**Karnataka PGCET Syllabus for Textile Technology:**

**Textile Fibres:**

- Classification of Polymers-Application of Polymer-Study of Various methods of polymerization —Study of various types of initiators —Techniques of polymerization — Physical structure of polymers-Polymer reactions-Thermal analysis of polymers
- Study of different structures of textile fibres using various techniques-Study of different properties of various textiles fibres i.e., moisture relations, mechanical properties optical properties, electrical properties and thermal properties
- History on origin of textiles - Study of different textiles fibres-Basic requirements of textile fibres Geographic distribution-Cultivation and grading of cotton, wool, silk and jute fibres —Physical and chemical properties of important natural fibres
- Sequence of operations in conversion of important natural fibres into fabric
- Study of different man-made fibre spinning — Fundamentals of fluid flow in man —made fibre spinning-High speed melt spinning-Formation of fibre structure during various methods of man —made spinning-Production of micro denier and special shaped fibres
- Production and Properties of various regenerated fibres-Production of various raw materials for different synthetic fibres —Properties of different synthetic fibres-Effect of various parameters on various synthetic fibres-Study of semi-continuous and integrated continuous process for production of Nylons; Study of different high performance fibres
- Study of spin finish —heat setting and drawing of fibres
- Study of different methods of texturing and various parameters affecting texturising —Test methods of textured yarns
- Study of different yarn count systems conversion from one system to another system.

**Yarn Manufacture:**

**Ginning and Baling:**

**Blow room:**

- Objects and methods of mixing —Opening and cleaning- Blow room machinery cleaning efficiency —Lap regularity —Modern developments —Auto mixer and calculations pertaining to blow room
- Carding: Objects —Working —Speeds and Setting —Grinding and stripping —Silver quality —Modern developments in carding-Calculations related to carding —Fibre hooks at card — Opening lines required for processing of various blends, Drawing
- Objects and Principles —Roller drafting systems —Modern developments — Calculations pertaining to draw frame
- Combing: Hook formation in carding —Study of preparatory machines tocomber — Combing process-Setting —Modern —Combers —Calculations pertaining to comber
- SpeedFrame : Objects —working and drafting systems —Twist insertion —Mechanism of winding —Lift of bobbin-Bobbin building mechanism —Speeds and production calculations-Modern speed frames
- Ring Frame: Objects-Working and ring frame mechanisms-Yarns tension during spinning a yarn and package faults —modern developments- calculations pertaining toring frame
- Doubling: Objects — Dry doubling and wet doubling — Fancy yarns — Hosiery and seeing threads – Properties and enduses
- Open End Spinning: Principles of Break spinning — Comparison ofring and OE yarns – Recent developments in OE spinning — Different types of rotors and opening rollers
- Modern Yarn Production Methods: Twistless spinning — Self-twist spinning — Wrap spinning — Friction spinning and air-jet spinning — Comparison of the above methods for

their principles and yarn properties — end used and techno-economic feasibility — Siro, core, and cover spinning methods

**Fabric Manufacture Winding:**

- Objects — Derivation of speeds — coil angles — Cone angle — Study of modernwinders Production Calculations Warping: Objects — Study of modern warping machines — Production calculations
- Sizing: Study of ingredients — Properties — Modern size cooking equipment — Modern sizing machine — Production calculations
- Looms: Study of Plaintappet loom — Automatic looms — Dropbox looms — Dobby and jacquard loom — Production calculations.

**Unconventional Weaving Machine:**

- Study of Gripper
- Rapier
- Air jet
- water jet machines

**Non Wovens:**

- Classification
- Web productions techniques
- Properties of Binders
- Geometry of Nonwoven structures Identification and testing of Nonwovens
- Study of thermal, spun bonding and spun lacing
- Knitting: Well Basic stitches Jersey
- Rid
- Purl
- Interlock
- Warp Basic Stitches
- Pillar
- Atlas
- Tricot
- Study of circularwell knitting machines
- Advantages of positive feed
- Study of warp knitting machines
- Tricot and Raschel.

