

# **HANDLOOM & TEXTILE TECHNOLOGY**

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UNIVERSITY, UTTAR PRADESH, LUCKNOW**



**EVALUATION SCHEME & SYLLABUS**

**FOR**

**B. TECH. SECOND YEAR**

**HANDLOOM & TEXTILE TECHNOLOGY**

**AS PER**

**AICTE MODEL CURRICULUM**

**[Effective from the Session: 2021-22]**

# HANDLOOM & TEXTILE TECHNOLOGY

## SEMESTER- III

Sl. No.	Subject	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
	Codes		L	T	P	C T	T A	Total	P S	TE	PE		
1		Engg. Science Course/Maths IV	3	1	0	30	20	50		100		150	4
2		Technical Communication/Universal Human values	2	1	0	30	20	50		100		150	3
			3	0	0								
3	<b>KHT301</b>	Principle of Yarn Manufacture	3	1	0	30	20	50		100		150	4
4	<b>KHT302</b>	Weaving Technology - I	3	1	0	30	20	50		100		150	4
5	<b>KHT303</b>	Textile Fiber	3	0	0	30	20	50		100		150	3
6	<b>KHT351</b>	Yarn Manufacture Lab	0	0	2				25		25	50	1
7	<b>KHT352</b>	Weaving Technology - I Lab	0	0	2				25		25	50	1
8	<b>KHT353</b>	Identification of Textile Fiber Laboratory	0	0	2				25		25	50	1
9	<b>KHT354</b>	Mini Project or Internship Assessment*	0	0	2			50				50	1
10		Computer System Security/Python Programming	2	0	0	15	10	25		50			0
11		MOOCs (Essential for Hons. Degree)											
		<b>Total</b>										<b>950</b>	<b>22</b>

\*The Mini Project or internship (3-4 weeks) conducted during summer break after II semester and will be assessed during III semester.

## SEMESTER- IV

Sl. No.	Subject	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
	Codes		L	T	P	C T	T A	Total	P S	TE	PE		
1		(Maths-III/ Maths-IV / Maths-V) /Engineering Science Course [ESC]	3	1	0	30	20	50		100		150	4
2		Universal Human Values and Professional Ethics/Technical Communication	3	0	0	30	20	50		100		150	3
			2	1	0								
3	<b>KHT401</b>	Chemical Processing of Textiles -I	3	0	0	30	20	50		100		150	3
4	<b>KHT402</b>	Handloom Weaving Technology	3	1	0	30	20	50		100		150	4
5	<b>KHT403</b>	Fabric Structure - I	3	1	0	30	20	50		100		150	4
6	<b>KHT451</b>	Chemical Processing of Textiles –I Lab	0	0	2				25		25	50	1
7	<b>KHT452</b>	Handloom Weaving Technology Lab	0	0	2				25		25	50	1
8	<b>KHT453</b>	Fabric Analysis Lab	0	0	2				25		25	50	1
9		Python Programming/ Computer System Security	2	0	0	15	10	25		50			0
10		MOOCs (Essential for Hons. Degree)											
		<b>Total</b>										<b>900</b>	<b>21</b>

# HANDLOOM & TEXTILE TECHNOLOGY

## KHT-301: PRINCIPLE OF YARN MANUFACTURE

### COURSE OBJECTIVES:

- To enable the students to understand about the concepts of yarn manufacturing with conventional and non- conventional spinning systems.

### UNIT 1

Terms & definitions of various yarn parameters such as like Count, Twist, Strength etc. Process flow chart and brief idea of process sequences of carded & combed yarn **Ginning** – Objective, classification and working. **Opening and cleaning in blow room**–Introduction, Objective, Methods, **production calculation**. Recent developmesnts.

### UNIT 2

**Carding**- Objectives and working principle of carding machine, stripping, Coiling mechanism, neps/hooks formation, Production and efficiency calculation. Recent developments. **Draw Frame**- Objects of drawing, different drafting systems, ideal drafting and draft and efficiency calculation. Recent developments.

### UNIT 3

**Combing**- Objectives, cottons suitable for combing, preparation of stock for combing, combing cycle, noil extraction at backward feed and forward feed comber. Recent developments

**Speed Frame**: Objectives of, important parts of speed frame and their functioning, Mechanism involved in drafting, twisting, and winding, different types of roller drafting systems, Common defects in roving package.

### UNIT 4

**Ring spinning Process**: Introduction and objective of ring frame, important parts of ring frame and their functions, principle and mechanism involved in drafting, twisting and winding, Spinning Geometry, Types of rings and travelers, mechanism of cop formation, common package size, calculations related to ring frame machine and its production. Brief introduction of Ring doublers, TFO.

### UNIT 5

**Non-conventional spinning processes**: Principle of open end spinning, rotor spinning, chief organs and their functions, yarn properties in comparison with ring-spun yarn, principle of friction spinning, function of chief organs, yarn properties and comparison of Dref-II and Dref-III friction spinning machines, basic principle to air jet spun yarn, functions of chief organs, yarn properties.

