

Course Objectives

- To attain knowledge in formation of texurised yarn and their properties.
- To understand the process sequences for formation of yarn from man-made staple fibres.
- To attain knowledge about formation of different types of fancy yarns .
- To gain knowledge on the formation of core spun yarn.
- To learn the principle and mechanism of non-conventional spinning system.

Course Outcomes

After successful completion of this course, the students will be able to:

- Describe the characteristics of raw materials and techniques and parameters required for formation of textured yarn.
- Express the properties of textured yarn .
- Outline the process sequences for formation of yarn from man-made staple fibres.
- Classify the fancy yarns and illustrate the method of their production.
- Demonstrate the methods of formation of core yarn,
- Describe the working principle of different new spinning technology for formation of yarn and application of those yarns.

Course Contents:

Module – I (12 Hours)

TEXTURED YARN TECHNOLOGY:

False Twist Texturising Techniques - Principle of False twist texturising machines - Single heater and double heater -. Twisting elements – Factors influencing Twist - Properties of Textured yarn - Effect of feed material and process variables.

Basics of air jet texturing – types of yarns produced – process variables -over feed, air pressure temperature and water content. Nozzles, evaluation of textured yarn – Measurement of shrinkage force - Crimp contraction and dye uniformity - Texturamat - M.Dynafil tester.

Module – II (10 Hours)

SPINNING OF MAN-MADE STAPLE FIBRES :

Study of the spinning of man- made staple fibres – material preparation, processing guidelines, problems, settings, modifications required on cotton and worsted spinning system, steaming and stabilization of yarns. Spinning of dyed fibres, Spinning of micro fibres.

Conversion of filament to spun yarn - Principles of stretch breaking and cutting tow to sliver and yarn converter. Formation bulked Acrylic yarn.

Module-III (08 Hours)

Production of Fancy yarn – Classification of fancy yarn. Methods of producing slub yarn- Drawn-and-spun yarn, Methods of producing Knop yarn, Snarl yarn, Loop yarn, Spiral yarn etc. Methods of producing mélange yarn. Method of producing milange yarn, Chennile yarn.

Module-IV (10 Hours)

Principle and mechanism of formation of core-spun yarn on various spinning system

Principle and mechanism of yarn formation by the following non-conventional spinning system:

- Self-twisted yarn- concept of Repco spinning ,
- Twist less yarn- concept of Twilo and Bobtex process,
- Wrap-spun yarn- concept of wrap spinning
- Concept of electrostatic spinning.

Structure, properties and end uses of these yarns,

Books Recommended:

1. Spun Yarn Technology – ERIC OXTOBY
2. Textile Yarn- Goswami., Martindle, Scardino
3. New Spinning Technology,W. Klien ,
4. Spinning of Manmades and blends on cotton system -Salhotra K R, 2nd Ed; The textile Association, India (1989).
5. Fundamentals of Spun Yarn Technology- Lawrence C A, 1st Ed; CRC Press LLC, Florida, USA (2003)
6. Advance in Technology of yarn Production -Chattopadhyay R, 1st Ed; Nodal Centre for Upgradation of Textile Education, IIT, Delhi (2002).