



GOVERNMENT OF TAMILNADU
DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI

STATE PROJECT COORDINATION UNIT
(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	Bleaching and Dyeing
Course Code	TEX/2020/006
Course Duration	60 Hours
Minimum Eligibility Criteria and Pre-requisites(if any)	10 th /+2/Diploma/Graduates
Course Objectives	Training module has been designed to provide the participants <ul style="list-style-type: none"> • Understanding of singeing, desizing in textile • Understanding of bleaching and dyeing in textile • Learning of dyeing machines and Dyeing procedure • Learning about colour fastness test
Course Outcomes	At the end of training, the participants will be able to <ul style="list-style-type: none"> • Gain a knowledge of bleaching and dyeing • Know how to dye a cotton and polyester fabric • Know about printing and finishing
Expected Job Roles	Assistant to Dyeing Master

TEACHING AND SCHEME OF EXAMINATION						
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
TEX/2020/006	Bleaching and Dyeing	Theory	19	10	20	3 Hours
		Practical	41	40	80	
		Total	60	50	100	

TEX/2020/006–BLEACHING AND DYEING

DETAILED SYLLABUS

Unit No.	Modules	No. of Hours	
		Theory	Practical
I	Singeing &desizing	10 Hours	
1.1	Singeing – Objectives, Working Principles of Plate, roller and gas singeing machine	3	7
1.2	Desizing – Objectives, Chemicals used, Types of Desizing- Hydrolytic and Oxidative desizing		
1.3	Hydrolytic desizing - Chlorine, Chlorite &Bromite		
1.4	Oxidative desizing - Acid steep, Rot steep, Enzymatic steep		
II	Scouring & bleaching	10 Hours	
2.1	Scouring - Objectives, Chemicals used and its importance	3	7
2.2	Types of Scouring - Open boiling scouring and Pressure Scourin, Kier Boiling		
2.3	Bleaching – Objectives, Bleaching methods - Sodium hypochlorite bleaching – Hydrogen Peroxide Bleaching – Sodium Chlorite Bleaching		
III	Mercerization& Dyeing	15 Hours	
3.1	Mercerization – Objectives, Method of Mercerization, Uses of Mercerization.	5	10
	Chain mercerizing machine – Working, Chainless mercerization – Working		
3.3	Classification of Dyes – Natural, Synthetic Dyes.		
3.4	Dyeing of cotton using Direct, Reactive, Vat &Azoic dyes		
3.5	Dyeing of polyester using HTHP dyeing, Rapid jet dyeing, Airflow dyeing		
3.6	Dyeing machines – jigger dyeing, winch dyeing m/c, padding Mangles, package dyeing m/c, cop dyeing m/c, cheese dyeing m/c		
IV	Printing & Finishing	15 Hours	
4.1	Printing – Objectives, Difference Between Dyeing and Printing. Methods of printing – Block, Screen, Roller Printing	5	10
4.2	Styles of printing – Direct, Resist, Discharge Printing, Pigment Printing		
4.3	Finishing – Objectives and Uses		

4.4	Different type of Finishing – Chemical, Mechanical, Temporary and Permanent Finishes		
V	Testing for colour fastness	10 Hours	
5.1	Different Fastness Tests for Dyed and Printed materials – Washing, Rubbing, Light	3	7
5.2	Washing Fastness – Objectives, Working Procedure		
5.3	Rubbing Fastness – Objectives, Working Procedure		
5.4	Light Fastness – Objectives, Working Procedure		
Total Theory and Practical Hours		19	41
Total hours		60	

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1.	Singeing Machine
2.	Kier Dyeing Machine
3.	HTHP Dyeing Machine
4.	Jigger Dyeing Machine
5.	Winch Dyeing Machine
6.	Jet & Cheese Dyeing Machine
7.	Chain and Chainless Mercerizing Machine
8.	Package and Cop Dyeing Machine

SOFTWARE REQUIREMENT

Nil

REFERENCE WEBSITE / BOOKS

1. <https://textilelearner.blogspot.com/>
2. www.nptel.ac.in
3. www.archive.org

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Chemical Technology in Pre-treatment Process of Textile	S.R. Karmakar	Elsevier Science
2	Handbook of Textile Processing	R.S. Bhagwat	Colour Publications
3	Technology of Textile Processing	Shenai V.A	Sevak Publications
4	Technology of Textile Processing Vol.3 Technology of Bleaching	Shenai V.A.	Sevak Publications

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training , Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnics.

END EXAMINATION

ALLOCATION OF MARKS

S.NO	DESCRIPTION	Max.Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Write up/Diagram	15
	b)Experiment	35
	c)Result	10
	d)Record	20
Total Marks		100

THEORY MODEL QUESTION PAPER

TEX/2020/006 - BLEACHING AND DYEING

(Maximum Marks : 20)

(N.B: Answer any twenty questions)

20 x 1 = 20 Marks

1. Write two objects of singeing.
2. What are the types of singeing process?
3. Write two objects of desizing.
4. What is the chemical used for desizing process?
5. Write the different types of desizing.
6. Write two objects of scouring.
7. Write the capacity of kier boiling machine?
8. Write the different types of scouring.
9. Write two objects of bleaching.
10. Write the different types of bleaching.
11. Write two objects of mercerization.
12. Write the different types of mercerization.
13. What is the use of mercerization?
14. What is dyeing?
15. Write two objects of dyeing.
16. What is printing?
17. Write two objects of printing.
18. Give the classification of dyes.
19. Write the different types of dyes name.
20. What are the types of dyeing used for polyester fabric?
21. What is the different style of printing?
22. What are the objects of washing fastness?
23. Write two objects of finishing.
24. Write the uses of finishing process.
25. Write two objects of rubbing fastness.