

PCTX4204 Yarn Manufacture –II

Module-I

(10 hours)

1. SPEED FRAME:

Principles and objects of Speed Frame.
Study of flow of material and different parts
Study of various parts of drafting system, roller weighting and setting, distribution of
Principle of twisting, parts and function of flyer, development of a flyer.
Principle of Winding, Flyer leading and bobbin leading systems
Principles of differential mechanism in a Simplex.
Function and description of building mechanism, cone drum arrangements.
Features of a modern Simplex Frame, recent developments.
Defects and remedies in Simplex process.
Lubrication and maintenance schedule for Speed Frame.
Calculations pertaining to speed, production, draft and twist, coils/inch, etc.

Module-II

(20 hours)

2. RING FRAME:

Objects and principles of Ring Spinning Machines.
Constructional features and identification of different parts.
Study of creel, Principles of drafting systems on Ring Frames, High drafting and Super High Drafting System, Weighting System on Ring Frame. Twisting and winding operation.
Study of Rings, Travellers, Spindles for their designs and efficient working.
Study of building mechanism. Factors affecting yarn tension and its control in spinning. Methods of driving ring frame, variable and dual motor drive.
Study of special attachment such as Automatic doffing and pneumatic waster extraction.
Study of common defects in ring spun yarn and their methods of analysing yarn defects due to roller vibrations, roller slip and roller eccentricity.
Modifications to be effected while spinning polyester, viscose and blends on Ring Frame.
Calculation regarding speed, production and efficiency in Ring Frame, Study of twist factor for single yarn and twist, strength and count relationship.
General idea about Lubrication and maintenance of High Speed Ring Frame.

Module – III

(15 hours)

3. DOUBLING:

Principles and objects of doubling, wet and dry doubling, different methods of threading, detailed study of creels, building motions, rings, travellers and spindles on doublers. Concept of balanced twist in doubled yarn, direction of twist in doubled yarn and its relation to single yarn. TFO- Principle, technique, Fancy doublers, different systems of fancy yarn production.

4. REELING:

Brief study of machines used for reeling, straight and cross reeling, advantages and disadvantages, doffing systems, Calculation.

5. NEW SPINNING SYSTEM:

- Open end spinning systems: principle of rotors spinning system, constructional features and different parts rotor spinning m/c. Economics and quality of rotor spun yarn.
- Principle of Friction Spinning, Features of DREF – I, DREF-II and DREF-III spinning system.
- Airjet Spinning: Principle,
- Comparison of the properties among Rotor, DREF, Air jet and Ring spun yarn.

Text Books:

1. A Practical Guide to Ring Spinning, W.Klien
2. A Practical guide to Combing and Drawing. W.Klien

Reference Books:

1. Manual of Cortton Spinning (Vol-IV) Part-I & II, The Textile Institute, Manchester
2. Manual of Cortton Spinning (Vol-V), The Textile Institute, Manchester
3. Open End Spinning, O. Neil
4. New Spinning System, W.Klein
- 5..Spun Yarn Technology, Oxtoby
6. TFO- Technology & Techiques, HVS Murty