

**GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT**

**COURSE CURRICULUM**  
**COURSE TITLE: FINISHING TECHNOLOGY FOR TEXTILE**  
**(Code: 3342801)**

<b>Diploma Program in which this course is offered</b>	<b>Semester in which offered</b>
Textile Processing Technology	4 <sup>th</sup> Semester

### 1. RATIONALE

A series of treatments are given in mills to finish textiles goods, for example: a fabric is washed, bleached, dyed or printed, starched and ironed before it is sent to the market. When a fabric is given a finish, it is known as a finished textile. The diploma graduates in Textile Processing are supposed to supervise textile finishing operations in industry. This course is designed to provide knowledge and skills of finishing textile fibres and fabrics, as well as knowledge of the chemistry and chemical technology involved in the application of finishing chemicals.

### 2. COMPETENCY

The course content should be taught and curriculum should be implemented with the aim to develop required skills in students so that they are able to acquire the following competency:

- Plan and supervise finishing processes for improving finished quality of cotton, silk, wool and synthetic materials for end use of textile materials.

### 3. COURSE OUTCOMES (COs)

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

- Explain the meaning and importance of finishes given to fabrics.
- Classify various finishes according to their properties.
- Describe the effect of the application of basic finishes on fabrics.
- Enumerate special finishes and explain the ways of employing them.
- Perform different finishing operations on fabric to obtain the desired finish.

### 4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	
4	-	2	6	70	30	20	30	<b>150</b>

**Legends:** L-Lecture; T – Tutorial/Teacher Guided Student Activity; P - Practical; C – Credit; ESE - End Semester Examination; PA - Progressive Assessment.

## 5. DETAILED COURSE CONTENTS

Unit	Major Learning Outcomes (in cognitive domain)	Topics and Sub-topics
<b>Unit – I</b> <b>Introduction to Textile Finishing</b>	<p><b>1a.</b> State the objects of textile finishing</p> <p>1a1 Classify the textile finishing</p> <p>1a2 Describe various finishing processes.</p> <p><b>1b.</b> Describe finishing for cotton, synthetics &amp; their blends (yarn, woven &amp; Knits)</p>	<p>1.1 Objects of textile finishing</p> <p>1.2 Classification of textile finishing</p> <p>1.3 Finishes for different fibres</p>
<b>Unit– II</b> <b>Technology of Mechanical Finishes</b>	<p><b>2.a</b>List the Mechanical finishes viz</p> <p>2a1 Explain purposes of Mechanical finishes of textile Materials.</p> <p><b>2.b</b>Describe various Mechanical finishes Explain equipment being used for mechanical finishes</p>	<p>Mechanical finishes</p> <p>2.1. Drying, Creeping, Mechanical softening &amp; Heat setting for textiles</p> <p>2.2. Sanforizing process</p> <p>2.3. Calendaring &amp; Beetling</p> <p>2.4. Raising, Peach finish, Parchmentising, Sand Blasting</p> <p>2.5. Mechanical finishes for knitted fabric</p> <p>2.6. Milling</p>
<b>Unit– III</b> <b>Technology of Chemical Finishes</b>	<p><b>3a.</b> List the chemical finishes of textile Materials</p> <p>3a1. Describe purposes of chemical finishes of textile Materials.</p> <p><b>3b.</b> Describe each chemical finishes</p> <p><b>3c.</b> Explain chemistry involved in hemical finishes of textiles</p>	<p>Chemical finishes of textile Materials</p> <p>3.1 Delustring, Softening, Stiffening</p> <p>3.2 Starch &amp; Resin finish</p> <p>3.3 Soil release finish</p> <p>3.4 Crease resistant finish</p> <p>3.5 Water Proof finish</p> <p>3.6 Antistatic Finish</p> <p>3.7 Anti pilling finish</p> <p>3.8 Mothproof finish</p>
<b>Unit– IV</b> <b>Technology of Functional Finishes</b>	<p><b>4a.</b> List the functional finish of textiles</p> <p>4a1 Describe purpose of functional finish of textiles</p> <p><b>4a.</b> Explain different functional finishes for textiles</p>	<p>Functional finish of textiles</p> <p>4.1. Antimicrobial/Antiseptic Finish</p> <p>4.2. Durable Press</p> <p>4.3. Water repellent finish</p> <p>4.4. Flame Retardant finish</p> <p>4.5. Hydrophilic finish</p> <p>4.6. Perfume / Fragrant finish</p> <p>4.7. U.V. Protection finish</p>
<b>Unit – V</b> <b>Recent Development in Textile</b>	<p><b>5a.</b> Explain innovations in finishing of textiles</p> <p><b>5b.</b> List the Recent trends in finishing of textiles</p> <p>5b.1 Describe recent</p>	<p>Recent trends in finishing of textiles</p> <p>5.1 Solvent finishing &amp; Foam finishing</p> <p>5.2 Biotechnology involved in textile finishing</p>

Unit	Major Learning Outcomes (in cognitive domain)	Topics and Sub-topics
Finishing	trends of finishing of textiles.	5.3 Nanotechnology used for textile finishing. 5.4 Plasma technology used for surface Modification 5.5 Garment finishing

## 6. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total
i.	Introduction to Textile Finishing	04	2	2	2	06
ii.	Technology of Mechanical Finishes	16	4	8	8	20
iii.	Technology of Chemical Finishes	18	6	8	8	22
iv.	Technology of Functional Finishes	12	4	6	4	14
v.	Recent Development in Textile Finishing	06	2	4	2	08
	<b>Total</b>	<b>56</b>	<b>18</b>	<b>28</b>	<b>24</b>	<b>70</b>

**Legends:** R = Remember; U=Understand; A = Apply and above levels (Bloom's Revised taxonomy)

**Note:** This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

## 7. SUGGESTED LIST OF PRACTICALS/EXERCISES

The practical/exercises should be properly designed and implemented with an attempt to develop different types of skills (**outcomes in psychomotor and affective domain**) so that students are able to acquire the competencies/programme outcomes. Following is the list of practical exercises for guidance.

