

19TT213

TEXTILE WET PROCESSING

Hours Per Week :

L	T	P	C
3	-	2	4

Total Hours :

L	T	P	WA/RA	SSH/HS	CS	SA	S	BS
45	-	30	10	45	-	-	-	-



SOURCE:

<http://archive.citiscopes.org/story/2015/textile-plants-are-dhaka-water-problem-and-also-its>

COURSE DESCRIPTION AND OBJECTIVES:

This course introduces the fundamental concepts in dyeing of various fibers and its bonding with different classes of dyes. It also includes methods and different styles of printing. Finally it deals with finishing of textile and need for effluent treatment plant.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs
1	Analyze the need for grey fabric preparation before processing.	4
2	Develop the different colored fabrics using different classes of dyes.	3
3	Evaluate the quality of fabrics at each and every stage of processing.	4
4	Understand the need for effluent treatment and its effect on environment.	7

SKILLS:

- ✓ *Select the preparatory process for grey fabric preparation.*
- ✓ *Identify suitable classes of dyes for the selected fibers.*
- ✓ *Printing of the different fabrics with suitable dyes as well as pigments.*
- ✓ *Compare the shade of original sample with dyed sample by using Computer Color Matching system.*

UNIT - I **L-10**

GREY PREPARATION : Grey inspection, singeing, desizing and its types; Scouring: Purpose and process, batch, semi-continuous and continuous methods of scouring. Bleaching of cotton goods with sodium hypochlorite, hydrogen peroxide and sodium chlorite; Mercerization: Objects and principle of mercerization, yarn mercerization, fabric mercerization, evaluation of pretreated fabrics.

UNIT - II **L- 8**

DYEING : Fundamentals, classification of colorants, difference between dye and pigment, common terms used in textile coloration, different kinds of dye-fibre bonds for common fibres, dyeing of cotton with direct, reactive, vat dyes, Dyeing of wool and silk with acid and basic dyes, dyeing of polyester with disperse dyes, principle of computer-aided color matching. Dying fault and its remedial processes.

UNIT - III **L- 9**

PRINTING: Methods of printing, principles of block printing, roller printing, flat-bed and rotary screen printing, and transfer printing techniques; Styles of printing: Principles of direct, discharge and resist styles of printing, printing with reactive dyes, printing with pigments, study of chest and rotary screen printing machines for knitted goods.

UNIT - IV **L- 9**

FINISHING: Classification of textile finishes, mechanical finishes; calendaring and its types, mechanical shrinking (sanforising), compacting of knitted fabric, airo finish. Outline of functional and aesthetic finishes, wrinkle-free finishing of cotton fabric (resin finishing), UV-protective finish, antimicrobial finish, flame-retardant finish, water-repellent finish, and soil release finish.

UNIT - V **L- 9**

EFFLUENT TREATMENT : Effect of waste water discharge on the environment; Government standards for textile chemical process effluent discharges, treatment of dye house effluent, operations in an ETP and methods for removal of color in dye house effluent, azo dyes and major banned amines, guidelines for eco-friendly processing.

LABORATORY EXPERIMENTS**LIST OF EXPERIMENTS:****TOTAL HOURS: 30**

1. Scouring of cotton using alkali-boiling method.
2. Bleaching of cotton fabric using hydrogen peroxide.
3. Dyeing of cotton fabric with direct dyes.
4. Dyeing of cotton fabric with Hot brand reactive dyes.
5. Dyeing of cotton fabric with vat dyes.
6. Dyeing of silk fabric with acid dyes.
7. Dyeing of Wool fabric with basic dyes.
8. Determination of color fastness of dyed fabrics to washing and Light.
9. Determination of colorfastness of dyed fabrics to rubbing and perspiration.
10. Printing of cotton with reactive dyes using blocks and screens.
11. Direct printing of cotton with pigment colors using screens.
12. Discharge styles of printing on cotton.
13. Printing of polyester with disperse dyes.
14. Discharge style of printing on polyester dyed fabrics.
15. Printing of wool and silk with acid dyes.

TEXT BOOKS:

1. C. V. Koushik and A. I. Josico, "Chemical Processing of Textiles – Grey Preparation and Dyeing", NCUTE Publication, New Delhi, 2004.
2. V. A. Shenai, "Technology of Finishing", Sevak Publications, Mumbai, Nitra, 1995.

REFERENCE BOOKS:

1. V. A Shenai, "Technology of Textile Processing – Vol. III, IV, V, VII and VIII", Sevak Publications, Mumbai, 1995.
2. J. W. Palmer, Textile Processing and Finishing Aids: Recent Advances, Mahajan Book Distributors, 1996.