



SARVAJANIK UNIVERSITY
Sarvajnik College of Engineering and
Technology
Bachelor of Engineering



B.E.III Textile Technology: Semester –V

Subject Name: Fundamentals of Yarn Manufacturing

Subject Code: BTTT15501

Type of course: Open Elective Course I

Prerequisite (if any): Zeal to learn the subject

List of Courses where this course will be prerequisite:

Rationale:

Short staple spinning is highly applicable for majority of the situation. The opening, cleaning, parallelization and reduction in diameter of material are important process to produce different count range from different variety of cotton fibre. There are two types of cotton spinning processes namely carded and combed within short staple spinning. Both have particular end use and application domain.

Thus Fundamentals of Yarn Manufacturing covers the basics of, Lap, sliver, Roving & yarn formation processes of Ring yarn & formation of Rotor yarn.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	-	2	4	60	25	15	30	20	150

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests CA2: Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

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BSC: basic science course /ESC: Engineering Science Course /HSM: Humanities and management /PCC: Professional Core course /PEC: professional Elective course /OEC: Open Elective course/ MD: mandatory non-credit course



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Content:

Sr. No.	Content	Total Hrs
1.	Over view of Textile Industry : Sectors of textile industry viz, organized mill sector, decentralized small-scale sector. Sectors based on technology: Handloom, Power loom, Garment, Cotton, Silk, Wool, Jute and Synthetic Fibers.	1
2.	Fibres: Classification of textile fibres according to their nature and origin, b) essential and desirable properties of textile fibres, c) staple fibre and continuous filaments	2
3.	Textile Basic Concepts : Basic terminology of textile terms, Form of feed and delivered material in process of spinning and weaving .	2
4.	Ginning process : Outline of Ginning process Object of ginning, working of knife Roller Gin	2
5.	Spinning Process : Outline of spinning process, Objectives of blow room process and brief study of conventional blow room & study of important parts. [Passage of material through Hopper bale opener, Step cleaner and scutcher m/c.], Objects and passage of material through carding m/c study of important parts, Objects and passage of material through drawing frame m/c study of important parts ,Objects and passage of material through speed frame m/c study of important parts.[Can fed Inter] Objects and passage of material through ring frame m/c study of important parts Objects and passage of material through comber m/c along with important parts also comber preparatory processes.	26
7	Doubling : concept of doubling & fancy yarns	2
8.	Open end spinning : Concept of Rotor Yarn	2
9.	Manmade spinning: Basic idea of man-made spinning & texturing process	6



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10.	Yarn count : Yarn numbering (Count) system Direct and indirect system, English and metric system, Tex and denier system.	2
		45

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	10	20	5	5	10

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom’s Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Sr no	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	Manual of cotton spinning, Volume I, II, & III opening & cleaning- Butterworth	Buckley J.T.	The Textile Institute, Butterworth- Manchester :	1965	1 st

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2	Spun yarn technology, volume I & II,	A.Ventasubramani	Saravana Publications:Madurai	1998	I st
3	Fundamentals of Spun Yarn Technology	Carl A. Lawrence	CRC Press publication, New York 1-56676-821-7	2002.	
4	Spun Yarn Technology	Eric Oxtoby	London ; Boston : Butterworths	1987	

Course Outcomes: After learning the course the students should be able to

Sr. No.	CO statement	Marks % weightage
CO-1	Acquire knowledge of Textile Industry & different terminologies	5
CO-2	Understand & describe different processes of short staple spinning.	50
CO-3	Understand concept of rotor spinning	10
CO-4	Understand processes of manmade spinning	10
CO-5	Understand concept of texturising process	10
CO-6	Acquire knowledge of different Direct & Indirect systems of yarn count	10
CO-7	Select the number of cleaning points of Blow room for processing of different varieties of materials.	5

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List of Open learning website: <https://nptel.ac.in>, world wide web, Google search Engine etc.

List of Open Source Software: -

FOR LAB SESSIONS:

List of Experiments:

1. Lay out of spinning Lab
2. Study of various methods of transferring motion from one shaft to another shaft.
3. Lay out of Blow room line and different Bypass arrangement.
4. To study Passage of material through Blow room.
5. Study of different parts of Blow-room
6. Study of passage of material through Carding Machine.
7. Study of different parts of Carding Machine.
8. To study passage of material through draw frame.
9. To study drive to different parts of draw frame.
10. To study the passage of material through speed frame.
11. To study basics, working principles and process parameters of combing preparatory.
12. To study the passage of material through Comber.
13. To study passage of material through Ring frame.
14. To study drive to different parts of Ring frame
15. To study passage of material through Doubling frame.
16. .To study passage of material through Rotor.

Major Equipment Needed: Blow-room, Card, Draw frame, Lap former, Comber, Speed frame, Ring frame, Doubler.

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