

GOVERNMENT OF THE PUNJAB
**TECHNICAL EDUCATION & VOCATIONAL
TRAINING AUTHORITY**



**CURRICULUM FOR
TEXTILE PRINTING
(1-Year course)
(Developed, March 2021)**

**CURRICULUM SECTION
ACADMICS DEPARTMENT**
96-H, GULBERG-II, LAHORE
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APPROVED
Date: 23-4-2021
Sign: *[Signature]*

Training objective:-

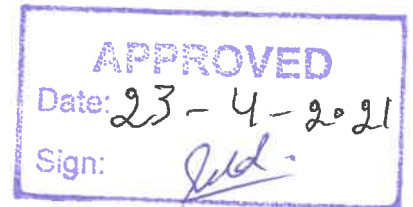
Technological development has encouraged replacing the absolute method and techniques being used in industry. New machines and skills have come into existence and practice by covering all the relevant factors/areas to meet the need of the market.

In this curriculum one year duration consist of two semesters which has been developed keeping in view the local job market and modern industry requirement of Textile Printing. More emphasis has been given on practical along with theoretical knowledge to produce the capable and skillful work force.

This curriculum covers essential subjects including laboratory practical practice, Textile Technology, Textile Chemistry and Textile Material.

Curriculum salient:-

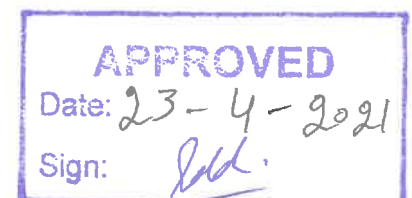
Entry level:	Matric
Duration of course/program:	One year
Training hours:	1600 hrs 800 hrs /semester 40 hrs / week 7- hrs. / day (Friday 5- hrs.)
Training methodology:	Practical 80% Theory 20%
Medium of Instructions:	Urdu /English



Skill Competency details:-

After successful completion of this course, the trainee would be able to:

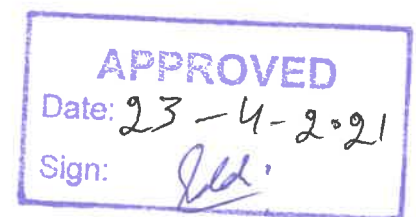
- Differentiate the fibers
- Perform de-sizing of the cloth
- Acquire the scouring of cloth
- Process the bleaching of cloth
- Process the tinting of cloth
- Process the dyeing of cloth
- Process the printing of cloth
- Perform the discharge printing effect on dyed cloth
- Perform colored printing effect on dyed cloth
- Process the Azoic printing on cloth
- Perform foam binder printing technique on cloth
- Perform metal printing style on cloth
- Detect the rubbing of shade
- Access the pilling test
- Access the washing test
- Access the light fastness test
- Calculate the fabric tear test
- Access the burning of fiber test
- Access the dissolving test



Knowledge proficiency details:-

After successful completion of the course the trainee would be able to:-

- Describe the identification of the textile fiber
- Express the blending ratio of yarn
- Describe the de-sizing of cloth
- Explain the scouring of cloth
- Express the bleaching of cloth
- Discuss about tinting of cloth
- Explain about dyeing of cloth
- Describe the printing of cloth
- Describe the discharge printing on dyed ground
- Describe the coloured discharge of cloth
- Describe the azoic printing on cloth
- Determine foam binder printing technique on cloth
- Determine metal printing style on cloth
- Explain the rubbing of shade
- Describe the pilling test
- Explain about washing test
- Determine about light fastness test
- Explain about fabric tear rest
- Determine about burning test of fiber
- Brief the dissolving test of fibers
- Express bleaching, dyeing and printing faults

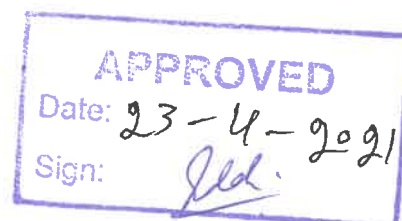


CURRICULUM DELIVERY STRUCTURE**1st semester**

	Course delivery	Co curricula activities/vacations	Test	Total
WEEK	1-20	21-25	26	26
Total weeks	20	5	1	

2st semester

	Course delivery	Co curricula activities/vacations	Final test	Total
WEEK	1-20	21-25	26	26
Total weeks	20	5	1	



SCHEME OF STUDIES TEXTILE PRINTING (1-YEAR COURSE)

