



# GUJARAT TECHNOLOGICAL UNIVERSITY

**Bachelor of Engineering**

**Subject Code: 3172914**

**Semester: VII**

**Subject Name: Technology of Denim Manufacturing**

**Type of course :** Professional Elective Course

**Prerequisite :** Students should have basic knowledge of fibres, spinning, weaving and chemical processing.

**Rationale :** The city of Ahmedabad, state of Gujarat and the country as a whole is global hub for sourcing denim fabric and the jeans. The state has the highest production of denim fabric in the country. The city of Ahmedabad is centre of denim manufacturing with few of the top ten companies of the world.

### Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
3	0	0	3	70	30	0	0	100

### Content:

Sr. No.	Content	Total Hrs
1	History of denim and jeans. An overview of denim industry of the world. Development of Indian denim industry.	3
2	Fibres used for manufacturing denim like cotton, viscose, lycra, polyester etc. their properties, blending etc.	3
3	Spinning of yarn for denim. Core spun yarns, Fancy yarn etc. Future trends.	3
4	Weaving preparatory and dyeing : Sheet warping, ball warping, other warping methods, history of Indigo - Natural & Synthetic, brief introduction to chemistry of Indigo & Sulphur dyes,	10
6	Technology of Indigo dye application - Slasher, Rope and Looptex, Dyeing machinery, Dyeing with non indigo dyes.	5
8	Modifications in shuttleless looms for making denim fabric. Types of denim fabrics.	4
9	Finishing of Denims. Knitted Denims including Production Technology of Indigo-dyed Packages, Shirting / Lightweight Denims.	3
10	Introduction to Jeans- making & washing. Seams, stitches, needles, sewing threads, sewing for denim fabric.	4
11	Dyeing and digital printing of jeans.	3
12	Quality Control / Assurance in Denim Manufacturing.	4



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Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	15	10	5	0

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's 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.

### Reference Books:

1. Denim: Manufacture, Finishing & Applications, Ed. by Roshan Paul, The Textile Institute, Manchester, 2016.
2. Denim Book: From Cotton to Fashion by Clariant.
3. Denim Book by Archroma.
4. Denim Fabric Manufacturing, Cotton Inc, NC, USA.
5. Denim : A Fabric for all Dyeing, Weaving & Finishing by M.S. Parmar, S.S. Satsangi, Dr. Jai Prakash, NITRA, 1996.
6. Denim by Dr. J. J. Shroff, ATIRA, 2015.

### Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Understand about the fibre used for making denim fabric	10
CO-2	Know the concept of process of manufacturing and application of indigo and non-indigo dyes.	20
CO-3	Acquire the knowledge about the conversion of fibres to yarn and denim fabric.	30
CO-4	Understand the garment manufacturing process for making various end products out of denim fabric.	20
CO-5	Identify the quality control measures required for denim fabric and jeans.	20

**List of Open Source Software/learning website :** Any Search Engine, NPTEL, Swayam portal etc.