GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT
COURSE CURRICULUM

Course Title: Fundamental of Textile Technology
(Code: 3315902)

Diploma Programmes in which this course is offered	Semester in which offered
Textile Designing	**First Semester**

1. RATIONALE

The Textile designers should have knowledge of the process of textile manufacturing. This will assist them to create designs during fabric production, as well as during processing, like- Dying, Printing, finishing, etc. With that purpose, this subject has been included. This subject provides basic knowledge regarding various textile fibres, their classification, as well as knowledge of spinning and weaving processes of converting fibers into fabrics, and Woven Designs during weaving.

2. LIST OF COMPETENCIES

The course content should be taught and implemented with the aim to develop Textile Production related skills leading to the achievement of the following competencies-

i. **Explain different types of processes for making fibers, yarns and fabric including processes for woven design**.

3. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total 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 Theory Practice; **P** -Practical – Credit;
ESE -End Semester Examination; **PA** - Progressive Assessment.

4. DETAILED COURSE CONTENTS (THEORY)

Unit	Major Learning Outcomes	Topics and Sub-topics
1. Textile Fibers	1.1.Describe various kinds of fibers and their uses.	Classification of Textile Fibers and Uses.
2. Fiber to Garment	2.1 Describe processes of converting fibers into garments.	Sequence of converting Fibers into garment (including fabric finishing treatments)
3. Spinning Process	3.1.Describe spinning process sequence. 3.2.Explain conventional blow room process and machines. 3.3.Explain carding machine & its process. 3.4.Explain Draw frame machine & its process 3.5.Explain Comber machine & its process. 3.6.Explain Speed Frame machine & its process 3.7.Explain Ring frame machine & its process 3.8.Explain Doubling & twisting machine & its process.	•Sequence of machine and objects of conventional spinning process- 1. Blow Room 2. Card 3. Draw frame 4. Comber 5. Speed Frame 6. Ring Frame **7.** Doubling & Twisting •Modern developments in Spinning Process& machines- Overview.
4. Weaving Process	4.1.Describe Weaving process sequence. 4.2.Explain Winding, Warping, Sizing, Drawing-in & denting & its process, machines, 4.3.Explain Plain power loom, Dobby, Jacquard,& its process 4.4.Describe defects in grey cloth.	•Sequence of machine and their objects. 1. Winding : Warp Winding Machine Weft Winding Machine. 2. Warping 3. Sizing 4. Drawing-in & denting 5. Looms : General Idea of Plain power loom, Dobby, Jacquard, Objects of Primary and Secondary motion of loom 6. Defects in Grey Cloth • Modern developments in weaving machines and processes- an overview.
5.Fabric Structure.	5.1.Describe various fabric manufacturing techniques. & its structure. 5.2.Represent simple plain, Twill and Satin/sateen weave on point paper.	•Classification of different fabric manufacturing techniques & its structure. •Representation of simple plain, Twill and Satin/sateen weave on point paper.
6.Yarn numbering system (with calculation)	6.1Explain Yarn numbering systems.	•Direct and indirect system •English and metric system •Tex and denier system.

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
1.	Textile Fibers	04	2		2	04
2.	Fiber to Garment	04	2		4	06
3.	Spinning Process	09	2	4	10	16
4.	Weaving Process	09	2	4	10	16
5.	Fabric Structure.	10	2	6	10	16
6.	Yarn numbering system (with calculation)	06	2	2	6	10
Total		**42**	**12**	**16**	**42**	**70**

Legends: R = Remembrance; U= Understanding; A= Application and above levels (Revised Bloom's taxonomy)

6. SUGGESTED LIST OF PRACTICAL/EXERCISES

The experiments should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency - **……..**

No.	List of Practical
1.	Collection of Textile Fibers based on Classification of Textile Fibers and Uses.
2.	•Detailed Diagram showing each step of Sequence for converting fibre into fabric (with structure of output material) •Detailed Diagram showing each step of Sequence of converting fabric into garment (with structure of output material)
3.	**Spinning Process:** Schematic diagram of following with function. 1. Blow Room 2. Card 3. Draw frame 4. Comber 5. Speed Frame 6. Ring Frame 7. Doubling & Twisting
4.	**Weaving Process:** •Schematic diagram of following with function. 1. Winding : Warp Winding Machine Weft Winding Machine. 2. Warping 3. Sizing •Schematic diagram of loom with function of each part & basic motions. •Samples showing defects in Grey Cloth
5.	**Fabric Structure.** •Collection of fabric samples based on its structure(manufacturing technique) , type & end use •Design, draft & lifting plan of simple plain, Twill and Satin/sateen weave on point paper (with one sample of each weave)
6.	**Yarn numbering system** •Calculations based on practical application of yarn numbering system

7. SUGGESTED LIST OF PROPOSED STUDENT ACTIVITIES

- Collection of Textile Fibers based on Classification of Textile Fibers and Uses.
- Collection of fabric samples based on its structure(manufacturing technique) , type & end us

8. SUGGESTED LEARNING RESOURCES

A. List of Books

Sr.No.	Title of Book	Author	Publication
1.	Spinning	W.Klein	
2.	Weaving	Talukdar	
3.	Textile Fiber	V.A.Shenai	
4.	Yarn Preparation Vol. I & II	R.Sen.Gupta	
5.	Textile design vol. I	Watson	

B. List of Major Equipment/ Instrument

Computer System with Internet, LCD Projector

C. List of Software/Learning Websites-

Searching engines could be used to locate textile related sites

A. http://www.textileassociationindia.org/
B. http://www.nitma.org/
C. www.sitra.org.in/
D. www.itamma.org/
E. http://www.ittaindia.org/
F. http://www.cottonsjourney.com/Storyofcotton/page5.asp
G. http://textiletechinfo.com/spinning/BLOWROOM.htm
H. http://en.wikipedia.org/wiki/Weaving
I. http://textilelearner.blogspot.in/

9. COURSE CURRICULUM DEVELOPMENT COMMITTEE

Faculty Members from Polytechnics

- **Shri A C Dalal**, Lecturer in Textile Designing Govt. Poly for Girls, Surat
- **Smt U U Kothari**, Lecturer in Textile Designing Govt. Poly for Girls, Surat

Coordinator and Faculty form NITTTR Bhopal

- **Dr. C. K. Chugh**, Professor and Head Department of Electronic Media, NITTTR