

Syllabus  
For the Trade of

# **Weaving of Woolen Fabrics**

(SEMESTER PATTERN)

Under  
Craftsmen Training Scheme

*Designed in:2013*

*By*

Government of India  
**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**  
Directorate General of Employment & Training  
Ministry of Labour & Employment  
EN-18, Sector-V, Salt Lake City,  
Kolkata-700 091

List of Members of Trade committee meeting for the Trade of "weaving of woolen fabric" Held on under CTS.

<b>Sl. No.</b>	<b>Name &amp; Designation Shri/Smt.</b>	<b>Representing Organisation</b>	<b>Remarks</b>
1.	V.G. Mavani	Managing Director of Trumex India Pvt. Ltd.,Rajkot	Chairman
2.	S. A. Pandav	Regional Dy. Director (Trg.)Rajkot	Member
3.	Shri Ganesh Prashad Singh	Sr. Managar Digjam Mills,Jamnagar	Member
4.	Shri H.G. Shah	United Textile Training Services Amedabad	Member
5.	Shri R.K. Kedia	Preident Digjam Mills Ltd.Jamnagar	Member
6.	Shri Virendra gupta	Vice preident Export Digjam Mills, Jamnagar	Member
7.	Shri P.L.Raval	Principal ITI-Rajkot	Member
8.	Shri L.K. Mukharji	Dept. Dy. CSTRI, Kolkata.	Member

List of members attended the Workshop to finalize the syllabi of existing CTS into Semester Pattern held from 6<sup>th</sup> to 10<sup>th</sup> May'2013 at CSTARI, Kolkata.

Sl. No.	Name & Designation	Organisation	Remarks
1.	R.N. Bandyopadhyaya, Director	CSTARI, Kolkata-91	Chairman
2.	K. L. Kuli, Joint Director of Training	CSTARI, Kolkata-91	Member
3.	K. Srinivasa Rao, Joint Director of Training	CSTARI, Kolkata-91	Member
4.	L.K. Mukherjee, Deputy Director of Training	CSTARI, Kolkata-91	Member
5.	Ashoke Rarhi, Deputy Director of Training	ATI-EPI, Dehradun	Member
6.	N. Nath, Assistant Director of Training	CSTARI, Kolkata-91	Member
7.	S. Srinivasu, Assistant Director of Training	ATI-EPI, Hyderabad-13	Member
8.	Sharanappa, Assistant Director of Training	ATI-EPI, Hyderabad-13	Member
9.	Ramakrishne Gowda, Assistant Director of Training	FTI, Bangalore	Member
10.	Goutam Das Modak, Assistant Director of Trg./Principal	RVTI, Kolkata-91	Member
11.	Venketesh. Ch. , Principal	Govt. ITI, Dollygunj, Andaman & Nicobar Island	Member
12.	A.K. Ghate, Training Officer	ATI, Mumbai	Member
13.	V.B. Zumbre, Training Officer	ATI, Mumbai	Member
14.	P.M. Radhakrishna pillai, Training Officer	CTI, Chennai-32	Member
15.	A.Jayaraman, Training officer	CTI Chennai-32,	Member
16.	S. Bandyopadhyay, Training Officer	ATI, Kanpur	Member
17.	Suriya Kumari .K , Training Officer	RVTI, Kolkata-91	Member
18.	R.K. Bhattacharyya, Training Officer	RVTI, Trivandrum	Member
19.	Vijay Kumar, Training Officer	ATI, Ludhiana	Member
20.	Anil Kumar, Training Officer	ATI, Ludhiana	Member
21.	Sunil M.K. Training Officer	ATI, Kolkata	Member
22.	Devender, Training Officer	ATI, Kolkata	Member
23.	R. N. Manna, Training Officer	CSTARI, Kolkata-91	Member
24.	Mrs. S. Das, Training Officer	CSTARI, Kolkata-91	Member
25.	Jyoti Balwani, Training Officer	RVTI, Kolkata-91	Member
26.	Pragna H. Ravat, Training Officer	RVTI, Kolkata-91	Member
27.	Sarbojit Neogi, Vocational Instructor	RVTI, Kolkata-91	Member
28.	Nilotpal Saha, Vocational Instructor	I.T.I., Berhampore, Murshidabad, (W.B.)	Member
29.	Vijay Kumar, Data Entry Operator	RVTI, Kolkata-91	Member

