

Yarn Manufacture - II - Web course

COURSE OUTLINE

Aim & Objectives of combing. Preparation of fibre assembly for Combing. Fibre fractionation and combing. Sequence of operations in a rectilinear comber. Comber machine elements and modern developments.

Theory of fibre fractionation. Quality aspects in combing. Objectives of roving operation.

Machine elements of speed frames. Flyer twisting; types and design aspects of flyers. Drafting systems in speed frames. Package building in speed frames. New development and automation in speed frames. Quality aspects in speed frame. Processing of synthetic fibres and their blends.

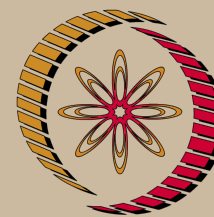
Aim and Objectives of ring spinning. Machine elements of ring frames. Principles of ring twisting; design aspects of spindles, rings and travelers. Drafting and package building. New developments and automation in ring frames.

Quality aspects in ring spinning. Processing of synthetic fibres and their blends. Principle of doubling and twisting of yarns. Methods of doubling: Ring, Two-For-One and Three-For-One twisting. Quality aspects in doubling and twisting.

Introduction to new spinning systems. Principle of open end spinning. Rotor, air-jet, friction, vortex and electrostatic spinning systems. Comparison of yarn structures.

COURSE DETAIL

S.No	Module	Topics	No. of Lectures
1	Combing (8)	Introduction to combing	1
		Factors affecting combing	1
		Preparation for combing	1
		Combing operation	1
		Sliver formation	1
		Automation in combing	1
		Theory of noil extraction	1
		Process control in combing	1



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Textile Engineering

Pre-requisites:

1. High school mathematics and physics.
2. Introduction to textiles and fibres.
3. Yarn Manufacture - I.

Additional Reading:

1. Handbook of Yarn Production: Technology, science and Economics by Peter Reeves Lord, Woodhead Publishing Ltd, Published in association with the Textile Institute, UK.
2. Short Staple Yarn Manufacturing by Dan J. McCreight, Ralph W. Feil, James H. Booterbaugh, Everett E. Backe, Carolina Academic Press.
3. Spinning: Drawing, Combing and Roving - NCUTE Publication by R. Ravi Chattopadhyay and R. S. Rengasamy.

2	Roving (6)	Introduction to roving operation	1
		Operating regions of roving frame	1
		Builder mechanism	2
		Quality aspects in roving operation	1
		Developments in roving frames	1
3	Ring spinning (12)	Introduction to ring spinning	1
		Ring frame machine parts.	2
		Drive system	1
		Ring and traveller	1
		Accessories	1
		Automation & latest developments	2
		Compact spinning	1
		Yarn tension in ring spinning	1
		Spinning balloons	1
		Forces acting on the traveller	1
4	Ring spun yarns (4)	Structure of ring frame yarn packages	1
		Yarn twist	1
		Yarn structure	1
		Process control in ring spinning	1
5	New Spinning systems (8)	Introduction to new spinning systems.	1

4. Ring Spinning, Doubling and Twisting -NCUTE Publication by K.R. Salhotra, R. Ravi Chattopadhyay and R. Alagirusamy

5. Fancy Yarns: Manufacture and Applications By Gong, R. H. , Graham, Ron M. , Wright, R. M., CRC Press

6. Spun Yarn Technology, Eric Oxtoby, Butterworths, London.

7. Yarn Production: Theoretical aspects, P Grossberg & C lype, The Textile Institute International, Manchester.

Coordinators:

Prof. R. Alagirusamy
Department of Textile Technology IIT Delhi

		Open end spinning.	1
		Rotor spinning	2
		Friction spinning	1
		Air Jet spinning	1
		Vortex spinning	1
		Other spinning systems	1
6	Yarn Doubling (4)	Introduction to yarn doubling	1
		Two-for-one twisters	1
		Plied yarn characteristics	1
		Fancy yarns	1
		Total	42

References:

1. W. Klein, The Technology of Short Staple Spinning, Manual of Textile Technology – Vol-1, by The Textile Institute, Manchester, UK.
2. W. Klein, Man-Made Fibres and Their Processing, Manual of Textile Technology – Vol-6, by The Textile Institute, Manchester, UK.
3. W. Klein, A Practical Guide to Combing and Drawing, Manual of Textile Technology – Vol-3, by The Textile Institute, Manchester, UK.
4. W. Klein, A Practical Guide to Ring Spinning, Manual of Textile Technology – Vol-1, by The Textile Institute, Manchester, UK.
5. W. Klein, New Spinning Systems, Manual of Textile Technology – Vol-1, by The Textile Institute, Manchester, UK.
6. Carl A. Lawrence “Fundamentals of Spun Yarn Technology” CRC Press.