GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3152903
Semester : B.E. Semester V
Subject Name: Fabric Structure

Type of course : Professional Core Course

Prerequisite : The students should have basic knowledge about textiles.

Rationale : Knowledge of woven structure is prime requirement for production of fabric. Fabric structure plays vital role in fabric properties like strength, feel, drape and appearance etc. It is necessary to develop design on graph paper with all necessary details like weave, draft, peg-plan and denting required for basic weaves & their derivatives actual fabric production on machine.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	4	5	70	30	30	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C-Credits; ESE-End Semester Examination; PA- Progressive Assessment; OEP- Open Ended Problem; ALA- Active Learning Assignments

Sr. No	Content	Total Hrs
1	Elements of woven design.	3
2	Construction of elementary weaves and its features.	8
3	Development of derivative weaves from elementary weaves.	8
4	Fancy twill, Diamond and Diaper weaves.	6
5	Toweling weaves such as Huckaback, Honeycomb, Mock leno.	8
6	Extra warp and Extra weft figuring weaves, Distorted weave.	5
7	Special Rib and Cord structures.	4

Suggested Specification Table with Marks (Theory)

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
16	22	22	5	5

Legends: R- Remembrance; U-Understanding; A- Application; N-Analyze and E- Evaluate (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as general guidelines for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Watson's Textile Design and Colour - Z.GROSICKI
2. Watson's Advanced Textile Design (Compound Woven Structures) - Z.GROSICKI
3. Grammar of Textile Design- Nisbet

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

Sr. No.	CO statements	Marks %Weightage
CO-1	Classify and enlist different types of fabric based on their structure.	10
CO-2	Construct different design, draft and peg plan on point paper of basic weaves.	25
CO-3	Represent derivatives of plain and twill weaves design, draft and peg plan on point paper.	25
CO-4	Construct as well as analyze fancy weaves used for toweling, ornamentation and upholstery.	20
CO-5	Prepare design, draft and peg plan of extra warp and extra weft figuring, distorted weave, rib and cord structure.	20

List of experiments:

1. Prepare structural design for plain weave on graph paper.
2. Draw structural design of twill and its derivatives on graph paper.
3. Draw structural design of satin/sateen weave on graph paper.
4. Weaving samples of plain weave on sample loom.
5. Weaving samples of Twill Weave on a sample loom.
6. Weaving samples of Satin/Sateen Weave on a sample loom.
7. Analyze sample of Plain/Twill/Satin/Sateen (design, draft, peg plan).
8. Draw designs on a point paper - Plain derivatives.
9. Draw designs on a point paper - Twill derivatives.
10. Weaving samples of Plain/Twill derivative on sample loom.
11. Develop design on a graph paper for Crepe, Diamond, Diaper and Cork-screw weaves.
12. Develop design on graph paper for Honeycomb, Huckaback and Mock leno weaves
13. Draw design and cross section of warp and weft distorted effect.
14. Draw design of Extra warp and weft figuring.

15. Samples analysis of Plain/Twill structure. (design, draft, peg plan, EPI, PPI, reed count, reed calculations, weight of warp and weight of weft)

Major Equipments:
Pick Glass, Hand loom, sample warping,

List of Open Source Software/ Learning websites: http://nptel.iitm.ac.in; google search engine.