## GENERAL INFORMATION

1. Name Of the Trade : Weaving of woolen fabrics
2. N.C.O Code No :
3. Duration : 1 year(2 Semester)
4. Power Norms : 17 kw
5. Space Norms : 128 Sq. mt.
6. Entry Qualification\_ : passed 8<sup>th</sup> class examination
7. Unit Size (No.of.Student) : 16
8. Instructor's/Trainer's  
Qualification : Degree/ Diploma in Textile Technology with  
one/two years experience in the relevant field respectively  
OR  
NTC/NAC with three years experience in the relevant field
9. **Desirable** Qualification : Preference will be given to a Candidate with Craft Instructor)  
Certificate (CIC)

Note: At least one Instructor must have Degree/ Diploma in relevant field

### OBJECTIVE:

TO PROVIDE SEMI SKILL WORK FORCE TO TEXTILE INDUSTRY FOR FABRICS AFTER GETTING THIS TRAINING UNDER THIS TRADE THEIR ARE LARGE OPPORTUITIES FOR EMPLOYMENT IN ORGANIZED AND UNORGANIZED SECTOR. ONE CAN START ITS OWN LOOM SADE FOR MANUFACUTRING FABRICS.

**Syllabus for the Trade of “Weaving of woolen fabrics” under CTS.**

**Duration : Six months**

**First Semester**

**Semester Code : WWF:SEM I**

<u>Week.no</u>	<u>Trade Practical</u>	Trade Theory	Engg Drg	Workshop Cal.&Science
1 & 2	Familiarization with Weaving machines, their uses, safety precautions to be observed while attending the operation on each machine.	Description of textile fibers, their classification.	<u>Drawing:</u> Simple geometrical construction bisecting a given line with compass and set squares.	<u>Arith:</u> addition of whole numbers and simple problems on addition.
	do	.		
	do			
3	Identification of different types of fibre and their collections.	Description of textile fibers and their identification, characteristic and their uses. their physical & chemical property	<u>Drawing:</u> Simple geometrical construction bisecting a given line with compass .	<u>Arith:</u> addition of whole numbers and simple problems on addition
	-do-	Commercial forms of yarn as per Is: 667-1055.		
				<u>Arith:</u> addition of decimal and problems involving decimals addition.
		Free hand sketches of vertical line, horizontal lines.		
4.	Identification of different types of yarn & formation of knots.	Familiarization with the technical terms pertaining to yarn, count of yarn, reed, heralds, le a etc.		<u>Arith:</u> addition of decimal addition of given number containing decimal and whole numbers
		.		
5.	Method of finding out defects of heald and reed.	Familiarization with the technical terms hand, knot, bundle, bale, end, pick, warp and weft.	<u>Drawing:</u> Erecting a perpendicular to a given straight line A8 from a given point C out side the line.	<u>Arith:</u> subtraction of whole numbers. from another.
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, newer loom and carpet loom,	<u>Drawing:</u> Erecting perpendicular when the point C is nearby opposite to the middle point of A8.	<u>Arith:</u> Subtraction of whole numbers, Solving shop problems
7	Different parts of pit loom and frame	Relative advantages and disadvantages of throw	<u>Drawing:</u> Construct an angle	<u>Arith:</u> Subtraction of

	loom, practice on the looms.	shuttles and fly shuttle looms. Construction, of parts of frame loom. Uses of frame loom.	of 300,450,1500 at a point A on the straight line AB.	decimal.
8	Familiarization with different parts of slay and their uses.	Types of slays, Construction and uses of slays,	<u>Drawing:</u> Construct an equal to given angle.	<u>Arith:</u> Subtraction of decimal
9	Familiarization with different types of shuffles. part and uses.	Types of shuttles, construction and uses of shuttles.	Draw free hand sketch of square rectangle parallelogram.	<u>Arith:</u> Division of whole numbers
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.		<u>Arith:</u> Division of whole numbers. solving simple problems on division.
11	Preparation of bobbin and cones and methods of warping, beaming, drafting, denting and gaiting up of looms.	preparatory appliances, their type and gaiting up of loom. Construction of appliances an their uses.		<u>Arith:</u> division of whole numbers, shop problems dealing with division.
12	Preparation of babbin and cones and methods of warping, beaming, drafting, denting and gaiting up of looms.	Familiarization with different warping methods.		<u>Arith:</u> Division of whole numbers
13	Practice on sizing by hands.	Ingredients of sizing, description of each ingredient and uses.	<u>Drawing:</u> Draw free hand sketch of square, rectangle, parallelogram	<u>Arith:</u> Division of whole numbers
14	Practice on sizing by hands.	Sizing, ingredients for different textile fibres. 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 woolen fabrics.	Description and classification of woolen 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 under landing remedial	Defects in woven fabrics, their identification, causes and remedies of each.		<u>Arith:</u> Multiplication of decimal numbers

