



**SARVAJANIK UNIVERSITY**  
**Sarvajnik College of Engineering and**  
**Technology**  
**Bachelor of Engineering**



**B E III Textile Technology: Semester – VI**

**Subject Name: Specialty Yarns & Fabrics**

**Subject Code: BTTT14603**

**Type of course: Professional Elective Course II**

**Prerequisite (if any):** Students should have knowledge of yarns and fabrics.

**List of Courses where this course will be prerequisite:**

**Rationale:** This course covers the formation of different types of specialty yarns and fabrics. With the developments in textiles, particularly, the performance textiles, the demands of different types of yarns and hence the fabrics made thereof have been increasing day by day. These are key elements in the manufacturing process of many types of textiles having variety of applications. So, this is considered to be the need of the day to cater the developing market.

**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

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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:**

<b>Sr. No.</b>	<b>Content</b>	<b>Total Hrs</b>
1	Introduction to compound yarns. Methods of production, applications and future trends in compound yarns.	4
2	Developments in hybrid yarns. Basic structures and properties of hybrid yarns. Methods of production, applications and future trends in hybrid yarns.	4
3	Developments in rope structures. New fibres and different types of ropes, their manufacturing technologies and uses.	4
4	Historical developments in fancy yarns. Methods of production, applications and future trends in compound yarns.	4
5	Introduction to 3D knitted structures. Methods of production and applications of different types of 3D knitted fabrics.	2
6	Introduction to leno fabrics. Methods of production, properties, applications and future trends in leno fabrics.	4
7	Developments in triaxial woven fabrics. Methods of production, properties, advantages, applications, aesthetics and future trends in triaxial woven fabrics.	4
8	Market background of pile carpets. Methods of production, applications and future trends in pile carpets.	4
9	Introduction to jacquard woven fabrics. Converting artwork to woven jacquard patterns. Relation between structures and properties of jacquard fabrics. Applications and future trends in jacquard fabrics.	4

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10	Developments in miscellaneous types of specialty fabrics – their production technologies and applications <ul style="list-style-type: none"><li>• Interwoven fabrics</li><li>• 3D nonwovens</li><li>• Flocked fabrics</li><li>• Knotted fabrics</li></ul>	<b>11</b>
		<b>45</b>

**Suggested Specification table with Marks (Theory):**

<b>Distribution of Theory Marks</b>					
<b>R Level</b>	<b>U Level</b>	<b>A Level</b>	<b>N Level</b>	<b>E Level</b>	<b>C Level</b>
10	20	15	5	5	5

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:**

<b>Sr no</b>	<b>Title of book /article</b>	<b>Author(s)</b>	<b>Publisher and details like ISBN</b>	<b>Year of publication</b>	<b>Publication Edition</b>
1.	Specialist yarn and fabric structures	R. H. Gong	Woodhead Publishing	2011	1

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			ISBN 978-1-84569-757-0 (print)  ISBN 978-0-85709-393-6 (online)  ISSN 2042-0803 Woodhead Publishing Series in Textiles (print)  ISSN 2042-0811 Woodhead Publishing Series in Textiles (online)		
2	Technical Textile Yarns	R. Alagirusamy and A. Das	Woodhead Publishing  ISBN  978-1-84569-549-1	2010	1

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3	Woven textile structure – Theory and applications	B. K. Behera and P. K. Hari	Woodhead Publishing eBook ISBN: 9781845697815 Hardcover ISBN: 9781845695149	2010	1
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**Course Outcomes:**

Sr. No.	CO statement	Marks % weightage
CO-1	Understand basics of specialty yarn formation methods.	20
CO-2	Apply knowledge of yarn formation methods for development of other types of yarns.	10
CO-3	Understand basics of specialty fabric formation methods.	30
CO-4	Apply knowledge of fabric formation methods for development of other types of fabrics.	20
CO-5	Select yarn formation methods for production of given quality of fabrics.	20

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*w.e.f. AY 2022-23*



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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	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO-1	1	2	2	3	3	3	3	3	3	3	3	2	3	3	3
CO-2	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3
CO-3	2	2	2	3	3	3	3	3	3	3	3	2	3	3	3
CO-4	3	2	3	3	2	3	3	3	3	3	3	3	3	3	3
CO-5	2	2	3	2	2	3	3	3	3	3	3	3	3	3	3
Rationale*	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3

Rationale\* : Since it covers the basics of all the important processes of specialty yarns and fabrics formation, it is matching reasonably good with almost all the POs as well as PSOs.

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

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