

Syllabus for Govt. Polytechnic (Diploma Sector)
Post:- Lecturer Textile design
Paper-I

1. **Introduction to Textile:** Definition of fibre, yarn & fabrics, classification of fibres, identification of fibres, natural fibres source, properties & end uses, grading of cotton & wool, staple & filament yarns, man made fibres properties & uses, relative humidity & its effect on fibres.
2. **Fabric manufacture-I:** Objects of warp & weft winding, defects caused during warp winding and weft winding, Objects of warping, precautions during warping, methods of creeling, methods of preparing warper's beam, sectional warping, defects in warping, their causes and remedies, Calculations involved for the preparation of warp beam, Objects of sizing, sizing ingredients and their functions, methods of sizing, Concept and Objectives of drafting and denting, Gaiting up of a warp-beams on the loom.
3. **Testing & Quality Control-I:** Textile testing – its aim & scope. Concept of quality control and its importance, sampling techniques, measurement of yarn number from large and small yarn, Yarn twist and its measurement, Test of colour fastness for washing, rubbing, dry cleaning, perspiration, light & chlorination, blend test by microscopic, chemical process.
4. **Fabric Design-I:** Basic elements of drawing & design, Principles of design, basic geometrical shapes, concept of space organization, 3-D effects in design, texture effects, Woven, knitted, non-woven, & other fabric structures, definition of ends & picks, design, repeat, draft, lifting, peg plan, types of draft & their uses, plain weave & its derivatives, twill weave & its derivatives, Characteristics and uses of satin and seteen weaves, Construction of bed ford cord and wadded bed ford, Backed fabrics, warp and weft backed fabric, Welts and piques, methods of embellishing pique fabrics their structure, Diamond weaves and their construction, honey comb, Brighton honey comb, huckaback and similar weaves, Mock leno weaves, Extra warp and weft, principles of figuring with extra warp and weft.
5. **Knitted Design:** Comparison between knitted and woven fabrics, Types of knitting needles, their knitting cycle, advantages and disadvantages, Weft Knitting, Types of stitches: Knit, tuck, float & their representation methods, Weft knit structures: Plain, Rib, Interlock and Purl, their characteristics, defect in weft knitting, cover factor/tightness factor, introduction to warp knitting, under lap and overlap, closed lap & open lap, tricot & Raschel knitting machine.
6. **Indian traditional Textile Design-I:** Indian embroidered textiles, & historical significance, w.r.t. construction techniques, styles, textures, colours & motifs e.g. Kashmere embroidery, Phulkari, Chickenkari, etc., woven textiles w.r.t. historical significance, styles, textures, colours & motifs e.g. shawls, brocade, Balachur, Jamdani, etc.
7. **Dyeing Technology-I:** Definition and history of Dyes and Dyeing, Classification of Dyes, Pretreatments: Singeing & shearing, desizing, scouring, bleaching, mercerization, water hardness & its removal, forms of dyeing: dope dyeing, fibre dyeing, package dyeing, hank dyeing, cheese/cone dyeing, piece dyeing/ fabric dyeing, rope form, open width dyeing, union dyeing.
8. **Printing Technology-I:** Introduction to printing and its Historical Background, Preparation of cloth for printing, Selection of thickeners and its properties, Essential constituents of printing paste, Preparation of printing Paste and its importance, Methods of printings, Styles of printing, After treatment of printed material.
9. **Textile Calculation:** direct & indirect yarn numbering systems, conversion system, twist factor, twist per unit length, yarn diameter calculation, calculation of speed from pulley & gear drive, calculation of related to blow room, card, draw frame, speed frame, comber & ring frame, calculation related to winding & warping, calculation related to size percentage, cloth take up & crimp, calculation related to loom, weight of warp & weft, fabric gsm, fabric cover, concept of cloth setting.

