



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma Engineering

Level: Diploma

Branch: Computer Aided Costume Design & Dress Making

Subject Code : DI04051071

Subject Name : Technical Textiles

<b>w. e. f. Academic Year:</b>	2025-26
<b>Semester:</b>	4 <sup>th</sup>
<b>Category of the Course:</b>	Professional Elective - II

<b>Prerequisite:</b>	-
<b>Rationale:</b>	Technical Textiles is one of the most rapidly growing sectors of the textile industry, moving beyond aesthetics and apparel into high-performance, functional applications. Technical Textiles (TT) offers new ways, means and opportunities to the Indian textile industry to sustain the present growth and thrive in the near future. With global demand surging Technical textiles are being applied in a wide range of areas like healthcare, automotive, industrial application, agriculture, and infrastructure. Keeping in view the vast and interdisciplinary scope of Technical Textiles, the curriculum has been thoughtfully designed to be useful to the students.

### Course Outcome:

After Completion of the Course, Student will able to:

No.	Course Outcomes	RBT Level
01	Define Technical Textiles.	R
02	Describe Geo Textiles properties, functions and its application.	U
03	Describe Home and sports textiles properties, functions and its application.	U
04	Explain Medical, Protective and Agro Textiles properties, functions and its application.	A
05	Identify the various Government Schemes for Technical Textiles.	R

\*Revised Bloom's Taxonomy (RBT)

### Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE(E)	PA(M)	PA(I)	ESE (V)	
04	00	00	04	70	30	00	00	100



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## Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	<b>Introduction to Technical Textile</b>  1.1. Definition, Classification and importance of Technical Textiles. 1.2. Application of Technical Textile product in various sectors. 1.3. Raw material used for technical textiles. 1.4. Characteristics and properties of different fiber used for Technical Textiles.	8	14
2.	<b>Geo Textiles</b>  2.1 Definition of Geo textiles. 2.2 Functional properties of Geo-textile: Separation, Drainage, Filter, Reinforce. 2.3 Characteristics of Geo Textiles: Woven and non- Woven. 2.4 Applications: Geo grids, Geo nets, Geo composite, Geo membranes, Geo Cell, Geo mattress. 2.5 Natural Fiber: Jute and Coir. 2.6 Synthetic Fiber: Polyester, Polypropylene, etc.	10	20
3.	<b>Home, Clothtech, Packtech &amp; Sports Textiles</b>  3.1 Definition of Home, Clothtech & Packtech textiles. 3.2 Materials used in Home, Clothtech & Packtech textiles. 3.3 Properties of Home, Clothtech & Packtech textiles. 3.4 Home, Clothtech & Packtech textiles products and its applications. 3.5 Definition of Sports textiles. 3.6 Classification of Products of Sports Textiles- Helmets, Hand Gloves, Sport shoes, Balls. 3.7 Properties of Sports textiles. 3.8 Materials used in Sports Textiles. 3.9 Application of Sports Textiles.	14	22
4.	<b>Medical, Protective and Agro Textiles</b>  4.1 Definition of Medical Textile 4.2 Function of different Medical textile products. 4.3 Characteristics of fiber, yarn and fabric used for medical textiles. 4.4 Properties of Medical, Protective and Agro Textiles 4.5 Different application of Medical textile: Clothing, Sutures,	14	22



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	Surgical Dressing, Spare parts for human body. 4.6 Definition of Protective Textiles. 4.7 Function of different Protective Textiles: Bullet Proof Fabric, Fire Proof Fabric, Chemical protective fabric, Visual Camouflage. 4.8 Definition of Agro Textiles. 4.9 Function of different Agro textile product. 4.10 Characteristics of fiber, yarn and fabric used for Agro textiles. 4.11 Different application of Agro textiles.		
5.	<b>Government Schemes for Technical Textiles</b>  5.1 Production Linked Incentive (PLI) Scheme for Textiles 5.2 Scheme for Integrated Textile Parks (SITP) 5.3 Integrated Processing Development Scheme (IPDS) 5.4 Amended Technology Upgradation Fund Scheme (ATUFS) 5.5 National Technical Textiles Mission (NTTM) 5.6 PowerTex India 5.7 Samarth Scheme (Scheme for Capacity Building in Textiles Sector) 5.8 North East Region Textile Promotion Scheme (NERTPS)	14	22
	<b>Total</b>	<b>60</b>	<b>100</b>

## Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
30	40	30	0	0	0

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

## References/Suggested Learning Resources:

### (a) Books:

1. Hand book of Technical Textile, A R Harrocks and S C Anand, Wood head publishing limited.
2. Geo textile in Civil Engineering works, Textile Association, The Textile Association 1985
3. Textiles for Protection, Richard, A. Scott, The Textile Institute, CRC Press and Woodhead Publishing Limited

### (b) Open source software and website:

1. <http://nptel.ac.in/>



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2. <http://www.textileassociationindia.org/>
3. <http://www.sitra.org.in/>
4. <http://www.itamma.org/>
5. <https://textilestudycenter.com/>
6. <http://www.textileschool.com/>
7. <https://archive.org/details/manmadefibres0000monc/page/n7/mode/2up>
8. <https://textilestudycenter.com/textile-books-free-donwload/>
9. <http://www.cottonsjourney.com/Storyofcotton/page5.asp>
10. <http://www.textileassociationindia.org/>

### **Suggested Project List:**

1. Prepare a report on Technical Textile Product of different manufacturers based on your industrial visit.
2. Prepare a report on Geo Textile of different manufacturers based on your industrial visit.

### **Suggested Activities for Students:**

1. Collection of various Medical textile Products and Sports textile product.
2. Visit a nearby Textile unit and prepare a report with suitable machinery sketches.

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