

## 2.2 31202 TEXTILE SCIENCE

### UNIT-1 OBJECTIVES

- 1.1 Objectives to gain knowledge about Textile fibers and their uses.
- 1.2 To develop an understanding about various kinds of fabrics, their structure and the utility.
- 1.3 To impart knowledge about Textile dyeing and printing.
- 1.4 To develop skill in understanding textiles available in the market.

### UNIT-2

- 2.1 Introduction to Textiles and classification of fibers according to source
- 2.2 Natural and Manmade.
- 2.3 Identification and properties of Textile fibers- Cotton, Silk, Wool, Linen, and Rayon (regenerated), Acetate, Polyester, Nylon and Acrylic.

### UNIT-3

- 3.1 Process of yarn formation – hand spinning, mechanical – ring spinning and modern- open end spinning.
- 3.2 Yarn classification – blended and union fiber, simple and novelty yarns, characteristics, properties and uses of different yarn.

### UNIT-4

- 4.1 Method of fabric construction: Weaving-.Basic weaves- plain, satin, twill and their variations.
- 4.2 Fancy weaves- pile, dobby, jacquard, extra warp and weft figure, leno, crepe and double cloth.
- 4.3 Other method of fabric construction- knitting, braiding, lace and felt. Non-woven fabrics and their applications.

### UNIT-5

- 5.1 Finishes- definition, importance to the consumer, classification according to durability and function. singeing, scouring, bleaching, mercerization calendaring, sizing, de-sizing, brushing, carbonizing, crabbing, fulling, heat setting, shearing, weighting, stenting, napping and emerizing.
- 5.2 Special Finishes and Treatments- water repellent and water proof finishes, antistatic finish, antislip finish, flame retardant finishes, crease resistant finishes, durable press and shrink resistant finishes.
- 5.3 Factory Finishing- checking for cloth defects, viewing, burling, darning, cropping, brushing and boiling.

### UNIT-6

- 6.1 Dyeing- Stages of dyeing- fiber stage, yarn dyeing, fabric, cross, union dyeing and product stage.
- 6.2 Method of dyeing- batch dyeing, reel dyeing, jig dyeing and package dyeing.
- 6.3 Printing- Direct roller printing, block printing, duplex printing, discharge printing, screen printing- flat and rotary, resist, batik and tie-dye.

6.4 Related Experience Study of fabric count using a pick glass. Identification of fibers- cotton, wool, silk, rayon, polyester, acrylic and blends through burning test.

6.5 Swatch folder- Collection of samples for fibers yarns, weaves and finishes.

**Reference Books:**

1. Fiber to fabric. B.T.Corbman, Mc.Graw Hill
2. From fiber to fabrics, E.gale, Allman & Sons Ltd.
3. Fiber Science and their selection. Wingate, Prentice hall
4. Encyclopedia of textiles. Editors of American fabric magazine.

