



SARVAJANIK UNIVERSITY
Sarvajani College of Engineering and
Technology
Bachelor of Engineering



B E III Textile Technology: Semester – V

Subject Name: Man- Made Fibre Technology

Subject Code: BTTT15502

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: (should also include Description of the relevance of this course in the Program) Man made fibre technology covers the basics of different man made yarn formation techniques for specialty yarns and post spinning operations like texturing and twisting processes.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	0	0	60	25	15			100

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	Outline of processes to produce man-made fibers	1
2	Basic principles of fluid flow during fibre spinning: introduction, shear flow, elongational flow, molecular theories of fluid flow, Spinnability & flow instabilities	4
3	Manufacture of polyester fibres: Polymerisation process, Fundamental principles and types of melt spinning process, the melt spinning line, melt spinning variables & conditions for continuous spinning, special features of high speed spinning, the role of some critical parameters & their variation along the spinline, structure formation during spinning, Integrated Spin-draw process	15
4	Manufacture of polyamide fibres	6
5	Man-made staple fiber production: Tow, Tow to sliver stretch-breaking, Turbo Stapler, Tow-to-sliver cutting methods: The Pacific Converter, Tow-to-yarn spinning	8
6	Spin finishes for manufactured fibres: introduction, properties of spin finish, role of spin finish, spin finish components, spin finish application techniques, spin finish for staple fibre production & processing, spin finish for filament yarns	5
7	Drawing & heat-setting of melt-spun fibres	1
8	Definition and concept of texturizing, classification and characteristics of textured yarns	3
9	Filament Twisting Technology	2
		45

Suggested Specification table with Marks (Theory):

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Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	25	10	5	5	0

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.

Reference Books:

Sr no	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1.	Manufactured Fibre Technology	V.B.Gupta & V.K.Kothari	Springer ISBN 978-94-010-6473-6	1997	
2.	Advances in filament yarn spinning of textiles and polymers	Dong Zhang	Woodhead Publishing Limited in association with The Textile Institute ISBN 978-0-85709-499-5	2014	

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3	Yarn texturing technology	J W S Hearle, L Hollick and D K Wilson	Woodhead Publishing Limited in association with The Textile Institute ISBN 1 85573 575 X	2001	
4.	Handbook of yarn production Technology, science and economics	Peter R. Lord	Woodhead Publishing Limited in association with The Textile Institute ISBN 1 85573 696 9	2000	
5	Polyesters and polyamides	B. L. Deopura, R. Alagirusamy, M. Joshi and B. Gupta	Woodhead Publishing Limited in association with The Textile Institute	2008	
6	False twist textured yarns	C. Atkinson	The Textile Institute and Woodhead Publishing	2012	

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			ISBN 978-1-84569-933-8		
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Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Set critical parameters in melt spinning line	40
CO-2	Know different methods to produce man made Staple fibre	30
CO-3	Know the principle & characteristics of textured yarn	10
CO-4	Set the quality of filament twisted yarn.	10
CO-5	Identify right type of Spin finish to be applied	10

List of Open learning website: Any Search Engine, World Wide Web, Google Search Engine etc.

List of Open Source Software: NPTEL, Swayam portal etc.

FOR LAB SESSIONS:

List of Experiments:

- 1.To study flow diagram for the manufacture of polyester fibre by the DMT route.
2. To study flow diagram for the manufacture of polyester fibre by the PTA route.
3. To study an industrial melt-spinning unit: without godets, with godets.

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4. To study Chip Production.
5. To study the functional parts of a typical extruder.
6. To study Quench duct lubricating systems
7. To study schematic diagram of the Turbo Stapler
8. To study Cutting and Baling.
9. To study diagrammatic layout of the Pacific Converter.
10. To study passage of yarn through Air Jet Texturizing machine.
11. To study passage of yarn through False twist Texturizing machine.
12. To study yarn passage through Filament Two-For-One Twister.

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