	15 Nos.
33.	Counting glasses 1" square and 25 mm square.	2 Nos.
34.	Yarn stand.	2 Nos.
35.	Balance ordinary with weights (50 gms. to 5 kgs.).	2 Nos.
36.	Kit boxes.	16 Nos.
37.	Almirahs.	2 Nos.
38.	Durries 3 meters x 4 meters.	2 Nos.
39.	Yarn sizing table (75 cms x 75 cms x 75 cms).	2 Nos.
40.	Fire oven.	2 Sets.
41.	Kundi cottage.	1 Set.
42.	Black board with graphy.	1 No.
43.	Instructors desk/table and chair.	1 Set.
44.	Trainees table and stools.	15 Nos.
45.	Drafting frames.	4 Nos.

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INDIAN STANDARDS FOR HOSIERY

1. Briefs, cotton knitted, gents' (First revision). 4046 - 1977
2. Hose tops, worsted. 2523 - 1963
3. Jerseys, round-neck (First revision). 3604 - 1977
4. Jerseys, Y-neck, plain knitted (Second revision). 2360 - 1977
5. Mufflers, worsted, knitted one-piece. 2522 - 1963
6. Pullovers, worsted, gents', one-piece (Interlock-knitted). 3617 - 1966
7. Short drawers, gents', cotton, men's plain-knitted. 4376 - 1967
8. Short drawers, wool-cotton, men's (First revision). 3100 - 1960
9. Slipovers, gents' 4044 - 1967
10. Socks, cotton (First revision). 3329 - 1973
11. Socks, nylon. 5084 - 1969
12. Socks, wool (worsted) (First revision). 2187 - 1973
13. Sports shirts, cotton knitted (First revision). 4375 - 1975
14. Stockings cotton rib-knitted. 3530 - 1966
15. Stockings, nylon, rib-knitted, gents' (First revision). 223 - 1977
16. Underpants, wool-cotton (First revision). 5524 - 1980
17. Vests, interlock-knitted :
 - (a) Part-I Fabric (First revision) 4965 (Part-I) 1975
 - (b) Part-II vests (First revision) 4965 (Part-II) 1975
18. Vests, cotton, plain-knitted (Part-I) Fabric (Second revision). 4964 - 1980
19. Vests, string, cotton-knitted. 4009 - 1968
20. Vests, wool-cotton (First revision). 3330 - 1979
22. Yarn, hosiery worsted. 7025 - 1973
23. Glossary of terms pertaining to defects in fabrics. 4125 - 1967
24. Glossary of terms pertaining to textile processing. 0503 - 1980
25. Glossary of terms relating to hosiery. 3506 - 1967
26. Glossary of textile terms-fabrics made of natural fibres (First revision). 2364 - 1979
27. Glossary of textile terms-natural fibres (First revision). 232 - 1967
28. Glossary of textile terms relating to man made fibre and fabric industry (First revision). 1324 - 1966.

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1. 2. 3.

(S/Shri...)

11. Dina Nath Aggarwal, : The Ambar,
Mall Road,
Ludhiana.
12. Naresh Goel, : Naresh Weaving Factory,
Bharat Nagar Chowk,
Ludhiana.
13. Kundan Lal,
Partner. : M/s Ganesh Textile Mills,
Near Ghas Mandi,
Ludhiana City.

SECRETARY :

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