**Note:** Here only outcomes in psychomotor domain are listed as practical/exercises. However, if these practical/exercises are completed appropriately, they would also lead to development of certain outcomes in affective domain which would in turn lead to development of **Course Outcomes** related to affective domain. Thus over all development of **Programme Outcomes** (as given in a common list at the beginning of curriculum document for this programme) would be assured.

Faculty should refer to that common list and should ensure that students also acquire outcomes in affective domain which are required for overall achievement of Programme Outcomes/Course Outcomes.

Sr. No.	Unit No.	Practical/Exercises (outcomes in psychomotor domain )	Approx Hours Required
1	II	Creep various textile materials	02
2	II	Sanforise cotton fabric	02
3	II	Heat set various synthetic fabric	02
4	II	Parchmentise wool	02
5	II	Sand blast on denim	02
6	III	Carry out temporary, semi permanent & permanent stiffening of various synthetic fabrics	02

7	III	Deluster various man made fibre and fabric	02
8	III	Soften natural and synthetic textiles	02
9	III	Provide Water proof finish on natural textiles	02
10	III	Provide Resin finish on natural textiles	02
11	III	Provide Crease resistant finish using resin precondensate	02
12	IV	Provide Water repellent finish by silicon treatment	02
13	IV	Provide Wash & wear finish on textiles	02
14	IV	Provide Flame retardant finish on natural textiles	02
15	IV	Provide Anti pilling & Antistatic finish on various textile materials	02
16	IV	Provide Moth proofing finish on cotton & wool	02
17	V	Provide Foam finishing of textiles	02
18	V	Bio polish cotton	02
19	V	Bio finish denim garment	02
<b>Total Hrs</b> (Perform practical worth 28 hours such that most units are covered)			<b>38</b>

## 8. SUGGESTED LIST OF STUDENT ACTIVITIES

Following is the proposed list of students activities like:

- i. Literature survey of Finishing for Various Textile Fabrics.
- ii. Collection and Study of various samples of Finishing for different textile fibres.
- iii. Visit to textile industries to study Finishing of cotton, silk, wool and synthetic materials and prepare reports.
- iv. Group discussion on recent Innovations in Finishing.
- v. Collection of data of various textile Finishing & Power point Presentation.
- vi. Seminar/Quiz/Presentation on recent developments in the field of finishing of textiles.

## 9. SPECIAL INSTRUCTIONAL STRATEGY (If Any)

- i. Industrial Demonstration of Recent finishing process
- ii. Actual Working of machines used for finishing during Industries' visits
- iii. Video clips of Actual Working of machines used for finishing
- iv. Guest lecturers from industry experts for contemporary practices of industries.

## 10. SUGGESTED LEARNING RESOURCES

### A. List of Books

Sr. No.	Author	Title of Books	Publication
1.	R. S. Prayag	Textile Finishing	Shree J. Printers, Pune
2	Dr. V. A. Shenai	Technology of Textile Finishing (Vol-X)	Sevak Publications
3	J. T. Marsh	An introduction to Textile Finishing	B. I. Publication Pvt. Ltd.
4.	R. S. Bhagwat	Handbook of Textile Processing Machinery	Colour Publication PVT. LTD., Mumbai
5	Dr. Charles	Chemistry & Technology	North Carolina State

Sr. No.	Author	Title of Books	Publication
	Tomasino	of Fabric Preparation & Finishing	University Press

**B. List of Major Equipment/ Instrument**

- i. Water Heating Bath
- ii. Padding Mangle
- iii. Laboratory Oven

**C. List of Software/Learning Website**

- i. [http://en.wikipedia.org/wiki/Finishing\\_\(textiles\)](http://en.wikipedia.org/wiki/Finishing_(textiles))
- ii. <http://www.slideshare.net/privatesecrete/fiber-to-fabrics-textile>
- iii. <http://www.fibre2fashion.com/industryarticle/pdffiles/22/2173.pdf?PDFPTOKE N=d6 f25ac26dda3fda322bb57ff2f71f06a4e37306%7C1261723784>
- iv. <http://www.textileschool.com/articles/418/textile-fabric-finishing>
- v. [http://www.vigyanprasar.gov.in/chemistry\\_application\\_2011/briefs/Textiles.pdf](http://www.vigyanprasar.gov.in/chemistry_application_2011/briefs/Textiles.pdf)
- vi. [www.youtube.com](http://www.youtube.com)
- vii. [http://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20\(Eng\)%20Ch-11.pdf](http://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20(Eng)%20Ch-11.pdf)
- viii. <http://www.niir.org>

**11. COURSE CURRICULUM DEVELOPMENT COMMITTEE**

**Faculty Members from Polytechnics**

- **Prof. C R Madhu**, Adhoc Lecturer, Textile Processing Department, R C Technical Institute, Ahmedabad.
- **Prof. R G Patel**, Lecturer, Textile Processing Department, R C Technical Institute, Ahmedabad.
- **Prof. D D Vyas**, Adhoc Lecturer, Textile Processing Department, Dr. S & S S Ghandhy College of Engineering & Technology, Surat
- **Prof. A S Shah**, Assistant Lecturer, Textile Processing Department, Dr. S & S S Ghandhy College of Engineering & Technology, Surat

**Coordinator & Faculties from NITTTR Bhopal**

- **Dr. C. K. Chugh**, Professor Department of Mechanical Engineering
- **Dr. S.K. Gupta**, Professor and Coordinator for State of Gujarat