



SARVAJANIK UNIVERSITY
Sarvajnik College of Engineering and
Technology
Bachelor of Engineering



B E III Textile Technology: Semester – VI

Subject Name: Textile Testing

Subject Code: BTTT13601

Type of course: Professional Core Course

Prerequisite (if any): Basic Knowledge of Physics, Mathematics of 10+2 level, basic Statistics & Textiles.

List of Courses where this course will be prerequisite

Rationale: Assessment of performance characteristics of textiles determines its quality. Physical Testing involves testing & analysis of various properties of fibres, yarns and fabric.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
4	0	2	5	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

w.e.f. AY 2022-23



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Content:

Sr. No.	Content	Total Hrs
1	Introduction: Aim and scope of testing, Selection of sample, type of sample, Sampling techniques for fibre, yarn and fabrics, Elements of statistics.	4
2	Moisture Relation and Testing: Terms and definitions, relation between r.h. and regain of textile materials. Measurement moisture regain & content - Principle and operation of equipment.	4
3	Testing of Fibres: Measurement of fibre length, fineness, maturity, crimp, strength and elongation, neps, trash content and grading of different cotton.	10
4	Testing of Yarn: Yarn numbering and conversion system, measurement of yarn count, twist, hairiness.	8
5	Strength testing of fibre, yarn and fabrics: Terms and definitions, Stress-Strain Curve, Principles involved in various tensile testing machines, factors affecting the results of tensile testing of textiles; principles and operation of tensile, tearing and bursting strength testers.	15
6	Evenness testing of silvers, rovings and yarns: Analysis of periodic variations in mass per unit length. Uster classimat. Spectrogram and V-L curve analysis	3
7	Fabric dimensions: Measurement of thickness, weight, crimp, shrinkage.	4
8	Air, water and water-vapour transmission through fabrics: Measurement of air permeability, wettability, shower-proofness, water-proofness and flame-resistance	4
9	Fabric handle, bending and draping properties: Measurement of Fabric Handle and drape, creasing and crease recovery and Stiffness, terminology, quantities and units.	4
10	Serviceability, wear and abrasion: Definitions, methods for measuring abrasion resistance, pilling and evaluation of results.	4

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Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	05	05	05	05

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.	Principles of Textile Testing	J. E. Booth	Cbs, ISBN No: 8123905157	1996	3rd
2	Physical Testing of Textiles	B. P. Saville	Woodhead Publishing Ltd., U.K.; ISBN No: 9781855733671	1999	1st
3	Progress in Textiles: Science &	Edited by V. K. Kothari	IAFL Publications,	1999	

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	Technology Vol 1 Testing & Quality Management		New Delhi. ISBN: 978- 8190103305		
4	Handbook of Textile Testing and Quality Control	E. B. Grover and D. S. Hamby	John Wiley & Sons Inc. ISBN: 978- 0470329016	1960	
5	Textile Testing	Anagappan, P., Gopalakrish nan R.	SSM Institute of textile technology.	1997	

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Describe the objects and scope of textile testing and prepare the samples to be required for different testing methods.	10
CO-2	Measure moisture content and regain of different textile materials.	10
CO-3	Test the fibres for different properties.	30
CO-4	Test the yarns for different properties.	20
CO-5	Test the fabrics for different properties.	30

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Mapping with POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO-1	2	3	2	3	2	1	2	1	1	1	1	1	3	3	3
CO-2	2	3	2	3	2	1	3	1	1	2	1	1	3	3	3
CO-3	2	3	2	3	2	1	3	1	1	1	1	1	3	3	3
CO-4	2	3	2	3	2	1	3	1	1	2	1	1	3	3	3
CO-5	3	3	2	3	2	1	3	1	1	1	2	2	3	3	3
Rational e*	2	3	2	3	2	1	3	1	1	1	1	1	3	3	3

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

The knowledge of basic structure, physical & chemical properties and application of various natural, synthetic and high performance textile fibres leads to the achievement of the various PO.

List of Open learning website: <https://nptel.ac.in>, World Wide Web, Google Search Engine etc.

FOR LAB SESSIONS:

List of Experiments:

1. Sampling of kapas by IS Method for determination of Fibre length, Ginning% & Lint Index.
2. Fibre Sampling Methods & Preparation of handmade sliver.
3. Determination of Moisture Properties.
4. Determination of Fibre Length.
5. Determination of Fibre Fineness.

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6. Determination of Trash Content in cotton.
7. Determination of Fibre Bundle Strength.
8. Determination of Yarn Count.
9. Measurement of Twist in yarn.
10. Determination of Evenness of Sliver and Roving using Evenness Tester.
11. Determination of Yarn Unevenness by Visual Examination.
12. Determination of Hairiness of the spun yarns.
13. Determination of Lea Strength.
14. Determination of Threads per inch. of the given fabric.
15. Determination of Thickness of given fabric.
16. Determination of GSM of the given sample.
17. Determination of Crimp percentage of given fabric.
18. Determination of Flexural Rigidity and Bending Modulus of the given fabric.
19. Determination of Drape of the given fabric.
20. Determination of Crease Recovery Angle of the given fabric.
21. Determination of Pilling Resistance of the given fabric.
22. Determination of Abrasion Resistance of the given fabric.
23. Determination of Bursting Strength of the given fabric.
24. Determination of Tearing Strength of the given fabric.
25. Determination of Yarn & Fabric Strength using UTM.

Major Equipment Needed:

7. Weighing Balance
8. Chemical oven/ Moisture meter
9. Comb Sorer/ Digital Fibrograph
10. Fiber Fineness Tester
11. Trash Analyzer
12. Stelometer, Pressley Tester
13. Wrap Reel
14. Knowles balance/Beesley balance/Quadrant balance
15. Twist tester

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16. Evenness tester
17. Yarn hairiness tester
18. Lea strength tester/Ballistic strength tester/Tensile strength tester
19. Densimeter
20. Thickness guage
21. Quadrant balance
22. Crimp tester
23. Fabric stiffness tester
24. Drape meter
25. Crease recovery tester
26. Pilling tester
27. Abrasion tester
28. Tearing strength tester
29. Bursting strength tester

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