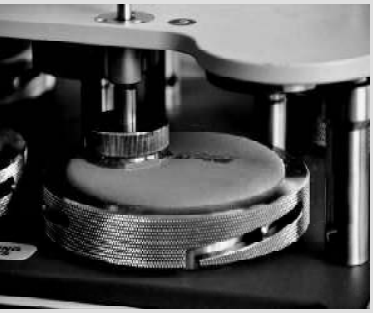

16TF306 TESTING OF FABRICS AND GARMENTS

Hours Per Week :

L	T	P	C
3	-	2	4

Total Hours :

L	T	P
45	-	30

WA/RA	SSH/HSH	CS	SA	S	BS
15	15	-	-	15	10

Course Description and Objectives:

This course offers fabric testing and classification of fabric testing, garment testing, fabric dimensions and other essential fabric properties. Objective of this course is to impart basic knowledge and skill in fabric and garment testing domain.

Course Outcomes:

Tthe student will be able to:

- explain the importance of fabric testing and classification of fabric properties.
- understand the principles of testing for the measurement of fabric dimensions.
- perform testing for the measurement of mechanical properties of fabric.
- know the principles of testing for the measurement of fabric drape and handle.
- describe testing of fabric comfort properties.

SKILLS:

- ✓ *Analyze fabric dimensions.*
- ✓ *Identify the right method for the measurement of fabric strength.*
- ✓ *Assess the fabric abrasion and pilling test by subjective and objective analysis.*
- ✓ *Measure fabric permeability to air and water as per standards.*
- ✓ *Analyze and correlate the testing results of FAST and KESF.*

UNIT - 1 **L-10**

FABRIC DIMENSIONS : Scope of fabric testing – Importance of fabric testing – Standards for tests – classification of fabric properties, Properties of fabrics as Tailor made – Fabric dimensions.

TENSILE TESTING OF FABRICS : classification of Tensile testers and working along with adjustments to suit the material under test – Automation in tensile testers –Methods for testing tensile strength of fabric – Tearing and factor affecting tearing strength– The Elmendorf tearing tester.

UNIT - 2 **L-9**

METHODS FOR TESTING : Methods for testing burst strength by Hydraulic diaphragm method, Factors affecting abrasion resistance – The Martindale abrasion tester– Pilling resistance of fabrics – ICI pilling box tester.

FABRIC STIFFNESS : Bending, shear and compression properties of fabrics –Methods for testing fabric shearing compression– Measurement of bending by Shirley stiffness tester and hanging loop method.

UNIT - 3 **L-9**

FABRIC DRAPE AND HANDLE : Measurement of Drape by drapameter – Measurement of crease recovery - Air permeability – Air, water and water vapor transmission through fabrics – measurement of WVT by cup method and sweating guarded hot plate method – Wicking Test: longitudinal and traverse – Wettability of textile fabrics-Water repellency: spray rating– Bundesmann water repellency test –WIRA shower test.

UNIT - 4 **L-10**

THERMAL RESISTANCE OF FABRICS : Togmeter – Fabric Friction tester. Fabric Friction measurement by simple and inclined plane test– Flammability – Terminology related with flammability – Measurement of flammability by inclined plane method -Thermal insulation tester TIV –Limited Oxygen Index Tester.

UNIT - 5 **L-10**

DIMENSIONAL STABILITY : Hygral expansion, relaxation shrinkage, swelling shrinkage, Felting shrinkage, Measurement of Dimensional stability.

BRIEF INTRODUCTION TO SPECIAL TESTS FOR TECHNICAL TEXTILES : moisture management tester – Wet Barrier Tester–Puncture Test–Cone Drop Tester–Tension creep–Instrument for Run test.

ACTIVITIES:

- Measure fabric thread crimp theoretically and practically
- Compare crease recovery of cotton and polyester fabric.
- Draw fabric drape diagram for stiff and limp fabric.
- Collect and compare test procedures under different standards.
- Assessment of color fastness test for different class of dyes.

LABORATY EXPERIMENTS

LIST OF EXPERIMENTS Total hours: 30

1. Testing the fabrics for bursting strength.
2. Determination of crease recovery angle of cotton, man-made and silk fabrics.
3. Determination of Drape co-efficient for textile fabrics.
4. Determination of fabric Tensile strength and elongation.
5. Determination of fabric Tear strength.
6. Determination of Ballistic strength of fabrics.
7. Testing of fabrics for pilling.
8. Determination of stiffness parameters of fabrics.
9. Study of dimensional stability of woven fabrics.
10. Determination of Air permeability of woven fabrics.
11. Wash fastness for different dyed and printed fabrics.
12. Determination of abrasion resistance of fabrics.
13. Blend analysis of fabric by chemical methods.

TEXT BOOKS:

1. J. E .Booth, “Principle of Textile Testing”, Butterworths Publisher, London, 1975.
2. B. P. Saville, “Physical Testing of Textiles”, Woodhead Publishing, Limited, 1999.

REFERENCE BOOK:

1. J. HU, “Fabric testing”, The Textile Institute, Woodhead Publishing Limited, 2008.
2. Grower and Hamby, “Hand Book of Textile Testing”, Textile Institute, 1996.
3. V. K. Kothari, “Developments in Textile Testing”, I B Publishers, New Delhi.