

GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM

Course Title: Textile Processes- I

Course Code: 3325901

Diploma Programmes in which this course is offered	Semester in which offered
Diploma in Textile Designing	Second Semester

1. RATIONALE

Textile designing is the process of creating designs and structures for knitted, woven, non-woven or embroidery of fabrics. It involves producing patterns for various kinds of cloths as per their end use and market trend. The textile design technologist should be aware of different fibres and their behaviour in different conditions, as these are helpful to design fabric as per needs of end user. This subject is essential to provide knowledge and practice to perceive variety of fibres, yarns and fabrics. It also makes aware of properties of major useful fibres.

This subject deals with the various kinds of the fibers, its origin, properties, manufacturing process of manmade fibers. This knowledge will be useful for students when they work on designing, producing or modifying various designs and structures for knitted, woven, non-woven or embroidery of fabrics.

2. COMPETENCY

The course content should be taught and implemented with the aim to be develop the textile production related skills so that students are able to acquire the following competency:

- i. **Design different types of patterns for various kinds of cloths using different kinds of fibres, yarns, and fabrics.**

3. 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	150
3	0	2	5	70	30	20	30	

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

Note: It is the responsibility of the institute heads that marks for **PA of theory & ESE and PA of practical** for each student are entered online into the GTU Portal at the end of each semester within the dates specified by GTU.

4. DETAILED COURSE CONTENTS

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit I Classification of textile fibres	1a. List out different types fibres 1b. Classify the fibres using different ways	1.1 Type of Textile fibres 1.2 Classification of fibres as per their origin, and as per end uses.
Unit II Manufacturing techniques of manmade fibres	2a. Describe Manufacturing techniques of major manmade fibres available in market	2.1 Manufacturing techniques of various regenerated manmade fibres like viscose rayon, acetate rayon, cuprammonium rayon, etc. 2.2 Manufacturing techniques of various synthetic fibres like Polyester, Nylon, Acrylic, Propylene, etc.
Unit III Properties of textile fibres	3a. Describe the useful properties of textile fibres 3b. Describe the physical and chemical properties of fibres.	3.1 Useful properties of fibres. 3.2 Various physical properties for different fibres 3.3 Various chemical properties for different fibres
Unit IV Identification of fibres	4a. Identify the textile fibres using various methods	4.1 Physical identification of various textile fibres using different methods like microscopic view, burning test, etc. 4.2 Chemical dissolution methods to identify various textile fibres. 4.3 Differential dyeing methods to identify various textile fibres.
Unit V Textile Yarns	5a. Identify the different type of yarns 5b. Explain the major yarn manufacturing methods. 5c. Describe various yarn texturing & twisting methods.	5.1 Different types of yarns- Filament yarn, staple yarn, textured yarn, twisted yarn, etc. 5.2 Staple yarn manufacturing methods like ring spinning, open end spinning, etc. 5.3 Various un-conventional yarn manufacturing techniques in brief. 5.4 Various texturing and twisting methods for filament yarns
Unit VI Textile Fabrics	6a. Identify the different type of fabrics 6b. Describe the various fabric manufacturing methods in brief.	6.1 Different type of fabrics-. Woven, Non-woven, Knitted, Braided, Laces, etc. 6.2 Weaving methods for fabric making in brief. 6.3 Various methods for Non-woven fabric making in brief. 6.4 Knitting methods for fabric making in brief. 6.5 Manufacturing methods for other types of fabrics in brief.

5. 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	Classification of textile fibres	03	02	02	03	07
II	Manufacturing techniques of manmade fibres	12	05	05	04	14
III	Properties of textile fibres	08	04	05	05	14
IV	Identification of fibres	04	02	02	03	07
V	Textile Yarns	07	05	05	04	14
VI	Textile Fabrics	08	05	05	04	14
Total		42	23	24	23	70

Legends: R = Remember; U= Understand; A= Application and above levels (Bloom's revised taxonomy)

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

6. SUGGESTED LIST OF EXERCISES/PRACTICALS

The practical/exercises should be properly designed and implemented with an attempt to develop different types of skills so that students are able to acquire above mentioned competency.

Sr. No.	Unit No.	Practicals/Exercises	Approx Hours Required
1.	I	Prepare chart for Textile fibre classifications	02
2.	II	Draw a line diagram of manufacturing stages of various manmade fibres	6
3.	II	Study physical properties of textile fibres	04
4.	II	Study chemical properties of textile fibres	04
5.	IV	Examine with the help of microscope various textile fibres and draw the longitudinal & cross sectional views.	04
6.	IV	Perform the identification of unknown textile fibre.	04
7.	V	Collect the different types of yarns, and differentiate them.	02
8.	VI	Collect the different types of fabrics, and write their features.	02
Total			28

7 SUGGESTED LIST OF PROPOSED STUDENT ACTIVITIES

At least 12 specimens of textile yarns and fabrics to be submitted during the term.

8 SUGGESTED LEARNING RESOURCES

A. List of Books

Sr. No.	Author	Title of Books	Publication
1	Moncreif	Manmade Fibers	
2	V.A.Shenai	Textile fibers	
3	R.H.Peters	Textile chemistry-I	
4	F.Sadov	Chemistry of Fibrous materials	
5	R.R. Chakrawarty	A glimpse of Chemical procening	
6		Knitting technology: A comprehensive handbook and practical guide (3rd edition)	
7	D J Spencer	A1- Video CDs	
8	N I T T T &R, Bhopal	Modern Cotton Spinning	
9		Denim Cloth Production	

B. List of Major Equipment/ Instrument

- i. Chalk board, chalks
- ii. Pencils, Crayons
- iii. White boards
- iv. Magnetic Boards
- v. LCD projector
- vi. Microscope
- vii. Gas burner
- viii. Chemicals

C. List of Websites- The students may also get tips and information on websites for fibre, yarns and fabrics from suggested sites are -

- i. <http://www.textileworld.com/>
- ii. www.learningseed.com
- iii. <http://www.teonline.com/knowledge-centre/>
- iv. <http://www.youtube.com/>
- v. <http://www.sitra.org.in>
- vi. <http://www.btraindia.com>
- vii. www.nitratextile.org/

9. COURSE CURRICULUM DEVELOPMENT COMMITTEE**Faculty Members from Polytechnics**

- **Prof. A. C. Dalal**, Lecturer in Textile Designing, Govt. Poly for Girls, Surat
- **Prof. P P Rana**, Lecturer in Textile Designing, Govt. Poly for Girls, Surat

Coordinator & Faculty Members from NITTTR, Bhopal

- **Dr. C. K. Chugh**, Professor and head Dept of Electronic Media