SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Bachelor of Engineering

B E III Textile Technology: Semester –V

Subject Name: FABRIC FORMATION -II **Subject Code: BTTT13502**

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

Prerequisite (if any): Students should have knowledge of basics of textile and preparatory processes for warp and weft yarns meant for weaving.

List of Courses where this course will be prerequisite: Modern Weaving Technology

Rationale: (should also include Description of the relevance of this course in the Program)

Students of Textile Technology are supposed to have knowledge and skill regarding Automatic Shuttle Loom and Different types of Jacquards and their principles of working to produce good quality of fancy 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

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

Content:

Sr. No.	Content	Total Hrs
1	**Automatic Shuttle Loom:** Classification of Automatic Shuttle Looms, Comparison between cop-changing & shuttle-changing automatic looms Classification of Weft Feelers, Object, construction, working and important settings of midget, depth feelers, 2- prong electrical and photoelectric weft feelers, Automatic Cop Change Mechanism – Its object, construction, working and requirements for efficient working, temple cutter and shuttle eye cutter, Automatic Shuttle Change Mechanism – Classification, object, construction, working of different types of shuttle change looms and requirements for efficient working Positive let off motions Modern electrical warp stop motion Changes required to convert plain loom to semi-automatic power loom,	25
2	**Terry Mechanism :**Different types of terry mechanisms, Principle of working of loose reed type of terry mechanism	6
3	**Leno Mechanism :**Different types of leno mechanisms, Principle of working of half cross and full cross leno mechanisms.	4
4	**Lappet Mechanism:** Introduction, Principle of working	5
5	**Jacquard shedding:** Introduction and importance, Classification, Scope of jacquard and functions of different parts like hooks, needle, harness, comber board etc., Driving arrangement of pattern cylinder	20

	Single lift single cylinder – principle of working Single lift double cylinder – principle of working Double lift single cylinder – principle of working Double lift double cylinder – principle of working Electronic Jacquard., Harness ties, Casting out Concept of E-shedding	
		45

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
10	25	30	5	0	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.	Fancy Weaving Mechanism	K.T. Aswani			

2	Principles of weaving	Marks A.T.C. & Robinson	The Textile Institute	1976	
3	Weaving: Machines, mechanisms, management	Prof. D. B. Ajgaonkar, Prof. Sriramalu & Prof. M. K. Talukdar	Mahajan Publishers Private Ltd., Ahmedabad	1998	
4	Principles of Woven Fabric Manufacturing	Abhijit Majumdar	CRC Press ISBN-13 978-1498759113	2016	
5	Handbook of Weaving	Adanur Sabit	CRC Press 9780429135828	2020	
6	Weaving Technology and Operations	A Ormerod and W S Sondhelm.	The Textile Institute, ISBN-13: 978-1870812764	1998	
7	Textile Mathematics:	J. E. Booth	The Textile Institute	1977	(Volume III)

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Understand basic concepts and process of weaving process.	20
CO-2	Explain various motions of automatic suuttle loom, production and fabric weight calculations	30
CO-3	Explain the objectives and operating principles of jacquard.	30
CO-4	Understand working of terry, leno and lappet mechanisms. Explore areas of application of these varieties of fabrics.	15
CO-5	Calculate the production and efficiency of weaving process.	5

Mapping with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	2	0	1	0	0	0	0	1	1	1	1	1	3	3
CO-2	3	2	0	1	0	0	0	0	2	2	3	3	3	3	3
CO-3	3	2	0	1	0	0	0	0	2	2	3	3	3	3	3
CO-4	3	2	1	2	1	1	1	1	2	2	3	3	3	3	3
CO-5	3	2	2	2	1	1	1	1	2	2	3	3	3	3	3
Rationale*															

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

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

FOR LAB SESSIONS:

List of Experiments:

1. Study of different parts and passage of warp sheet through automatic shuttle loom.
2. Study of loom drive and timing diagram of automatic shuttle loom.
3. Study of cam shedding mechanism of shuttle loom.
4. Study of picking mechanism of shuttle loom.
5. Study of sley beat-up motion and calculation of sley eccentricity.
6. Study of positive let-off motion.
7. Study of different temples and take up motion, calculation of loom take up dividend.
8. Study of electrical type warp stop motion.
9. Study of centre weft fork mechanism.
10. Study of mechanical and electronic jacquard.
11. Study of different weft feelers.
12. Study of cop change mechanism and important timing & settings.
13. Report of the Industrial - Mill visit.

Major Equipment Needed: Automatic shuttle loom. Jacquard mounted loom etc.