GUJARAT TECHNOLOGICAL UNIVERSITY

TEXTILE TECHNOLOGY (29)
TECHNICAL TEXTILE – I
SUBJECT CODE: 2162904
B.E. 6th SEMESTER

Type of course: Engineering

Prerequisite: Basic Knowledge about Textiles & Fabric Manufacturing Process

Rationale: Technical Textile I covers the basics of Technical Textiles, their properties & applications in various segments, fabric forming technologies used for producing technical textiles.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		PA (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	2	0	5	70	20	10	30	0	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1.	Introduction to Technical Textiles.	04	9.52
2.	Introduction to Technical Fibres & Yarns used for manufacturing.	02	4.76
3.	Technical fabric structures – 1. Woven fabrics.	01	2.38
4.	Technical fabric structures – 2. Knitted fabrics.	01	2.38
5.	Technical fabric structures – 3. Nonwoven fabrics. Methods of production of different types of nonwoven fabrics.	12	28.57
6.	Coating Materials & Techniques for Technical Textiles.	10	23.81
7.	Wet Processing & Finishing of Technical Textiles.	06	14.29
8.	Different applications of all the 12 segments of technical textiles in brief.	04	9.52
9.	Textile-reinforced composite materials.	02	4.76

Suggested Specification table with Marks (Theory):

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

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. Handbook of Technical Textile Horrocks & Anand
2. J.N.Mandal 'A goal for Geo-textiles', Proceedings Third International conference On Geo-textiles, April 1986, Austria.
3. Pushpa Bajaj and A.K. Sngupta "Industrial Applications of Textiles; Textiles for filtration and coated fabrics", Textiles Progress, Vol.14, No. 1985.
4. I.P.Ehrler and H.Screiber ITB Non-Wovens Industrial Textiles-March 1996.
5. P.Bottcher, ITB Non-Wovens-Industrial Textiles, March 1996.
6. P.R.Berthewas etal, J Coated fabrics. Oct 1998.

Course Outcome:

After learning the course the students should be able to

1. Describe the various areas of Technical textiles and its applications.
2. Describe the requirements of various Technical Textile sectors like Filter fabrics, Medical textiles, Protective textiles, Agriculture Textiles, Environmental textiles, Geo Textiles, Industrial Textiles, Automotive Textiles, tyre cord etc. and their manufacturing.
3. Describe the production technologies of nonwoven fabrics.
4. Describe the properties and advantages of the different coating materials.
5. Describe the different methods of coating & lamination and their advantages and disadvantages.

List of Open Source Software/learning Website: http://nptel.iitm.ac.in, World Wide Web, Google Search Engine etc.

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.