

TEXTILE SCIENCE

Marks: 150

**THEORY**

Marks : 100

Teaching Periods: 4 + 1 students' presentation / week

**Objectives**

1. To impart the knowledge of textile fibres in terms of their chemistry, production, properties, selection and care.
2. To familiarize the students with various production techniques and properties of yarns.
3. To impart knowledge about various fabric construction techniques and fabric properties.

**Content**

**Periods**

**Unit I: Production, chemistry and properties of fibres**

**15**

- Natural Fibre -Cotton, flax , Silk and wool
- Man-made Fibers
  - Rayon, acetate, triacetate
  - Polyamides (nylon 6 and nylon 6,6), polyester, acrylic and mod-acrylic, olefins (PE and PP) and elastomericfibres
- Glass, metallic fibres, carbon fibres

**Unit II: Yarn Count and Properties**

**14**

- Yarn Construction
  - Cotton System
  - Wool System
  - Worsted System
  - Other Methods
- Yarn Numbering System
- Difference between Threads & Yarns
- Types of Complex Yarns
- Textured Yarns : Types & properties
- Blends : Stages & Purpose of blending

**Unit III: Techniques of fabric construction**

**12**

- Weaving
  - Yarn and their preparation for weaving
  - Parts of a loom
  - Operations and motions of the loom
  - Types of looms on the basis of shedding and picking systems: basic loom, Dobby and Jacquard loom, shuttle less loom

-Classification of weaves	
-Properties and fabrics in common use	
• Knitting	6
-Classification of knits	
-Knitting machines, knitting needles	
-Construction and properties of warp and weft knits	
• Non-woven and felts	6
-Types	
-Construction	
-Properties and usage	
• Other methods of fabric construction	3
- Braiding	
- Knotting	
- Laces	
- Nets	

### Recommended Readings:

1. Corbman, P.B., (1985) Textiles- Fiber to Fabric (6<sup>th</sup> Edition), Gregg Division/McGraw Hill Book Co., US.
2. Joseph, M.L., (1988) Essentials of Textiles (6<sup>th</sup> Edition), Holt, Rinehart and Winston Inc., Florida.
3. Sekhri S., (2011) Textbook of Fabric Science: Fundamentals to Finishing, PHI Learning, Delhi
4. Vilensky G., (1983) Textile Science, CBS Publishers and Distributors, Delhi.

### PRACTICAL

Marks: 50

Teaching Periods: 4 / week

Content	Practical
1. Fiber Identification	2
2. Yarn properties- Identification, Count	2
3. Thread count and balance	2
4. Dimensional stability	1
5. Weaves- Identification and their design interpretation on graph	5
6. Fabric analysis	2
- Weave	
- Fibre	
- Yarn	
- GSM	