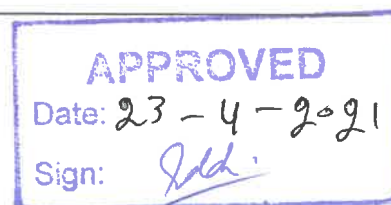
1ST SEMESTER

S. No.	Main topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1	TEXTILE TECHNOLOGY-I	64	605	669
2	TEXTILE MATERIAL-I	44	8	52
3	TEXTILE CHEMISTRY-I	52	-	52
4	INDUSTRIAL TOUR-I	-	7	7
5	WORK ETHICS (LAB THEORY)	-	20	20
TOTAL		160	640	800

2ND SEMESTER

S. No.	Main topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1	TEXTILE TECHNOLOGY-II	64	423	487
2	TEXTILE MATERIAL-II	44	8	52
3	TEXTILE CHEMISTRY-II	52	-	52
4	INDUSTRIAL TOUR-II	-	7	7
5	WORK ETHICS (LAB THEORY)	-	20	20
6	INDUSTRIAL TRAINING	-	182	182
TOTAL		160	640	800

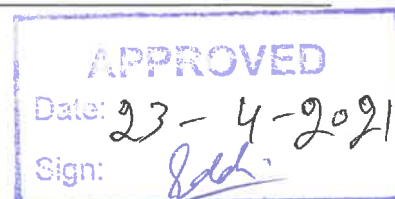
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1st semester

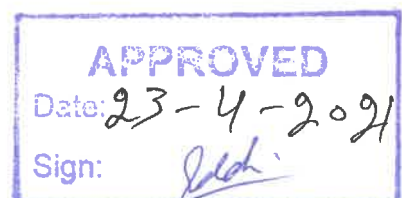
Sr.no.	Details of topics	Theory Hrs.	Practical Hrs.
1.	TEXTILE TECHNOLOGY-I		
1.1	Bleaching process	4	
1.1.1	Definition of bleaching		
1.1.2	Inspection and checking of cloth		
1.1.3	Mending of cloth		
1.1.4	Fold mending		
1.1.5	Loose mending		
1.1.6	Stitching of cloth		
1.1.7	Shearing and brushing of cloth		
1.2	Singeing	4	5
1.2.1	Definition of Singeing		
1.2.2	Plate Singeing		
1.2.3	Roller Singeing		
1.2.4	Gas Singeing		
1.3	Desizing	5	85
1.3.1	Definition of Desizing		
1.3.2	Water Desizing		
1.3.3	Acid Desizing		
1.3.4	Enzyme Desizing		
1.4	Scouring	5	120
1.4.1	Definition of scouring		
1.4.2	Scouring of cotton		
1.4.3	Scouring of silk		
1.5	Bleaching of hydrogen peroxide	5	85
1.5.1	Introduction Bleaching of hydrogen peroxide		
1.5.2	Bleaching of hydrogen peroxide on cotton		
1.5.3	Continuous Bleaching of hydrogen peroxide		
1.6	Preparation of bleaching solution		
1.6.1	Preparation of bleaching solution from bleaching		

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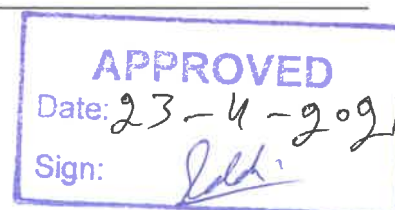
1.6.2	powder	3	
1.6.3	Preparation of bleaching solution from chlorine gas		
1.7	Bleaching process with bleaching solution		
1.7.1	Bleaching of cotton with bleaching soln.	3	65
1.7.2	Souring process		
1.8	Sodium chlorite bleaching		
1.8.1	Introduction Sodium chlorite bleaching	3	
1.8.2	Bleaching of cotton with Sodium chlorite bleaching		
1.8.3	Recipe of Sodium chlorite bleaching		
1.8.4	Advantages		
1.8.5	Disadvantages		
1.9	Mercerizing	5	
1.9.1	Mercerizing of cotton		
1.9.2	Fabric Mercerizing		
1.10	Classification of artificial dyes	5	
1.10.1	Direct dyes		
1.10.2	Basic dyes		
1.10.3	Sulphur dyes		
1.10.4	Reactive dyes		
1.10.5	Vat dyes		
1.10.6	Solubilized vat dyes		
1.10.7	Azoic dyes		
1.10.8	Pigment dyes		
1.10.9	Oxidation dyes		
1.10.10	Acid dyes		
1.10.11	Acid chrome dyes		
1.10.12	Disperse dyes		
1.10.13	Colourless dyes		
1.11	Textile. printing	3	
1.11.1	Introduction of printing		
1.1.2	Printing theory of direct dyes	4	40
1.12	Printing theory of basic dyes		
1.12.1	Introduction		
1.12.2	Application		
1.12.3	Fastness properties		
1.12.4	Procedure		
1.12.5	Commercial names		
1.12	Printing theory of sulphur dyes		
1.12.1	Introduction	4	40
1.12.2	Application		
1.12.3	Fastness properties		

