Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Institute of Design
Semester-4

Subject: Textile Science - Weave, Finishes - BDEFD14329

Type of course: Major Core

Prerequisite: Students must have basic knowledge of fibers, yarns, and textile terminology taught in earlier semesters. They should understand basic garment construction and fabric properties to easily connect weaving, knitting, and nonwoven processes to end-use applications.

Rationale: Understanding woven, knitted, nonwoven, and leather materials is essential for any fashion or textile student because these structures determine the performance, cost, aesthetics, and application of fabrics in apparel and lifestyle products. This subject equips students with fundamental knowledge of fabric formation techniques, machinery, defects, and quality parameters, enabling them to make informed decisions in design, production, retail, and sourcing within the textile and fashion industry.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks (E)		CA (I)	
				ESE	MSE	V	P	ALA	
1	1	4	4	00	00	10	40	50	100

Legends: CI- Classroom Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester *Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.*

GYANMANJARI INNOVATIVE UNIVERSITY BHAVNAGAR

Course content

Sr. no.	Course content
1	**Unit-1 – Woven Fabrics** 1.1. Yarn and its types 1.2. Introduction to weaving 1.3. Parts of Loom 1.4. Pre- preparation of loom 1.5. Primary motions of Loom: Shredding, beating and picking 1.6. Handloom, Power loom & Automatic loom. 1.7 Loom attachments: Dobby, Jacquard and Leno 1.8. Basic weaves and its variations 1.9. Decorative weaves 1.10. Figuring with extra thread 1.11. Defects in woven fabrics
2	**Unit -2 - Knitted Fabrics** 2.1 Introduction to knitting 2.2. Technical Terminology used for knitting 2.3. Weft knit structures: plain, rib, interlock, purl 2.4. Warp knitting structures 2.5. Types of Knitting Machines 2.6. Electronics in knitting 2.7. Cutting stitching and quality control of knitted garments
3	**Unit-3 – Non-Woven and Leather** 3.1 Types of Non-Woven a. Introduction of non-woven fabrics b. Types of non-woven fabrics c. Steps of manufacturing nonwoven fabrics d. Purpose and use 3.2. Types of Leather a. Animal leather b. Vegan leather c. Application of leather in life style products and garments

Continuous Assessment:

	Active Learning Activities	Marks
1	**Mini Loom Demonstration Activity** observe basic weaving motions using a cardboard or handloom model (shed, pick, beat), make a small piece of weave and Upload the Photo on the GMIU portal.	10
2	**Weave Drafting** create a samples of twill, satin, basket, herringbone weaves with help of cardboard and threads, upload the photo of board on the GMIU portal.	10
3	**Cutting & Stitching Trial on Knit** Observe curl behavior, stretch ability & learn stabilizing techniques of knitted fabric and make PPT of your every observation, Upload the PPT of Difference analytic on the GMIU portal.	10
4	**Field Visit Report** Visit manufacturing company, know their types of fabric make a report on visiting and Upload the Word file on the GMIU portal.	10
5	**Attendance**	10
	Total	**50**

Suggested Specification table with Marks (Theory): 60%

Distribution of Theory Marks **(Revised Bloom's Taxonomy)**						
Level	Remembrance (R)	Understanding (U)	Application(A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	NA	NA	NA	NA	NA	NA

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.

Course Outcome:

After learning the course, the students should be able to:	
CO1	Understand and identify the woven, knitted, non-woven, and leather fabric.
CO2	Learn the processes and machinery involved in weaving, knitting, and nonwoven fabric manufacturing.
CO3	Demonstrate practical understanding of basic weaving, knitting, and nonwoven techniques through lab-based samples.
CO4	Analyze defects in woven and knitted fabrics and suggest corrective measures.
CO5	Apply fabric knowledge to garment construction, quality control, and material selection for industry use.

List of Practical

Sr. No	Description	Unit No	Hrs.
1	Identification of yarn types (spun, filament, textured)	1	4
2	Parts of loom demonstration	1	4
3	Draft Plain, twill, satin weave, all type of weave as per faculty guidance	1	6
4	Draft Basket, rib, herringbone, diamond, honeycomb drafting as per faculty guidance .	1	6
5	Identification of plain, rib, interlock, purl structures	2	4
6	Stretch test of knitted and weave fabric	2	4
7	Identify Technical difference of knitted fabric	2	4
8	Testing garment stretch & recovery and Quality control exercises of weave and knitted fabric.	2	6
9	Manufacturing steps chart of non-woven fabric.	3	4
10	Surface textures, flexibility, grain analysis of all type of leathers.	3	4
11	Students design lifestyle product (bag/wallet/clutch) using leather & nonwoven	3	4
12	Make a report or book of all type of fabric collected, write down all observation, quality, shrink, stretchable, fall, and other all properties of all fabric samples.	3	6
13	Make a report on field visit of textile industry	3	4
	Total		**60**

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

[1] Bernard, C.P. (1985) Textiles Fiber to Fabric, Mc Graw Hill education
[2] Hearle, J. W. S., & Grosberg, P. (2011). Structural mechanics of fibers, yarns, and fabrics. Wiley publisher
[3] Kellie, G. (Ed.). (2016) Advances in Technical Non - Woven. (1sted.) Amsterdam: Wood head Publisher
[4] Bromley, K. (2012). Structure and surface: Contemporary Japanese textile design. Bloomsbury Academic
[5] Albrechtsen, D., & Atkinson, P. (2015). Wo ven textiles: principles, developments, and applications. Woodhead Publishing.