



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



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

**Subject Name: Advanced Fabric Structure & CAD**

**Subject Code: BTTT14604**

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

**Prerequisite (if any):** Knowledge of Fabric Structure–Basic weaves & derivatives

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

**Rationale:** knowledge of fabric structure is a prime requirement for production of fabric. Fabric structure plays vital role in governing different fabric properties like strength, drape, stiffness, insulation properties etc. Advanced Fabric structure & CAD covers syllabus regarding compound colour & weave effect, compound weave, Terry weaves, Velveteen & knowledge of CAD software which is very important to engineer multi layer cloth.

**Teaching and Examination Scheme:**

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	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:**

<b>Sr. No.</b>	<b>Content</b>	<b>Total Hrs</b>
1.	<b>Backed Cloth :</b> Introduction to compound weaves , warp back cloth, weft back cloth, wadded back cloth	05
2.	<b>Stitched Double Cloth:</b> classification, Principle of Construction, factors affecting double cloth. Different methods of tying double cloth	03
3.	<b>Wadded Double cloth:</b> Warp wadded & weft wadded double cloth	02
4.	<b>Interchanging Double Cloth :</b> Principle & construction of design	02
5.	<b>Centre stitched double cloth :</b> Centre warp stitching & Centre weft stitching	02
6.	<b>Weft Pile Fabrics :</b> Classification, Plain back velveteen, Twill back velveteen, Corduroy	04
7.	<b>Warp Pile Fabrics :</b> warp pile with the aid of wire, fabrics produced on Face To Face Principle	03
8.	<b>Gauze &amp; Leno Structures:</b> Principle, basic sheds, using flat steel doup with an eye& flat steel slotted doup, different designs and special mechanisms	06
9.	<b>Terry Pile Structures :</b> Different designs and special mechanisms, Terry ornamentation	04
10.	<b>Compound Colour &amp; Weave Effects:</b> Compound Stripe & Check effect	03
11.	Construction & Development of Jacquard Designs	04



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12.	Introduction to CAD systems and it's application in Textiles.	01
13.	Developments of Dobby & Jacquard Design using different available software packages. Features of different available software packages.	04
14.	Practical utilization of CAD systems in creating & processing of Designs for Textile Printing	02

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

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

**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	Watson's Textile Design & Color: Elementary weaves & Figure"	Grosicki Z.	Blackwell Science, 1-85573-995-X 81-85027-11-0	2004	

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2	Grammar of textile Design	H. Nisbet	Tarporevala sons &Co. Pvt. Ltd.,  Wentworth Press	2016	
3	Textile weaving & Design	W.S. Murphy	Abhishek Publications	2012	1
4	Fabric Structure	James Golak			
6	Fabric Structure and Design	N. Gokarneshan	New Age International (P)Limited, Publishers, NewDelhi	2004	
7	Watson`s Advanced Textile Design: Compound Woven Structures	Grosicki Z.	Blackwell Science,  1-85573-996-8 81-85027-12-9 978-1-85573-996-3	2004	4th



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

Sr. No.	CO statement	Marks % weightage
CO-1	Construct different designs of Back cloth their draft and peg plan on point paper and able to analyze and weave them	11
CO-2	Construct different designs of Double cloth their draft and peg plan on point paper and able to analyze and weave them	20
CO-3	Construct different designs of weft pile & warp pile their draft and peg plan on point paper and able to analyze and weave them	15
CO-4	Construct as well as analyze weaves used for gauze and leno fabrics	14
CO-5	Construct as well as analyze weaves used for terry pile fabrics	9
CO-6	Construct, develop designs based on compound colour and weave effect	7
CO-7	Develop Jacquard design.	8
CO-8	Understand & Develop/Process Dobby, Jacquard & Printed design software	16

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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	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-2	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-3	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-4	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-5	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-6	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3
CO-7	3	3	1	1	1	1	1	1	2	3	1	1	3	3	3
CO-8	3	3	1	1	1	1	1	1	2	3	1	1	3	3	3
Rationale*	3	3	2	1	1	1	1	1	2	3	1	1	3	3	3

**Rationale\*:** This subject covers the compound colour & weave effect, compound weave, Terry weaves, Velveteen & knowledge of CAD software which is very important to engineer multi layer cloth.. Also it covers how design is link with production process and machinery used for that. Hence this subject correlates with PO's in broader sense.

**List of Open learning website:** <http://nptel.iitm.ac.in>, [WorldWideWeb](#), Google Search Engine, etc.

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**FOR LAB SESSIONS:**

**List of Experiments:**

1. Weaving sample of Back cloth on handloom
  2. Weaving sample of compound Stripe/check pattern on handloom
  3. Sample analysis of compound weave fabric
  4. Sample analysis of Terry fabric
  5. Sample analysis of weft pile fabric
  6. Sample analysis of leno fabric
  7. Sample analysis of dobby/jacquard fabric
  8. Enlarging and developing Jacquard design on point paper
  9. Developing / Processing of Dobby Designs using Software & getting Graphical outputs.
  10. Developing / Processing of Jacquard Designs using Software & getting Graphical outputs.
  11. Developing / Processing of Printed Designs using Software & getting Graphical outputs..
- ( sample analysis includes design, draft, peg plan, EPI, PPI, reed count, reed width calculations, Crimp of warp and weft etc)

**Major Equipment Needed:**

1. Computers with well supported textile designing softwares.
2. Pick Glass
3. Reed hook
4. Colour/white yarns
5. Sample warping
6. Hand loom