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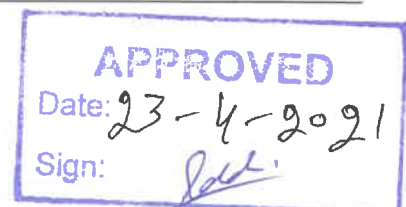
1.12.4	Procedure		
1.12.5	Commercial names		
	Printing theory of reactive dyes		
1.13	Introduction		
1.3.1	Application	4	80
1.13.2	Fastness properties		
1.13.3	Procedure		
1.13.4	Commercial names		
1.13.5	Fixation methods		
1.13.6			
	Printing theory of vat dyes		
1.14.	Introduction		
1.14.1	Application	3	40
1.14.2	Fastness properties		
1.14.3	Procedure		
1.14.4	Commercial names		
1.14.5			
	Printing theory of insoluble Azoic dyes		
1.15	Introduction		
1.15.1	Application	4	45
1.15.2	Fastness properties		
1.15.3	Procedure		
1.15.4	Commercial names		
1.15.5			
2.	Textile Material- I		
	<u>Detail of topic</u>		
	<u>Classification of textile material</u>		
2.1			
2.1.1	Natural fiber i.e Vegetable, animal & mineral fibers	2	8
2.1.2	Man made fiber .i. Regenerated and synthetic fiber		
2.2	<u>Terms and Definitions</u>		
2.2.1	Fiber		
2.2.2	Filament	8	
2.2.3	Yarn		
2.2.4	Thread		
2.2.5	Ply		
2.2.6	Raw material		
2.2.7	T.P.I.		
2.2.8	Crimps		
2.2.9	Hanks		
2.2.10	Staple length		
2.2.11	Strength		

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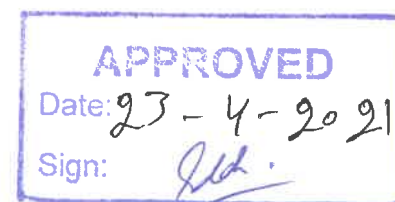
2.2.12	Elasticity		
2.2.13	Fineness		
2.2.14	Elongation		
2.2.15	Heat conductivity		
	Resiliency		
2.2.16	Absorbency		
2.2.17	Pliability		
2.2.18	Density		
2.2.19	Cohesiveness		
2.2.20	Humidity		
2.2.21			
	<u>Natural fiber</u>		
2.3	<u>Cotton</u>	10	
2.3.1	Cultivation of cotton		
2.3.2	Geographical position of cotton		
2.3.3	Physical properties		
2.3.4	Chemical properties		
2.3.5	Chemical composition of cotton fiber		
2.3.6			
	<u>Jute fiber</u>		
2.4	Introduction and chief sources of jute fiber	7	
	Properties of jute		
2.4.1	Uses of jute		
2.4.2			
2.4.3			
	<u>Flax fiber</u>		
2.5	Introduction of flax	7	
	Preparation of flax fiber		
2.5.1	Properties of flax fiber		
2.5.2	Uses of flax		
2.5.3	Retting		
2.5.4	Water retting		
2.5.5	Dew retting		
2.5.6	Chemical retting		
2.5.7			
2.5.8			
	<u>Silk</u>		
2.6	Classification of silk	10	
	Cultivated silk		
2.6.1	Wild silk		
2.6.2	Life cycle of silk		
2.6.3	Reeling of silk		
2.6.4	Physical properties		
2.6.5	Chemical properties		
2.6.6			

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3.	<u>Textile Chemistry - I</u>		
3.1	<u>Definition of chemistry</u>	4	
3.1.1	Organic chemistry		
3.1.2	Inorganic chemistry		
3.1.3	Analytical chemistry		
3.1.4	Nuclear chemistry		
3.1.5	Biochemistry		
3.1.6	Industrial chemistry	4	
3.2	<u>Science and Measurement</u>		
3.2.1	Introduction of metric system		
3.2.2	Introduction of english system		
3.2.3	Conversion of units from metric system to English		
3.3	<u>Equipment for the measurement of volume</u>	4	
3.3.1	Graduated cylinder		
3.3.2	Measuring beaker		
3.3.3	Measuring flask		
3.3.4	Pipette		
3.3.5	Burette		
3.4	<u>Thermometer</u>	4	
3.4.1	Degree centigrade		
3.4.2	Degree Fahrenheit		
3.4.3	Conversion of degree centigrade into degree Fahrenheit		
3.4.4	Conversion of degree Fahrenheit into degree centigrade.		
3.4.5			
3.5	<u>Definition</u>	7	
3.5.1	Symbols		
3.5.2	Compound		
3.5.3	Valency		
3.5.4	Radical		
3.5.5	Element		
3.5.6	Mixture		
3.5.7	Mass and weight		
3.5.8	Precipitate		
3.5.9	Chemical equation		
3.6	<u>Name of chemical formula</u>	4	
3.7	<u>Balancing the chemical equation</u>	4	
3.8	<u>Solutions</u>	4	

