Textile Technology

DIPLOMA STANDARD

UNIT I
General Study of Textile fibres - Desirable properties for an ideal textile fibre - classification of fibres - vegetable fibres - cotton, jute, flax - animal fibres - wool and silk - regenerated fibres - viscose rayon, polynosic rayon, acetate rayon - synthetic fibres - polyster, nylon, acrylic fibres - physical and chemical properties and uses of textile fibres - identification of textile fibres.

UNIT II
Yarn formation - ginning and mixing - modern opening and cleaning machiens in blowroom - scutchers and lap formers - chute feeding system - objects, principles and working of carding, drawing,combing, speed frame, ring spinning and doubling machines - salient features of modern high production cards , draw frames, speed frames, comber preparatory machines and combers, ring frames and doubling frames - yarn conditioning, reeling, bundling and baling - waste shinning and open end spinning calculations of speed, draft, hank, production and effieiency of machineries in spinning mill - maintenance of machineries in spinning mill.

UNIT III
Fabric formation: objects, principles and working of weaving preparatory machines - salient features of modern warp winding, weft winding, warping, sizing and drawing - in and denting mechines. sizing ingredients and preparation of recipe for cotton, synthetic and blends - primary motions, secondary motions and auxiliary motion in a plain loom - principles and working of Drop box, Jacquard and Terry motions - principles and working of modern automatic looms and shuttleless loom - calculations pertaining to speed, production and efficiency of machineries in a weaving mill -maintenance of machineries in a weaving mill.

UNIT IV
Fabric structure: Principles of design, draft and peg plan - plain weave and its derivatives twill weave - differnet types of twill weaves - satin and sateen weaves - crepe weaves - Mock-leno- Honey comb Huck - a - back weaves - Bedford cords and piques extra warp and extra weft weaves - terry piles - gauze and leno structures - double cloth, triple cloth and backed fabrics - construction, characteristics and end uses of the above fabric structures - quality particulars of various types of fabrics - fabric defects - causes and remedies.

UNIT V
Knitting and Non-wovens: Difference between weaving and knitting - classification of knitting machines - study of plain, rib and Interlock machines and their working - structure of plain, rib Interlock and purl. Difference between warp and weft knitting - study of warp knitting machines and their working-classification of Non-Wovens - production of Non woven fabrics - Mechnaical chemical and spun bonding methods-characteristics and end uses of knitted and non woven fabrics.

UNIT VI
Textile wet processing: Objects and working of desizing, scouring and bleaching machineries - chemicals used and their functions - dyeing - classification of dyes - direct, sulphur, acid, basic reactives, vat, disperse types - suitability and their applications on textile materials - dyeing machinaries used - printing - different styles and methods of printing - finishing - objects and methods of mercerising, saforising, calendering, stentening, stiffeaing, resin finishing, anticreasing finishing processes and machines employed.

UNIT VII
Textile Testing and Statistical quality Control:Humidity and its importance in textiles - measurements of humidity - Imporotance of testing of fibre length, fineness maturity, strength and trash content and study of Instrument employed.

Testing of yarns - yarn count determination - different systems of yarn numbering - Importance of yarn twist, strength, evenness in yarns and study of the instruments employed.

Testing of fabrics - Importance of measurement of fabric quality particulars strength, stiffness, handle, drape, thickness, crease resistance, abrasion resistance - pilling resistance, air and water permeability and study of instruments employed.

Statistical quality control - Importance of SQC - measures of dispersion - calculations in tests of significance - quality control charts and their applications in textile quality control.

UNIT VIII

Technology of Man Made Fibres:

Introduction to the production of Man made fibres - Detailed study of the manufacture of polyamides - polyesters and Acrylics - recently developed man made fibres - texturisation - objects, advantages of texturisation - different methods of texturisation - blending systems - objects and advantages of blending - methods of blending -modification of cotton systems to process staple fibres from blow room to spinning - processing filament and blended yarn in weaving preparatory sections and loom shed. Control of static electricity and torsion in man made fibre processing in spinning and weaving.

UNIT IX

Computer Applications in Textile Mills:

Main parts of a modern computer and its working - classification of computers - Hardware and software - basic structure of computers - memory devices - Input and output devices - High level and Low level language operating system - compilers, Interpreters - Computer Coding - flow charts.

Basic language - character set - writing simple programmes - using basic statements - control statements writing simple basic programmes for given formula - features and applications of word processing - characteristics and uses of spread sheets.

UNIT X

Textile Mill Management:

Plant location, lay out, material handling in spinning, weaving and composite textile mills - Importance of safety in textile mills and the equipments employed - application of works study in Mills - functions and application of production planning and control in Mills - Costing in Textile Industry - payment of wages and incentives in Mills.

Types of organisation in textile Mills - selection, recruitment, training of workers and supervisor in mills - labour welfare and human relations in Industry - settlement of disputes in textile mills - strikes, lock out and lay off.

Role of AEPC, HEPC,Textile committee, BIS, SISI, Textile Commissioner Office for the development of Textiles - new Textile policy.

Textile Marketing - Organisation for promotion of textile export and their functions - Importance of Pollution Control in Textile Industry - Measures to check air, water and noise pollution in Mills.