Syllabus for Govt. Polytechnic Diploma Sector
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Paper-II

1. **Textile Yarns:** Introduction to mixing & blending, Principles of blowroom, carding, drawing/ gill box, speed frame, ring frame & doubling, twist, types of packages in spinning & doubling, types of yarns, single, bulked yarn, core yarn, high tenacity yarn, tyre cord yarn, carpet yarn, fancy yarn etc.
2. **Fabric manufacture-II:** Introduction to looms & their objectives, their classifications, different parts of looms & their functions. Loom motions, Different type of sheds, their advantages and disadvantages, different picking systems, Beat up motions, loom timing, Take - up motion, warp protecting motion: loose reed & fast reed motions, warp stop motion, Dobby defects and their removal, different types of jacquards, double lift double cylinder jacquard, sequence of card arrangement for double cylinder jacquard, Working of inverted hook, cross-border, gauge and leno jacquards, Common defects of jacquards shedding, Card cutting machine, Principal of drop box motion, Elementary idea of modern weaving machines, Introduction to carpet weaving.
3. **Testing & Quality Control-II:** Common fabric defects, their analysis and remedial measures, Definition of Crimps and take-up, Fabric thickness and its measurement, Measurement of fabric stiffness. Drapemeter and its working, Crease recovery and its measurement, Pilling of fabric, its measurement, Testing of fabric strength, moisture relation & testing. Definition of moisture Regain, fabrics shrinkage and its measurements, Water absorbency properties of various fabrics, factors effecting flammability, measurement of flammability, Concepts of Serviceability, wear and abrasion, their measurement & analysis.
4. **Fabric Design-II:** Double Cloth: Construction of double and treble cloth, their beaming, drafting and pegging. Types of double structure, structure of gauze and leno fabrics, comparison of gauze with leno, Brocade and damask fabrics, principle of formation of pile construction, designing of plain warp pile fabrics, weaving of weft pile fabrics, Varieties of quilting fabrics, Lappet and swivel weaving, features and methods of designing lappet and swivel figures, Production of colour and weave effect. Jacquard harness & design calculation, construction of point paper design, prevention of long floats, insertion of ground weave, Methods of comparing jacquard designs, tapestry fabrics, varieties of tapestry fabrics.
5. **Garment Design:** Cutting: The planning, drawing, drafting, pattern making and reproduction of the maker, the spreading of the fabric to form a lay, the cutting of the fabric, Sewing: The properties of seams, darts seam types, sewing machine needles types, The use of components and trimmings: Labels and motifs, lining, interlinking, waddings, The principle of pressing, pressing Equipments And methods, Inspection systems and care labeling of apparel and textile/Eco- labels.
6. **Indian traditional Textile Design-II:** Printed & painted textiles and resist dyes textiles w.r.t. Historical Significance, Printing techniques, Styles, colours and dyes and motifs, centres of production, carpet & floor coverings.
7. **Dyeing Technology-II:** Basic concepts of acids, alkalis, oxidizing and reducing agents and optical brightening agents, Application of dyes on cellulosic materials: direct, reactive, azoic, sulphur, vat, application of dyes on wool/silk: basic, Acid, metal complex/chrome dyes, application of dyes on synthetics: basic /modified basic dyes on acrylic, disperse dyes on polyester, acid dyes on nylon, Equipments/machinery used in dyeing: Package dyeing machine, Hank Dyeing/Cone Dyeing, Winch dyeing, Jigger dyeing, beam dyeing, jet dyeing.
8. **Printing Technology-II:** Resist/reserved style of Printing: batik style, resist under, reactive dyes, printing under discharge style: coloured and white discharge paste, printing of white and coloured discharge with basic dyes, preparation of screens, various printing machines: roller, flat bed, rotary, duplex, Transfer printing: Sublimation Transfer Printing, melt & film release transfer printing, wet transfer printing.
9. **Textile Finishing:** objects of finishing and its importance, various types of finishes, calendaring & its applications, water proof & water repellent finishes, flame retardant & flame proof finishes, soil & stain release finish, antibacterial & moth proof finishes, crease/wrinkle resistant finishes, latest developments in finishing.