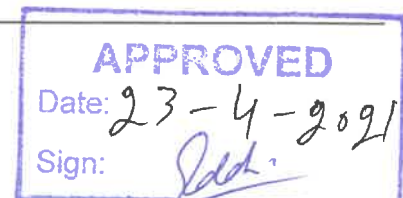
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3.8.1	Definition		
3.8.2	Solute		
3.8.3	Solvent		
	<u>Quantitative composition of solution</u>		
3.9		4	
	Weight /weight percentage (W/W %)		
3.9.1	Weight /volume percentage (W/V %)		
3.9.2	Weight /weight percentage (w/w %)		
3.9.3	Volume /volume percentage (V/V %)		
3.9.4			
	<u>Acid</u>		
3.10	Definition		
3.10.1	Physical properties	7	
3.10.2	Chemical properties		
3.10.3	Uses		
3.10.4			
	<u>Base</u>	6	
3.11	Definition		
3.11.1	Physical properties		
3.11.2	Chemical properties		
3.11.3	Uses of base		
3.11.4			
4.	Industrial Tour- I	7	
5.	Work ethics (Lab Theory)		20
	Total	160	640
<u>2nd Semester</u>			
Textile Technology-II			
1.	Printing theory of pigment dyes	7	303
1.1	Introduction		
1.1.1	Application		
1.1.2			

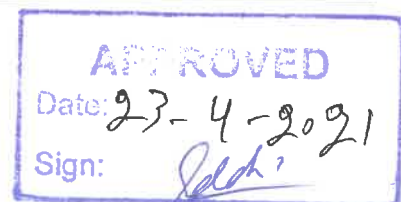
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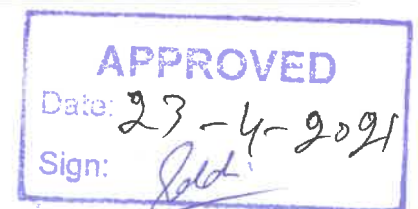


1.1.3	Fastness properties		
1.1.4	Procedure		
1.1.5	Commercial names		
	Printing theory of acid dyes	4	60
1.2	Introduction		
1.2.1	Application		
1.2.2	Fastness properties		
1.2.3	Procedure		
1.2.4	Commercial names		
1.2.5			
	Printing theory of disperse dyes	4	60
1.3	Introduction		
1.3.1	Application		
1.3.2	Fastness properties		
1.3.3	Procedure		
1.3.4	Commercial names		
1.3.5			
	Introduction of hand block printing	5	
1.4	Printing block		
1.4.1	Sieve		
1.4.2	Mallet		
1.4.3	Printing table		
1.4.4			
	Introduction of screen printing	6	
1.5	Direct process		
1.5.1	Resist process		
1.5.2	Paper stencil process		
1.5.3	Photographic process		
1.5.4			
	Printing style	5	
1.6	Direct Printing style		
1.6.1	Discharge Printing style		
1.6.2	Resist Printing style		
1.6.3	Cutwork Printing style		
1.6.4	Metal Printing style		
1.6.5	Crimps Printing style		
1.6.6	Insoluble azoic Printing style		
1.6.7			
	Introduction of thickening agent	5	
1.7	Detail about thickening agent		
1.7.1	Arabic gum		
1.7.2	British gum		
1.7.3	Gum tragacanth		
1.7.4	Indalca gum		
1.7.5			

