

IV Year B.Tech. Textile Technology I - Semester	L	T	P	To	C
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### TT427 PRACTICAL ASPECTS OF TEXTILE AND APPAREL MANUFACTURING

#### **Course Description & Objectives:**

*It is very essential for any student to understand various practical aspects of the textile field. This course will be helpful to the students in terms of understanding various important techniques and calculations required.*

#### **Course Outcomes:**

*From this course students would be able to*

- 1. Understand labor requirement for different departments.*
- 2. Calculations for Spin Plan & Weaveplan*
- 3. Learn different practical aspects in textile industry.*

#### **UNIT I - Fiber Preparation For Spinning**

**Ginning** : Planning for Ginning plant, space calculations, Labor requirement, Inventory planning and Transportation planning to Spinning Mills

**Blow room** :Requirements for preparation of lot size of Cotton, Calculation of lot size from Bales, planning of the settings in Blow room machines, Calculation of Individual and Overall Cleaning efficiency of Blow room, Waste calculation , Assessment of Productivity , Planning of Blow room lines with respect to the lot size prepared

**Carding** : Calculation of Number of Cards , Setting of zones for Cotton, Blends and Synthetics, replacement analysis of spares of Card , Labor allotment , Productivity in Cards

#### **UNIT II - Spinning Preparatory & Spinning**

**Drawing** : Calculation of Number of Draw frame passages, Setting of zones for Cotton, Blends and Synthetics, replacement analysis of spares , Labor allotment , Productivity.

**Simplex**: Desired Roving Hank by Adjustment of machinery elements, arrangement of cans for feed, Productivity assessment, Labor allotment , replacement of spares.

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**Ring Frame:** Replacement of Cots, Aprons, Travellers, Spacers, planning for allotment of Ring frames with respect to count spun, Bonda waste assessment and control, Hank meter gain, adjustment of desired twist by changing twist change pinion.

**Post spinning and Modern spinning :** Calculation of space and labor, planning and inventory of spares, Waste estimation and planning for transport, estimation of water, air and electrical energy for all the spinning process.

### **UNIT III - Weaving Preparatory**

**Winding :** Labor and Drums allotment based on count, Machines allotment for feed stock, Productivity and Waste control , Planning of Inventory of spares

**Warping:** Optimum creel utilization, Number of Warper beams estimation and labor allotment, Planning for material transport, Planning of Inventory of Beams of different widths.

**Sizing:** Space estimation for Creel zone, Decision on Number of Sow box and Storage Becks to be used, Consumables and inventory planning of Sizing ingredients , beam press rollers, Dry splitting rollers, chain drives etc.,

**Post Sizing operations:** Planning of Inventory for Heald wires, Reeds, Drop wires, Weavers beams, accessories of drawing and denting operations

### **UNIT IV - Weaving**

**Loom Shed:** Space planning and looms accommodation, Labor allotment , Planning for replacement of spares and Inventory planning and ABC analysis, calculation of water for weaving process , RH calculations , Elimination of wastes in weaving

**Grey ware house:** Space calculation, planning of labor, planning of transportation of cloth roll beams to wet processing area, spares planning and C class items.

**Wet Processing:** Calculation of labor for all the operations, Planning for spares and Inventory planning, Space planning, Water requirement and planning for wet processing house, estimation of Effluent for a dye and wet pro.

### **UNIT V - Apparel Manufacture**

**Inspection :** Man power allocation for Grey fabric checking- 100% checking, Random checking.

**Marker making-** considerations, constraints for check and stripes- marker

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utilization Vs human factors- estimation of time for 1.5, 3, 6 and 12 meters marker plan.

**Cutting** : Man power allocation for cutting table for a given order quantity- cut plan- critical issues in cutting- improvement of productivity

**Sewing** :Capacity planning for sewing department- skill matrix development – problems with WIP- machinery planning for given order- man power allocation for sewing line -men to machine ratio- material handling- spare parts management- work aid for critical operations- productivity enhancement- line balancing.

**Finishing**: Plan for finishing department- man power allocation for thread sucking- trimming- checking- ironing- folding- poly bag- cartooning- problems in trimming and ironing

#### TEXT BOOKS

1. Process and Quality control in Textiles – ATIRA, 1998
2. “Quality Control in Spinning” – SITRA Publication

#### REFERENCE BOOKS:

1. Sewn product Analysis : Ruth glock, 4 th Edition Printice Hall ,New Jersy,2004
  2. V. A. Shenai, “Evaluation of Textile Chemicals”, Sevak Publications, 1980.
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