

Textile Testing - Web course

COURSE OUTLINE

Introduction to textile testing. Selection of samples for testing. Random and biased samples. The estimation of population characteristics from samples and the use of confidence intervals. Determination of number of tests to be carried out to give chosen degree of accuracy.

Significant testing of means and variance. Quality control charts and their interpretation. Standard tests, analysis of data and test reports. Measurement of length, fineness and crimp of fibres. Determination of maturity, foreign matter, and moisture content of cotton.

Measurement of twist, linear density and hairiness of yarn. Evenness testing of silvers, rovings and yarns. Analysis of periodic variations in mass per unit length. Uster classimat. Spectrogram and V-L curve analysis.

Tensile testing of fibres, yarns and fabrics. Automation in tensile testers. Tearing, bursting and abrasion resistance tests for fabrics. Pilling resistance of fabrics. Bending, shear and compressional properties of fabrics. Fabric drape and handle.

Crease and wrinkle behaviour. Air, water and water-vapour transmission through fabrics. Thermal resistance of fabrics. Testing of interlaced and textured yarns. Special tests for carpets and nonwoven fabrics.

COURSE DETAIL

| S.No | Topics | No. of lectures |
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| 1 | Objectives of Testing. | 1 |
| 2 | Selection of Samples for Testing & Numerical on Elements of Statistics. | 5 |
| 3 | Fibre Length. | 3 |
| 4 | Fibre Fineness. | 2 |
| 5 | Evenness Testing of Laps, Slivers, Rovings and Yarns & Numerical on Evenness of Textile Materials. | 9 |
| 6 | Hairiness of Yarns. | 1 |
| 7 | Tensile Testing of Fibres, Yarns and Fabrics. | 5 |
| 8 | Tear Strength of Fabrics. | 1 |



NP-TEL

NPTEL

<http://nptel.iitm.ac.in>

Textile Engineering

Pre-requisites:

Physics and Mathematics of 10+2 level and basic statistics

Additional Reading:

BIS, BS, ASTM and other standard methods of textile testing.

Hyperlinks:

Web sites of textile testing instrument manufacturers, namely Uster, SDL etc.

Coordinators:

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| 9 | Bursting Strength of Fabrics. | 1 |
| 10 | Abrasion and Pilling Test of Fabrics. | 1 |
| 11 | Fabric Handle and Related Properties 1. Kawabata Evaluation Systems for Fabric (KESF) 2. Fabric Assurance by Simple Testing (FAST) | 5 |
| 12 | Bending, Shear, Drape, Compression, Fabric Comfort Related Properties (Air permeability, Water and Vapour Transmission, Heat Transmission). | 3 |
| 13 | Special Testing for Nonwoven and Technical Textiles. | 2 |
| 14 | Moisture in Textile. | 1 |

References:

1. Physical Testing of Textiles by B. P. Saville, 1999, Woodhead Publishing Ltd., U. K.
2. Principles of Textile Testing by J. E. Booth, 1961, Heywood Books, London.
3. Testing and Quality Management – Edited by V. K. Kothari, IAFL Publications, New Delhi.
4. Handbook of Textile Testing and Quality Control by E. B. Grover and D. S. Hamby.