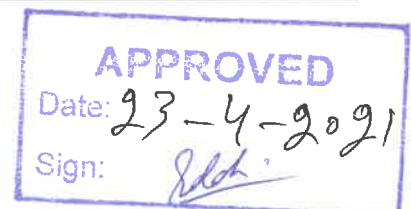
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1.7.6	Sodium alginate	8	
1.8	Brief note on printing machines		
1.8.1	Roller printing machines		
1.8.2	Single roller printing machines		
1.8.3	Multi roller printing machines		
1.24.4	Buzzer machine		
1.8.5	Rotary printing machines		
1.8.6	Digital printing machines	6	
1.8.7			
1.9	After treatment of printed fabrics		
1.9.1	Curing		
1.9.2	Steaming		
1.9.3	Pressure steamer		
1.9.4	Wet development		
1.9.5	Washing and soaping of printed material	6	
1.10	Introduction of finishing		
1.10.1	Open stenter		
1.10.2	Close stenter		
1.10.3	Padder		
1.10.4	Weft straightner	4	
1.11	Calendaring		
1.11.1	Swizz calender		
1.11.2	Felt calendar		
1.11.3	Emboss calander		
1.11.4	Sheriner calander	4	
1.12	Softner		
1.12.1	Cationic softner		
1.12.2	Anionic softner		
1.12.3	Non ionic softner		

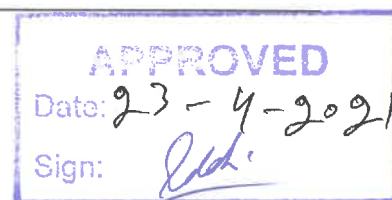


2.	Textile Material-II		
	Detail of Topic:		
	Animal fiber		
2.1	Wool fiber	8	8
2.1.1	Types of Wool		
2.1.2	Merino Wool		
2.1.3	Cross bread Wool		
2.1.4	Carpet Wool		
2.1.5	Physical properties of Wool		
2.1.6	Chemical properties of Wool		
2.1.7	Chemical composition of wool		
2.1.8			
	Manmade fibers		
2.2	Viscose rayon	8	
2.2.1	Introduction of Viscose rayon		
2.2.2	Preparation of Viscose rayon		
2.2.3	Basic process of producing rayon filament		
2.2.4	Identification of Viscose rayon		
2.2.5	Chemical properties of Viscose rayon		
2.2.6	Physical properties of Viscose rayon		
2.2.7			
	Acetate rayon	8	
2.3	Introduction and sources		
2.3.1	Preparation of Acetate rayon		
2.3.2	Physical properties of Acetate rayon		
2.3.3	Chemical properties of Acetate rayon		
2.3.4	Uses of cellulose acetate		
2.3.5	Identification of cellulose acetate		
2.3.6			
2.4	Polyester	8	
2.4.1	Manufacturing of Polyester		
2.4.2	Spinning of fiber		
2.4.3	Physical properties		
2.4.4	Chemical properties		
2.5	Acrylic	6	
2.5.1	Manufacturing of Acrylic		
2.5.2	Physical properties		
2.5.3	Chemical properties		
2.5.3	Polyamide(Nylon)	6	
2.5.	Manufacturing of polyamide		
2.5.1	Physical properties		
2.5.2	Chemical properties		
2.5.3			

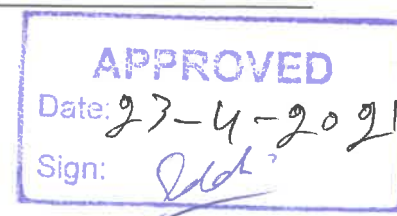


	Detail of Topic		
3.	<u>TEXTILE CHEMISTRY-II</u>		
3.1	<u>Bond</u>		
3.1.1	Definition		
3.1.2	Chemical bond	7	
3.1.3	Ion		
3.1.4	Ionic bond		
3.1.5	Formation of covalent bond		
3.1.6	Single covalent bond		
3.1.7	Double covalent bond		
3.1.8	Triple covalent bond		
3.1.9	Difference between ionic and covalent bond		
3.2	<u>Preparation of hydrogen</u>		
3.2.1	Physical properties		
3.2.2	Chemical properties	5	
3.2.3	Uses of hydrogen		
3.2.4	Properties of water		
3.3	<u>Water</u>		
3.3.1	Physical properties		
3.3.2	Chemical properties	8	
3.3.3	Hard and soft water		
3.3.4	Temporary Hard water		
3.3.5	Permanent Hard water		
3.3.6	How to remove hardness of water		
3.3.7	Clark method		
3.3.8	Ion exchange method		
3.3.9	disadvantages of hard water		
3.3.10	Method of purification		
3.3.11	Chlorination		
3.3.12	Airation		
3.4	<u>SOLUTIONS</u>		
3.4.1	Normal solutions	4	
3.4.2	Standard solutions		
3.4.3	Buffer solutions		
3.4.4	Quantitative composition of solutions		
3.4.5	Weight / weight percentage (W / W %)		
3.4.6	Volume / weight percentage (V / W %)		
3.5	<u>P.H (power of hydrogen ion)</u>		
3.5.1	P .H Scale	4	
3.5.2	Indication method		
3.6	<u>Nitrogen</u>		
3.6.1	Preparation of nitrogen	4	

