

DISCIPLINE SPECIFIC ELECTIVE
DSE HP 4D1 : Fabric Construction

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Fabric Construction	4	2	0	2	XII Pass	NIL

Learning Objectives

- To provide students with knowledge of various production techniques.
- To learn about the various standard test methods required for the evaluation of various types of fabrics

Learning Outcomes

- Demonstrate an understanding of various types of fabric forming methods.
- Familiarise students with the types and scope of technical textiles.
- Acquire skills to inspect, manage and control quality in the textile industry.

SYLLABUS OF DSE HP 4D1

THEORY
(Credits 2; Hours 30)

UNIT I: Weaving

10 Hours

- Structure and components of woven fabric: warp, weft, selvedge, grain
- Yarn preparation for weaving
- Weaving operations
- Types of Loom: shuttle and shuttleless looms
- Types of weaves: Basic and Decorative
- Blended Fabrics

UNIT II: Knitting **8 Hours**

- Structure and components of knitted fabric: courses, wales
- Yarn preparation for knitting
- Knitting needles
- Knitting process and machines
- Knit fabric stitches
- Knitted fabric classification: Warp and Weft knits
- Techniques for knitwear production- fully-cut, fully-fashioned and integral.

UNIT III: Non-wovens **6 Hours**

- Production of non-woven
- Types of non-woven fabrics and their properties
- Application in various sectors- apparel and industrial

UNIT IV: Other methods of fabric construction **4 Hours**

- Nets
- Laces
- Braiding
- Knotting

UNIT V: Technical Textiles **2 Hours**

Definition and Examples

PRACTICAL
(Credits 2; Hours 30)

1. Yarn Count : Direct and Indirect
2. Dimensional Stability of cotton and wool and knitted fabric
3. Identification of weaves, point paper diagrams
4. GSM
5. Drape
6. Crease recovery
7. Bending length
8. Tear strength
9. Fabric analysis

Essential Readings:

- Brackenbury, T. (2005). *Knitting Clothing Technology*, Blackwell Science Publishers
- Corbman P. B., (1989), *Textiles- Fibre to Fabric*, 6th edition, Mc Graw Hill, New York.
- Horrock A.R. and Anand, S.C. (2000). *Handbook of Technical Textiles*, Cambridge: Woodhead Publishing.
- Joseph, M.L., (1988) *Essentials of Textiles* (6th Edition), Holt, Rinehart and Winston Inc.,

Florida.

- Rastogi, D. and Chopra, S. (Ed) (2017) *Textile science*, India: Orient Black Swan Publishing Limited.
- Sekhri S. (2022) *Textbook of Fabric Science: Fundamentals to Finishing*, 4E, Delhi: PHI Learning Private Ltd.
- Sekhri S. (2023) , वस्त्र विज्ञान (Vastra Vigyaan). Delhi: PHI Learning Private Ltd.
- Spencer, D.J. (2005) *Knitting Technology: A Comprehensive Handbook and Practical Guide*, 4th ed. Cambridge: Woodhead Publishing.

Suggested Readings:

- Booth, J. E. (1964) *Principle of textile testing an introduction to physical methods of testing textile fibers, yarns, and fabrics*. 2nd Edition. London: Meanness Butterworths.
- Saville, P. B. (1999) *Physical testing of textiles*. Cambridge: Woodhead Publishing Limited.
- Skinkle, J.H. (1940) *Textile Testing*. New York: Chemical Publishing Co. Inc. Brooklyn

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time