GUJARAT TECHNOLOGICAL UNIVERSITY

TEXTILE TECHNOLOGY (29)
SUBJECT NAME: TECHNICAL TEXTILES - II
SUBJECT CODE: 2182903
B.E. 8th SEMESTER

Type of course: Engineering

Prerequisite: Students should have thorough knowledge of Technical Textiles - I.

Rationale: This course covers technologies and applications of some of the important types of technical textiles in different areas.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	0	0	3	70	20	10	00	00	00	100

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment; AL-Active learning assignments; OEP-Open Ended problem

Content:

Sr. No.	Content	Total Hrs	% Weightage
1.	Application of textile in medical. Non implantable materials, implantable materials, extracorporeal devices, health care / hygiene products. Medical Textiles: Introduction, Classification, Recent developments in fibres used for medical textiles, e.g. 3-layer silicon laminated fabric, self-adherent dressing, Microclimate improvement in wound dressings. Activated carbon cloth, Blankets etc.	07	16.67
2.	Geotextiles: Types and application of geosynthetics. Functions and application areas of geotextiles. Fibres and fabric selection criteria for geotextile applications. Mechanics of reinforcement, filtration and drainage by geotextiles.	07	16.67
3.	Application of textile in transportation. Use in cars and other road vehicles, textiles in air craft.	08	19.05
4.	Industrial Textiles: Conveyor and Power transmission belts. Different types of Conveyor belts and their properties. Different types of Power transmission belts and their constructional features. Other Industrial Textiles: Shoe liners, Electrical cables, Outdoor fabrics, Fibre reinforced Plastics.	07	16.67
5.	Protective textiles: Fire proof jacket, bullet proof jacket and application in defence.	08	19.05
6.	Emerging trends in technical textiles nanotechnology.	05	11.90

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	15	20	10	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 Textiles Horrocks & Anand
2. Nonwovens Giovanni Tanchis
3. Automotive Textiles', Text.Prog, Vol. 29, No.1/2 Mukhopadhyay, S.K. & Partridge J.F.
4. BTRA, Collection of papers on Defense Textiles Bandopadhyay B.N. & Bhar N.M.
5. Weelington Sears Handbook of Industrial Textiles S. Adanur

Course Outcome:

After learning the course the students should be able to:

1. Explain the fibres used for the production of medical textiles.
2. Explain the applications of industrial fabrics in different areas.
3. Describe the methods of production of protective textiles.
4. Select right type of fibre for the end-use application of geotextile.
5. Select the right test for assessing the performance of geotextile.
6. Describe the different applications, pre-requisite performance of textiles for usage in automobiles and air-craft.
7. Describe the methods by which properties that can be enhanced with nano-technology.

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.