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3.6.2	Laboratory Preparation		
3.6.3	Industrial Preparation		
3.6.4	Physical properties		
3.6.5	Chemical properties		
3.7	<u>Ammonia</u>	4	
3.7.1	Preparation of ammonia		
3.7.2	Laboratory preparation		
3.7.3	Industrial preparation		
3.7.4	Physical properties		
3.7.5	Chemical properties		
3.8	<u>NITRIC ACID</u>	4	
3.8.1	Ostward method		
3.8.2	Preparation of nitric acid		
3.8.3	Physical properties		
3.8.4	Chemical properties		
3.8.5	Uses of nitric acid		
3.9	<u>SULPHURIC ACID</u>	4	
3.9.1	Contact process		
3.9.2	Physical properties		
3.9.3	Chemical properties		
3.9.4	Uses of sulphuric acid		
3.10	<u>CHLORINE GAS</u>	4	
3.10.1	Laboratory preparation		
3.10.2	Industrial preparation		
3.10.3	Physical properties		
3.10.4	Chemical properties		
3.10.5	Uses of chlorine		
3.11	<u>HYDROCHLORIC ACID</u>	4	
3.11.1	Laboratory preparation		
3.11.2	Industrial preparation		
3.11.3	Physical properties		
3.11.4	Chemical properties		
	Industrial tour		7
	Work ethics(lab theory)		20
	Industrial training		182
	Total	160	640

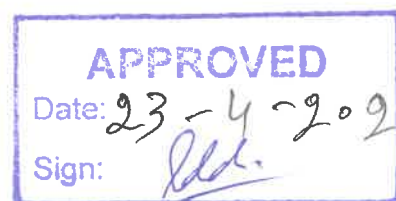


LIST OF PRACTICALS

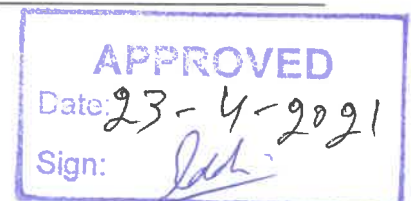
TEXTILE PRINTING G-III

1. Desizing of cotton cloth (water desizing, acid desizing, enzyme desizing)
2. Scouring of cotton cloth
3. Bleaching of cotton cloth with H_2O_2
4. Bleaching of cotton cloth with $CaOCl_2$
5. Direct bleaching of cotton with H_2O_2 for full white
6. Tinting of cotton cloth after bleaching
7. Direct bleaching Dissolving test Dissolving test of cotton with H_2O_2 for subsequent dyeing
8. Dyeing of cotton cloth with direct dyes
9. Printing with direct dyes on cotton
10. Printing with sulphur dyes on cotton
11. Printing with vat dyes on cotton
12. Printing with reactive dyes on cotton
13. Printing with pigment dyes on cotton
14. Printing with azoic dyes on cotton
15. Printing with reactive dyes on viscose rayon
16. Printing with basic dyes on acrylic
17. Printing with acid dyes on wool
18. Printing with disperse dyes on polyester
19. Printing with acid dyes on polyamide (nylon)
20. Printing with pigment dyes on wool
21. Printing with pigment dyes on silk
22. Printing with pigment dyes on viscose rayon
23. Printing with pigment dyes on acetate rayon
24. Printing with pigment dyes on p/c cloth

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25. Printing with pigment dyes on polyester
26. Printing with pigment dyes on nylon
27. Printing with foam binder on cotton
28. Printing with foam binder on polyester
29. Printing with foam binder on acetate
30. White discharge on direct dyed ground
31. Colour discharge on direct dyed ground
32. Printing with pigment dyes on linen (flax)
33. Printing with reactive dyes on linen (flax)
34. Printing with foam binder on linen(flax)
35. Metal printing on different cloth
36. Fiber identification test
 - a. Burning test of cotton fiber
 - b. Burning test of silk fiber
 - c. Burning test of wool fiber
 - d. Burning test of cellulose acetate
 - e. Burning test of acrylic
 - f. Burning test of linen (flax)
 - g. Burning test of polyester
37. Dissolving test
 - a. Dissolving test of cotton
 - b. Dissolving test of Silk
 - c. Dissolving test of Wool
 - d. Dissolving test Acetate rayon
 - e. Dissolving test Acrylic
 - f. Dissolving test of polyester