	measures.			
18	Familiarization with warp reed , yarn assorting balance, yarn and cloth quadrants.	Testing of yarn its importance and tests procedure adopted.		<u>Arith:</u> Multiplication of whole numbers. To multiply the given numbers.
19	--do--	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	Familiarizations 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 woolen fabrics.	Analysis of different patterns adopted in weaving of woolen fabrics.		<u>Arith:</u> Multiplication of decimal fraction. Problems on multiplication.
22	Finishing and dyeing of woolen fabrics.	Finishing and dyeing methods for woolen fabrics.		<u>Arith:</u> Multiplication of decimal fraction
23	--do--	Dyeing of woolen fabrics.		<u>Arith:</u> Multiplication of whole numbers and decimal fractions
24	--do-	Dyeing of woolen fabrics		<u>Arith:</u> Multiplication of whole number and decimal fractions
25	Project work / Industrial Visit (optional)			
26	Examination			

**Syllabus for the Trade of “Weaving of woolen fabrics” under CTS.**

**Duration : Six months**

**Second Semester**

**Semester Code: WWF:SEM II**

1	Understanding the basic design like plan weave thrill & satin will their draft and pagplan (Lifting plan)	Designing of plain weave and its ornamentation, derivatives of plain weave such as warp and weft rib.		<u>Arith:</u> Simple calculation an area of circle, sector polygon and pentagon.
2	--do--	Derivatives of plain weave, mat or hop sack weave, Combination of weft ribs.		
3	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.		
4	Calculation regarding woolen yarns.	Counting system and calculation involved.		
5	--do--	Counting system in woolen yarn and union yarn,		
6	--do--	Determination of counts, weight of short length of yarn, count of short length of yarn.		
7	--do--	Determination of counts continued, count of short length of yarn, length count of folded yarn resultant count of same length.		
8	Calculation and conversion of different yarns.	Calculation involved to determine cost of folded yarn adopting IS: 3689-1966. Conversion factors and conversion table for yarn counts.		
9	Familiarizations with finishing methods.	Finishing methods used for different cloths, hand milling calendaring, stamping, marketing methods.		
10	Familiarization with different parts of power loom.	Constructional feature of the power loom, various components of the power loom and their function.		
11	Familiarization with special features of power loom and tuning of loom for woolen fabrics.	Constructional and functional features of woolen loom. Tuning of power loom.		
12	Familiarization with different parts of weft fork motion	Study of working of primary motion and weft fork motion and seven wheel take up		

	seven wheel take up motion.	motion.		
13	Familiarization with different types of bobbies and preparation of dobby chain.	Dobbies used in weaving such as chain and single left and their working mechanism.		
14	Familiarization with the jacquard and its working.	Working jacquard used and their uses, single left, cylinder jacquard, its part and working mechanism.		
15	--do--	Study of various sizes of jacquard used in weaving.		
16	Preparation of jacquard design on graph papers and harness mounting and card cutting.	Card cutting from design, lacing, harness ties and different harness drafts.		
17	Preparation of design on graph papers using sating weaves.	Construction of satin weaves, regular and irregular.		
18	--do--	Satin diaquardice and figured design.		
19	Preparation of design on graph papers using different weaves such as broken cork screw and combine twill. Production and effy calculation of machine. Familiarization of shut ills loom and different types of weft insertion system.	Broken cork screw and combined twills.		
20	Familiarization with the analysis of woolen fabrics.	Determination of picks and ends for woolen yarns.		
21	Practice on finishing of woolen fabrics.	Finishing methods of woolen fabrics.		
22	Practice on finishing of woolen cloth.	Finishing methods of woolen fabrics.		
23	Familiarization with hand milling and calendaring.	Hand milling.	<u>Drawing:</u> Practice on free hand sketches	<u>Arith:</u> Revision.
24	Familiarization with hand milling and calendaring.	Calendaring, stamping and marketing.	<u>Drawing:</u> Practice on free hand sketches	<u>Arith:</u> Revision.
25	Revision and industrial visits.			
26	Examination			
Note: During the last sixteen weeks the trainees will practice on weaving of woolen shawls, ladies scarf in fancy and artistic designs, weaving of fabrics in check texture, blankets and rugs. Weaving of push minas and other popular varieties ofwoollen design.				

