

GUJARAT TECHNOLOGICAL UNIVERSITY

TEXTILE TECHNOLOGY (29)/ TEXTILE PROCESSING (28)

TEXTILE FIBRES

SUBJECT CODE: 2132901

B.E. SEMESTER III

Type of course: Engineering and Science

Prerequisite: Zeal to learn the subject

Rationale: This course covers the varieties of raw materials used in different Textile processes and applications.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
			ESE (E)	PA (M)		PA (V)		PA (I)		
PA	ALA	ESE		OEP						
4	0	0	6	70	20	10	0	0	0	100

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1.	True requisites for fibre formation: Primary, Secondary and Tertiary Properties	4	8 %
2.	Classification of Textile Fibres: Natural fibres, Reenerated fibres and Synthetic fibres	2	4 %
3.	Growth, Harvesting, Applications, Physical and Chemical properties: Different Natural fibres i.e Seed fibre: Cotton, Bast fibres: Linen, Jute, Hemp, Ramie, Protein fibres: Wool, Silk and minor hair fibres, Mineral fibres: Asbestos and other natural fibres e.g. Banana, Pina, Bamboo, etc.	12	25 %
4.	Basic concept related to the structure of Textile Fibres: like cotton, wool, silk, linen etc.	6	13 %
5.	Techniques for manufacturing Man-Made Fibres: i.e. melt spinning, dry spinning and wet spinning.	6	13 %
6.	Process of Manufacturing, applications, Physical and Chemical properties: Regenerated cellulosic fibres i.e. Viscose rayon, Cupraammonium rayon, acetate rayon	6	13 %
7.	Different processes of Synthetic Fibres: Process of manufacturing raw materials, Process of polymerization, manufacturing, applications and Physical and Chemical properties of synthetic fibres i.e. Polyester, Nylon, Acrylic, Polypropylene, Saran, Vinyon, Polyurathane, etc.	7	15 %
8.	Introduction to new fibres: like Tencel, Lyocel, Aramide, Modal, etc.	5	9 %

Reference Books:

1. Introduction to Textile Fibres - H.V.Sreenivasmurthy
2. Textile Fibres – Dave & Sahasrabudhe(ATA Publ.)
3. Production of Synthetic Fibres- A.A.Vaidya
4. Man-made Fibres – R.W.Moncrieff.
5. Textile Fibres (Volume I) – Dr.V.A.Shenai.

Course Outcome:

After learning the course the students should be able to

1. Know different varieties of Natural, Regenerated and Synthetic fibres used in textile industries.
2. Know Structures of different textile fibres.
3. Help in manufacturing of different Man-Made fibres.
4. Identify different fibres on the basis of their physical and chemical properties.

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.