Textile printing; 1- year course

List of Labs/workshops

1	Textile Lab
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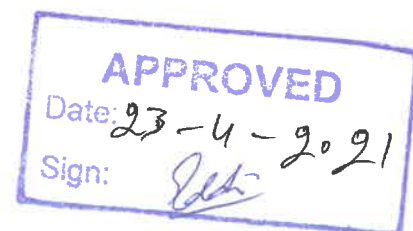
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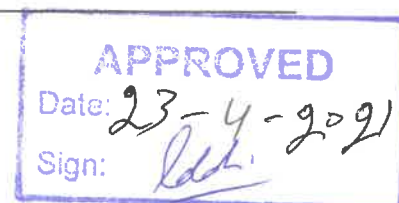
List of tools, Equipment/machines for the textile lab**Machines/Equipment**

Sr.#	Name of items	Quantity
1	Pilling tester (martendil contains 6 points) james heal	01 no
2	Visco meter DV-IV (BOOKS FIELD. ENGLAND)	01 no
3	Air conditioner 2-1/2 Tons (Mistubishi)	02 nos
4	P.H meter (japan) EU tech.	01 no
5	Light fastness tester MBTL (lamp) local made	01 no
6	Elmen tear tester (local)	01 no
7	Crock meter	01 no
8	Electronics balance	01 no
9	Electric iron	02 nos
10	Electric stirrer	01 no
11	Electric oven	01 no
12	Microscope	01 no
13	Mini steamer	01 no
14	HT dyeing machine	01 no
15	GSM cutter	01 no
16	Hot air dryer	01 no
17	Hand refectro meter	01 no
18	Lab padder	01 no
19	Rota winch dyeing machine	01 no
20	Jigger dyeing mach	01 no
21	Data colour spectrophoto meter	01 no
22	Flat printing machine mini	01 no
23	Rotary printing machine mini	01 no
24	Digital printing machine mini	01 no
25	Stenter machine /mini dryer	01 no
26	Hydro extractor (spin dryer)	01 no
27	Washing machine top loading	01 no
28	Fabric inspection table	01 no
29	Electric oven	01 no
30	Flat printing screen	10 nos
31	Printing table	12 nos
32	Digital printing machine	01 no



Glassware

1	Spirit lamp	25 nos
2	Spirit lamp wicks	10 pkts
3	Spirit lamp stand	25 nos
4	Steel glass 300 cc/graduated beaker 250 cc	25 nos
5	Stirrer rod	25 nos
6	Practical table	12 nos
7	Graduated cylinder 50 cc	25 nos
8	Graduated cylinder 100 cc	25 nos
9	Graduated cylinder 500 cc	05 nos
10	Graduated cylinder 1000 cc	02 nos
11	Pipette 0.1 ml – 10 ml each	25 nos
12	Conical flask	10 nos
13	Degree boamee meter	02 nos
14	Degree tweddle meter	10 nos
15	Thermometer 0c-100 c	25 nos
16	Beaker 500 ml	25 nos
17	Filter paper	25 nos
18	Funnel 4 inch	10 nos
19	Glass regent bottle	25 nos



LIST OF CONSUMABLE ITEMS

Sr#	Name of items	Qty. for 25 students
1	Naphthol AS	250 g
2	Brenthol	250 g
3	Salt red R	250 g
4	Sodium nitrite	250 g
5	Solar blue A	250 g
6	Dispers red	250 g
7	Acid yellow	250 g
8	Ultraline red	250 g
9	Drimarine blue	250 g
10	Drimarine red	250 g
11	Drimarine yellow	250 g
12	Sodum hyro sulphite	250 g
13	Sodium sulphide	250 g
14	Caladone blue	250 g
15	Caladone red	250 g
16	Fast salt scarlet	250 g
17	Disperse blue	250 g
18	Tartaric acid	250 g
19	Turpentine oil	250 ml
20	Hydrogen per oxide	1 liter
21	Calcium oxichloride	1 liter
22	Sulphur blue	250 g
23	Suplhur black	250 g
24	Binder	2 liter
25	Alco print	2 kg
26	Sodium bi carbonate	250 g
27	Sodium carbonate	1 kg
28	Sodum hydroxide	1 kg
29	Leuco phar A	100 g
30	Glycerin	10 liter
31	Nitric acid	250 ml
32	Acetone	250 ml
33	Formic acid	250 ml
34	Metacresol	250 ml
35	Chloroform	250 ml
36	Potassium hydroxide	250 g
37	Sulphuric acid	500 ml

