TEXTILE TECHNOLOGY SYLLABUS FOR RECRUITMENT OF LECTURERS IN POLYTECHNICS

- **Textile fibers:**

Classification of Textile fibers; Essential requirements of fiber forming polymers; Gross and fine structure of natural fibers; Production, properties and uses of commercial natural fibers; Methods of fiber and blend identification and blend analysis.

Molecular architecture , amorphous and crystalline phases, glass transition, plasticization, crystallization and melting; Process of viscose and acetate manufacture, polymerization of synthetic fibers; fiber extrusion methods; Post spinning operations such as drawing, heat setting and texturisation; Methods of investigating fiber structures; Structure and morphology of manmade fibers, mechanical properties of fiber, moisture sorption in fibers.

- **Yarn manufacture and Yarn structure**:

Ginning, opening and cleaning- principles and equipments; Carding ; Drawing-principle of roller drafting, irregularity; Combing; Roving; Ring spinning; recent developments in blow room, card, drafting, comber and ring spinning; Nonconventional spinning methods.

Yarn contraction, yarn diameter, specific volume and packing co-efficient; Twist strength relationship in spun yarns.

- **Fabric manufacture and fabric structure:**

Principles of Cheese and cone winding processes and machines; Yarn clearers and tensioners; Features of modern cone winding machines; Beam and sectional warping machines; Sizing process; Pirn winding; primary and secondary motions of loom; Dobby and jacquard shedding; Warp and weft stop motions, warp protection , weft replenishment; shuttle less weaving machine.

Principles of weft and warp knitting; basic weft and warp knitted structures; Production and properties of nonwoven fabrics; production and applications of technical textiles; Fabric defects and remedies; Basic woven fabric constructions and their derivatives.

- **Textile testing:**

Sampling techniques; Measurement of fiber properties; HVI and AFIS for fiber testing; Measurement of yarn properties; measurement of fabric properties; Sample size and sampling errors, statistical data analysis for experimental results, correlation analysis, significance tests, analysis of variance, frequency distributions and control charts.

- **Chemical processing:**

Preparatory process for dyeing, printing and finishing for woven and knitted fabrics and apparels, techniques and methods of dyeing, printing and finishing of woven ,knitted fabrics and apparels; Knowledge of dyes, chemicals and auxiliaries used in wet processing; Eco-friendly dyes and chemicals;

Energy conservation and pollution control in wet processing.

- **Apparel Manufacture:**

Fabric sourcing; Pattern making; Spreading; Cutting; Sewing; Fusing; Pressing; Packing; Marketing and merchandising; Industrial engineering; SQC in apparel production.

- **Textile Management:**

Material handling in textile mills; Safety in textile mills; PPC; Labor welfare and human relations; Entrepreneur development; EXIM Policy with special relevance to textiles; Role of AEPC,Textile committee, & BIS; Power loom and textile co-operatives in development of textiles.

- **Information Technology in Textiles:**

Basic computer applications and IT applications in Textile and Apparel industries.