**Chemical Processing Of Textiles Pre-process:**

- Preparatory processes to wet processing
- An overview of wet processing – Sequences of wet processing — Resizing — Methods of resizing — Singeing — Methods ofsingeing — }latching — Souring — Bleaching — Mercerizing
- Methods of purifying fibre yarn and Fabric made from other natural fibre like silk, wool, jute etc.
- Methods of deciding — Scouring and Bleaching of regenerated cellulose fibre
- Dyeing: Coloration — Theories of coloration / dyeing — Factors that affect Dyeing Mechanism ofdyeing — Mechanism used for dyeing — Classification of dyes — Dyeing of Natural fibres using direct, reactive, acid, metal complex, vat, sulphur, Ingrain dyes and other popular dyes using different methods — After treatments and testing o dyed materials — Yarn package dyeing — Dyeing of knitted fabrics — Dyeing of garments
- Printing: Design development for printing — Sources of inspection — the designer's tools and workspace — Different techniques for design generation and reproduction — Transfer

of designs on wooden blocks, Screen and Stencil — Scope of printing — Methods and principles of printing — Machinery used for Textileprinting — Passage of material through printing machines

**Finishing:**

- Objects of finishing
- Various methods of finishing
- Cotton, Silk, Wool, worsted fabric
- Chemicals formulation of different finishes
- Machiners used for finishing
- Specialty chemicals used for finishing
- Finishing, of Garments.

**Textile Testing Fibres:**

- Regain — Length — Fineness — Maturity — Strength — their determination — HVI and AFIS. Yarn: Yarn count — Twist — Strength — Hairiness — Uniformity — and their determination
- Fabrics: Fabric weight — Thickness — Cover — Tear — Abrasion — Drape — Crease — Colour
- fastness — their determination
- Fabric Handle — KESF and FAST

**Silk Technology Cocoons:**

- Sorting of cocoons, cocoon testing, storage of cocoons, stifling of cocoons, Drying of cocoons cooking of cocoons
- Methods employed — Characteristics of cocoons
- Reeling: Methods of Silk Reeling — Charkha — Cottage basins — Filatures — Semi — automatic Automatic types
- Raw Silk testing — Packing of raw silk — Utilization of by — products

**Silk Throwing:**

- Manufacture of yarns for use in ordinary, chiffon, crepe, georgette fabrics — Number of plies and different twist levels used
- Developments in Silk Throwing Industry

**Weaving Industry:**

- Warp and Weft preparation — Machinery employed in small scale and organized sections
- Silk Weaving — Handloom and Power bow Weaving — Special features of silk looms — modifications required on power loom to weave silk fabrics

**Spun Silk Industry:**

- Raw materials for Spun Silk Yarn Production
- Production of Spun yarn and their properties

**Processing Industry:**

- Degumming and drying of silk yarns
- Dyeing, Printing, and Finishing of silk fabrics.

**Fabric Structure:**

- Study of plain — Twill — Stain — Crepe — Mockleno and Towelling structures
- Backed cloths — Extra wrap and Extra Well cloths — Double cloth Terry weaves – Velvet — Velveteens — Gauge and Leno — Damask Brocade cloths.

**Fashion Design and Garment Technology:**

- Terms and Definitions used in Fashion and Garment Industries — Theart and Techniques of Body measurements and standard sizes and measurements prevalent in Garment industries
- Principles and Practices of Pattern making — Grading — Computer Aided pattern making and Grading — Cutting room operation — Laying — Cutting — Numbering — Bundling — Sewing operation — Classes of seams and stitches — Sewing threads — Defects is sewing
- Garment Finishing section — Buttoning — Labelling — Care labeling — Checking — Pressing — Folding — packing and packing standards
- Quality control ingarment Industry — Garments washing — dyeing and finishing
- Brand culture and Apparel brand names. Sourcing and Merchandising — Apparel Engineering and Production Control