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38	Ammonium thiocyanite	250 g
39	Methyline chloride	250 g
40	Acetic acid	500 ml
41	Hydro chloric acid	2 liter
42	Sando pan Dtc	2 kg
43	Rangolite C	250 g
44	Pigment red	500 g
45	Pigment yellow	500 g
46	Pigment blue	500 g
47	Pigment violet	250 g
48	Liquor ammonia	1 liter
49	British gum	500 g
50	Titanium dioxide	250 g
51	Foam binder	1 kg
52	Metal powder	250 g
53	Fast salt scarlet	250 g
54	Solar blue A	250 g
55	Tregacanth gum	500 g
56	Indalca gum	500 g
57	Flat printing screen	10 no
58	Arabic gum	500 g
59	Base blue b	250 g
60	Sodium Alginate gum	500 g
61	Formosole	250 g
62	Tartaric acid	250 g
63	Resist salt L	250 g
64	PH paper	1 dozen
65	Formic acid	1 liter
66	Spirit	80 liter
67	Desizer	500 g
68	Common salt	1 kg
69	Rexene sheet	10 meter
70	Meta cresol	500 ml
71	Rodamine pink	250 g
72	Direct congo red	250 g
73	Direct perasole GX	250 g
74	Direct perasole pink b	250 g
75	Remasole blue	250 g
76	Ultralen blue	250 g
77	Drimarine red	250 g
78	Remasole red	250 g
79	Drimarine blue	250 g

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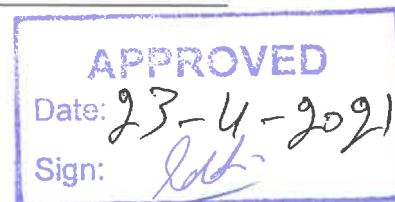
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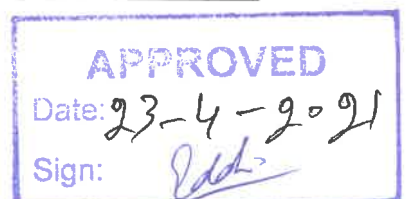
80	Drimarine yellow	250 g
81	Acid red	250 g
82	Caladone blue	250 g
83	Caladon red	250 g
84	Sodium silicate	250 g
85	Ultra marine blue	250 g
86	Grey cotton cloth 66 inch	20 meter
87	Half bleach cotton cloth 66 inch	60 meter
88	Bleached polyester cloth 36 inch	20 meter
89	Bleached p/c cloth 36 inch	20 meter
90	Bleached viscose rayon 36 inch	20 meter
91	Bleached acetate rayon 36 inch	20 meter
92	Bleached acrylic 36 inch	20 meter
93	Bleached nylon 36 inch	20 meter
94	Bleached silk cloth 36 inch	20 meter
95	Bleached wool cloth 36 inch	20 meter
96	Bleached linen cloth 36 inch	20 meter



Employability of pass-outs

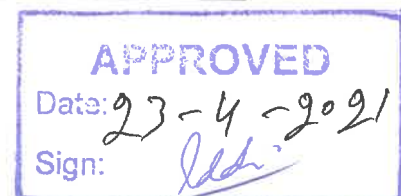
The pass out of this course may find job /employment opportunities in the following areas/sectors:-

1. Textile dyeing bleaching and printing industries
2. Marketing of textile industries
3. Business of dyeing and printing machinery spare parts
4. Govt. and private technical institutes
5. Marketing of processing cloth.



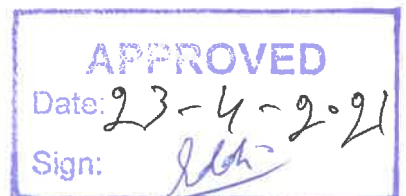
Reference books

Sr#	Book name	Author name	Publisher
1	Encyclopedia of textile technology vol. VII	William S. Murphy	Abhisar Chandi Garh
2	Encyclopedia of textile technology vol. VIII	William S. Murphy	Abhisar Chandi Garh
3	Principle of dyeing	Dr. V.A Shenai	SEVAK publication india.
4	Technology of printing	Dr. V.A Shenai	SEVAK publication india.
5	Chemistry (matric)	Dr. A . Rehman	Punjab text Book board
6	Applied chemistry (for DAE)	Prof. Shukat Ali Awan	Azeem academy 22 urdu bazaar Lahore.
7	Dye stuff to Dye stuff	Rana zamin abbas	Arshi publication 40-A wali market urdu bazaar lahore



Minimum Qualification of Instructor

1. DAE TEXTILE (Dyeing & Printing) with 2 year relevant industrial/teaching experience.
2. Intermediate with G -III level certificate and 6 year relevant industrial/teaching experience.



Curriculum development committee

1	Mr. Sajjad Ahmed Khan GM processing, Rafique Dyeing and Printing Mills, FSD	Convener
2	Mr. Javed Iqbal senior instructor textile (Dyeing,printing), GATC FSD	Member
3	Mr. Usman Farooq instructor textile dyeing,bleaching and printing GATC FSD	Member

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