

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: I

M.E. TEXTILE ENGINEERING

Subject Name: **Theory of Textile Structure - I**

Sr.No	Course content
1.	The tensile, bending and torsional rigidity of fibres and their determination. Elements of yarn geometry, geometry of helix and its application to yarn structure. Geometry of folded yarns. Yarn diameter and density. Packing of fibers in yarn. Fiber arrangement in twisted yarn. The form of yarn twisting.
2.	Effect of fibre properties and their geometrical configuration on the tensile, bending, flexural and torque properties of yarn. Design of yarn structure for certain functional theories of yarn strength. Theoretical analysis of yarn irregularity. Fibre migration characteristics of spun yarn and continuous filament yarns. Blend irregularities. Concept of elongation balance. Effect of properties of constituent fibres and blend composition on the behavior of composite yarns.

Reference Books:

1. Fibre Science – Edited by J.M. Preston, Published by The Textile Institute, Manchester.
2. Cotton Testing by Steadman
3. Structural Mechanics of fibres, yarns & fabrics by Hearle, Grosberg and Backer.
4. Physical Testing of Textiles by B.P. Saville
5. Physical Properties of Textile Fibres – Morton W.E. and Hearle J.W.S. published by The Textile Institute Manchester.
6. Fibre Microscopy – Stores J.L. – published by London National Trade Press.
7. Structure / Property relationship in Textile Fibres – Textile Progress Vol.20, No.4 – The Textile Institute, Manchester.
8. Textile Yarn by Martindale and Goswami.