



SARVAJANIK UNIVERSITY
Sarvajnik College of Engineering and
Technology
Bachelor of Engineering



B E II Textile Technology: Semester – IV

Subject Name: MANUFACTURED FIBRE TECHNOLOGY Subject Code: BTTT13403

Type of course: ~~BSC/ESC/HSM/PCC/PEC/OEC/MD~~: Professional Core Subject

Prerequisite (if any): Students should have basic knowledge of man made fibres.

List of Courses where this course will be prerequisite: Textile Materials

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	3	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

Content:

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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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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	2
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	10
4	Manufacture of polyamide fibres	4
5	Man-made staple fiber production: Tow, Tow to sliver stretch-breaking, Turbo Stapler, Tow-to-sliver cutting methods: The Pacific Converter, Courtaulds design Tow-to-Top 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	3
7	Drawing & heat-setting of melt-spun fibres	2
8	Definition and concept of texturizing, classification and characteristics of textured yarns	1
9	False Twist Texturising – Classification of yarns, Methods of production of stretched (single heater) and modified stretched (double heater) yarns by conventional methods.	7

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w.e.f. AY 2021-22



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	Draw Texturising concept, sequential and simultaneous draw texturizing, Study of simultaneous draw texturizing process. Yarn texturing machine design, Optimisation of process parameters in yarn texturing, Defects in draw textured yarns. Quality of draw textured yarns, technological developments in draw-texturizing technology. Double density machine and multiple input shaft machines Advantages of draw textured yarns over conventional false twist textured yarns.	
10	Air Jet Texturising – Classification of yarns, Principle of loops formation, Air-jet texturizing machine, air- jets, wetting systems, stabilizing devices, process variables in air texturizing, Quality of air textured yarns, blending of filaments in air texturizing.	3
11	Other methods of texturizing – Mechanisms and working of Edge crimping, Stuffer box crimping, Knit- de-knit, Gear Crimping, Chemical Texturising, BCF (Bulked Continuous Filament) plants: general process know-ho, main components of a BCF plant; technical data	3
12	Filament Twisting Technology	1

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
25	45	20	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:

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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	
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,	Peter R. Lord	Woodhead Publishing Limited in association	2000	

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	science and economics		with The Textile Institute ISBN 1 85573 696 9		
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 ISBN 978-1-84569-933-8	2012	

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Set critical parameters in melt spinning line	30
CO-2	Know different methods to produce man made Staple fibre	15

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CO-3	Set control parameters of various texturizing methods	35
CO-4	Set the quality of filament twisted yarn.	10
CO-5	Identify right type of Spin finish to be applied	10

Mapping with POs:

	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12	P S 1	P S 2	P S 3
CO-1	3	3	0	3	3	1	1	1	1	2	3	3	3	3	3
CO-2	2	3	0	3	1	1	1	1	2	1	3	1	3	3	3
CO-3	3	3	2	3	2	1	1	1	2	1	3	1	3	3	3
CO-4	3	3	2	3	2	1	1	1	3	1	3	1	3	3	3
CO-5	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3
Rationale*															

Rationale*: Explaining why it is matching this particular program outcome

List of Open learning website:

List of Open Source Software:

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