TRADE: Weaving of woolen fabrics

LIST OF TOOLS & EQUIPMENT

A. TRAINEES TOOL KIT FOR 16 TRAINEES

Sl. No.	Name of the articles with specifications, if any.	Quantity
1.	Winding wheel with stand cycle rims.	8 Nos.
2	Wrapper's bobbins.	1000 Nos.
3	Warping drum complete with creels.	8 Nos.
4	Frame looms standard sizes.	12 Nos.
5	Pit looms.	2 Nos.
6	Shuttles (plain and roller)	60 Nos.
7	Pins.	1000 Nos.
8	Herald hooks.	32 Nos.
9	Combs (Weaver)	15 Nos.
10	Spare beams.	16 nos.
11	(a) Dobbies single lift 8 levers. (b) Dobbies single lift 12 levers. (c) Dobbies Single lift 16 levers.	1 No. 1 No. 1 No.
12	Card punching plates.	1 No.
13	Piano card cutting machine.	1 No.
14	Slays with multiple box.	8 Nos.
15	Wire healds 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.,K9
18	Power looms, plain with extra twill tappet arrangement (1300 MM and 1510 MM) one each.	1 No.
19	Cottage milling machine.	1 No.
20	Fabrics samples cutting machine.	1 No.
21	Microscope 1:200	1 No.
22	Yarn strength tester.	1 No.
23	Twist tester.	1 No.
24	Reeds iron sizes.	1 No.
25	Sharp reel	100 Nos.
26	Healds cotton of different sizes.	100 Nos.
27	Yarn balance.	100 Nos.
28	Spanner set, hammers, chisels screw driver, pliers pieces.	4 Sets.
29	Scissors 8".	4 Nos.
30	Scissors 10".	4 Nos.
31	Measuring tapes 102 meters.	16 Nos.
32	Counting glasses 1" and 25MM (4 each).	8 Nos.
33	Yarn stand.	2 Nos.
34	Balance ordinary with weights from 50 gram to 5 kg.	2 sets.
35	Kit boxes.	16 sets.
36	Almirahs	2 Nos.
37	Durries 16" X 12"	2 Nos.
38	Table for yarn sizing 2½ " X ½ x ½"	1 No.
39	Fire oven.	1 Set.
40	Kundi cottage.	1 No.
41	Cold calendar 10" vide rollers.	1 Nos.
42	Black board with graph.	1 Nos.
43	Instructor's desk/table and chair.	1 set
44	Trainees' desk/tables and stools.	16 Nos.
45	Drafting frames.	4 Nos.

Note :All tools and equipment should be latest one.

## B. INDIAN STANDARDS FOR HOSIERY

1	Briefs, cotton knitted, gents' .	4045-1977
2	hose tops, worsted.	2522-1953
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).	3617-1965
7	Short drawers, gents', cotton, men's, plain knitted.	4376-1967
8	Short drawers, wool-cotton, men's, (First revision)	2100-1000
9	Slipovers, gents'	4044-1967
10	Socks, cotton (first-revision)	3325-1972
11	Socks, nylon	5084-1960
12	Socks, wool (worsted) (first revision).	2187-1073
13	sports shirts, cotton knitted (first revision).	4375-1975
14	Stockings cotton rib-knitted.	4375-1975
15	Stocking, nylon, rib-nitted, gents'(First revision).	833-1977
16	Underpants, wool-cotton(First revision)	5524-1980
17	Vests, interlock-knitted: Part-I fabric (First revision). Part-II vests(First revision) .	4965-(part-I)-1975 4975-(part-II)-1975
18	Vests, cotton, plain-knitted(part-I) fabric(Second Revision)	4054-1980
19	Vests, string, cotton-knitted.	4000-1950
20	Vests, wool-cotton(First revision)	3330-1920
21	Yarn, cotton, grey, for hosiery (Second revision).	874-1075
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.	9503-1980
25	Glossary of terms related to hosiery,	3596-1967
26	Glossary of textile terms fabrics made from natural fabrics (First revision.)	2364-1979
27	Glossary of textile terms natural fibers (First revision)	232-1967
28	Glossary of textile terms relating to man made fiber and fabrics industry (First revision).	1224-1966