

PFT5J003 PE(O3) TECHNICAL TEXTILES

Module-I (10 hours)

Introduction: Definition and scope for technical textiles, present status and future of technical textile. Brief idea about technical fibres - Carbon fibres-Aramid and related fibres, Glass threads, composite material.

Filtration textiles: Definition of filtration parameters, theory of dust collection and solid liquid separation, filtration requirements, concept of pore size and particle size, role of fiber, fabric construction and finishing treatments.

Geotextiles: Brief idea about geo-synthetics and their uses, essential properties of geotextiles, geotextile testing and evaluation, application examples of geotextiles.

Module-II (10 hours)

Medical textiles: Classification of medical textiles. Medical Textiles: Surgical Textiles and Sutures. Cardio Vascular Textiles (Knitted cardiac biological valves). Dialytic Textiles, Hollow fibres as dialysis membrane, Hospital Textiles- operating and post operating clothing, disposable drapes. Textiles for sanitary applications.

Module-III (10 hours)

Protective Clothing: Brief idea about different type of protective clothing, functional requirement of textiles in defence including ballistic protection materials and parachute cloth, temperature and flame retardant clothing, chemical protective clothing, water proof breathable fabrics.

Module-IV (10 hours)

Sports and recreation textiles: Functional requirement of different types of product and their construction.

Automotive textiles: Brief idea about the important properties and requirements in automotive textiles, textiles components in tyre, tyre structure and design.

Other uses of technical textile: Textiles in agriculture, electronics, power transmission belting, hoses, canvas covers and tarpaulins.

Books Remmended:

1. *"Handbook of Technical Textiles"*, Ed. A R Horrocks and S C Anand, Woodhead Publication Ltd., Cambridge (2000).
2. *"Engineering with Geosynthetics"*, Ed. G V Rao and G V S Raju, Tata McGraw Hill Publishing Co. Ltd., New Delhi (1990).
3. *"Industrial Textile"*, Ed., J Svedova, Elsevier, New York (1990).
4. *"Modern Textile Characterization Methods"*, Ed. M Raheel, Marcel Dekker, Inc. (1996).
5. Mukhopadhyay S K and Partridge J F, *"Automotive Textiles"*, Vol. 29, No. 1/2, The Textile Institute (1999).
6. SabitAdanur, *"Wellington Sears Handbook of Industrial Textiles"*, Technomic publishing company Inc., USA, 1995
7. Pushpa, B., and Sengupta, A.K., "Industrial Application of Textiles for Filtration and Coated fabrics", *Textile Progress* Vol.14, 1992