

16TF202 YARN MANUFACTURING

Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P	WA/RA	SSH/HSB	CS	SA	S	BS
45	-	-	10	20	-	-	-	10



Course Description and Objectives:

This course deals with the concepts, production calculations, different types of available machines and various developments in yarn manufacturing process. This course is aimed to impart fundamental knowledge required to understand yarn manufacturing process.

Course Outcomes:

The student will be able to:

- select the different fiber properties required for spinning different counts.
- understand different types of yarn manufacturing machines and their principles.
- calculate production capacities of carding, comber and ring frame.

SKILLS:

- ✓ *Optimize the factors affecting yarn properties.*
- ✓ *Identify the various key factors in yarn manufacturing process.*
- ✓ *Set the parameters for the production of cotton, synthetic and blended yarns.*
- ✓ *Differentiate the carded, combed and core cover yarns.*

ACTIVITIES:

- *Collect technical specifications of yarn preparatory machines.*
- *Prepare spin plan for carded and combed yarns for a given count.*
- *Prepare flow chart for carded and combed yarn manufacturing process.*
- *Observe spinning parameters by visiting a spinning mill.*

UNIT - 1**L-10**

GINNING AND BLOW ROOM : Ginning Objectives, pre and post ginning equipments and working principles of Gins, Factors affecting ginning performance, brief note on Pressing and baling of cotton. Need for Mixing and Blending, objectives, Fibres commonly blended (Different types of Blends) Introduction to Opening and Cleaning: Working principle of a typical blow room, Accessories in blow room.

UNIT - 2**L-9**

CARDING AND DRAW FRAME : Chute feeding, Introduction to Carding - Objectives, Zones, Role of each element, Card settings, High production cards, Latest Developments in carding; Draw Frame - Objects, basic concepts of drawing, Principle of Roller drafting, Different drafting systems, Methods of roller weighing, Coiler mechanism, Study of Modern Draw frame, Auto levelling in carding & Draw frame (open loop and closed loop) Production calculations.

UNIT - 3**L-8**

COMBER : Introduction to combing, Hooks theory, Combing preparatory requirements, passage of material through comber, Functions and setting of each part, Combing principle, cycle of combing Back ward and Forward combing, Working of modern combers, Production calculations, Combing efficiency.

UNIT - 4**L-9**

SPEED FRAME : Objects, Need of speed frame, Detailed study of mechanisms (Drafting, Twisting and bobbin building) of speed frame, Constructional details, Driving arrangement, Calculation of draft, Twist & production, Recent Developments.

UNIT - 5**L-9**

RING FRAME : Objects, Passage of material, Functions of parts, Specifications of R/F, Drafting, Twisting & winding, Brief study of spindles, Ring & travellers, Calculation of draft, Twist & production. Ring data/ ISM(Individual spindle Monitoring), Post spinning operations, Ring doubler, Two for one twister, Brief note on reeling.

TEXT BOOKS:

1. W. Klein, "Series of Short Staple Spinning", Wood head publishers, 2005.
2. T. K. Pattabhiraman, "Essential Facts of Practical Cotton Spinning", Mahajan Publisher, Ahmedabad, 2005.

REFERENCE BOOKS:

1. Venkatsubramani, "Spun Yam Technology, Vol-III", SSM Institute Publications. Komarapalyam, 2003.
2. T.V.Ananthan, "Tablets on Combing, Speed Frame, Ring Frame", TAI Publications, 2003.
3. A. R. Khare. "Elements of Combing", Mahajan Book Publishers, Ahmedabad, 2003.