**OUTCOMES**: Upon completion of the course the student will be able to know about:-

- Pre-spinning process, i.e., from blow room to roving frame
- Ring spinning process, including production calculation.
- Non-conventional spinning process, i.e., open end spinning systems.

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## REFERENCE:

1. Man made fibre and their processing by Klein W
2. Spinning of man-made and blends on cotton systems by K.R.Salhotra
3. Manual of cotton spinning by Frank Fharnley
4. Klein W, "Manual of Textile Technology", The Textile Institute, Manchester, Vol.1and3, 2002.
5. Klein W, "A Practical Guide to Ring Spinning", The Textile Institute, Manchester, Vol 4. 2002.
6. Klein W, "New Spinning Process", The Textile Institute, Manchester, Vol.5, 2002.
7. Lawrence C A, "Fundamental of Spun Yarn Technology" CRC Press, USA, 2003.
8. Lord P R, "Handbook of Yarn Production", The Textile Institute, Woodhead Publication Limited, Cambridge, 2003.
9. Oxtoby E, "Spun Yarn Technology", Butterworth and Co. Ltd., 1987.

# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-302: WEAVING TECHNOLOGY – I**

### **COURSE OBJECTIVES:**

- To enable the students to understand about the concepts of preparatory process of fabric manufacturing.

### **UNIT 1**

Introduction to numbering of yarns; indirect system of numbering of yarns – New English cotton, New French, metric, worsted, Woolen Yorkshire Skein, linen, spun yarn, Direct system of numbering of yarns – Denier metric, flax/ jute/ hemp, Universal system of yarn numbering – Tex and its derivatives - Millitex, Kilotex; Determination of conversion factors, Conversion of count of yarn - indirect to indirect, direct to direct, indirect to direct, direct to indirect systems.

### **UNIT 2**

Determination of Equivalent/Resultant count of folded yarns with and without contraction during twisting, Costing of folded yarn, Average count of warp. Read Count - dents per linear space and groups of dents per linear space models, Stockport System of Reed count - relation between reed count, number of ends per dent, ends per inch, cloth width, reed width and total number of ends, heald count calculations.

### **UNIT 3**

Objects of winding; principles of cheese and cone winding machines; drum and precision winding; uniform build of yarn package; control of balloons; Classification of yarn faults and its removal; concepts in yarn clearing –mechanical, optical and electronic clearers; knotters and splicers, weft winding; study of modern automatic winders, Yarn winding calculations-Cone cheese and pirn efficiency, production and production planning.

### **UNIT 4**

Objectives of warping, material flow in beam warping and creels used in warping machines; sectional warping machines. Sizing objectives of sizing; sizing materials and recipe used for different types of fibers; size preparation equipment; sizing machines; sizing filament yarns; concept of single end sizing, combined dyeing and sizing. Control concepts in modern sizing; energy conservation in sizing, Performance assessment and calculations.

### **UNIT 5**

Need for drawing-in operation; manual and automatic drawing- in, leasing, knotting and pinning machines; selection and care of reeds, healds and drop pins, control of cross ends and extra ends and calculations.

## **HANDLOOM & TEXTILE TECHNOLOGY**

**OUTCOMES:** Upon completion of the course the student will be able to know about:-

- i.** Different Yarn Count/Numbering Systems.
- ii.** Winding principle, different type of yarn packages and machine used for winding.
- iii.** Warping, Sizing and Drawing-in process including their mathematical calculations.

### **REFERENCES:**

1. Principles of weaving By Marks A.T.C. & Robinson.
2. Weaving By Prof. DB Ajgaonkar, Prof. Sriramalu & Prof. MK Talukdar.
3. Weaving Mechanism by K.T. Aswani.
4. Yarn Preparation-Vol-I by Sengupta.
5. Weaving Calculation by Sengupta.
6. Textile Mathematics-Vol. I by JE Booth. 8.Fibre to Fabric by PR Lord
7. Winding &Warping by Talukdar MK.

# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-303: TEXTILE FIBER**

### **COURSE OBJECTIVES**

- To enable the students to understand about the classification properties of textile fiber and their production process.

#### **UNIT 1**

Introduction: Various definitions related to textile fibres, classification of textile fibres, essential & desirable properties of textile fibres, advantages & disadvantages of natural and manmade fibres, concepts of molecular weight, degree of polymerization, orientation and crystallinity, characteristics of fibre forming polymer.

#### **UNIT 2**

Cotton : Cultivation and harvesting, cotton varieties and grading, morphological structure, physical and chemical properties of cotton fibre and its applications, formation of hydro-cellulose and oxy-cellulose. Jute cultivation, retting and extraction process, structure of jute fibre, physical and chemical properties of jute fibre and its applications.

#### **UNIT 3**

Types of wool and its grading, Morphological structure, chemical composition, physical & chemical properties of wool fibre and its applications, Types of silk and its production, Silk weighting, degumming of silk, chemical composition and morphological structure of silk, physical & chemical properties of silk and its applications.

#### **UNIT 4**

Techniques of Spinning of manmade fibers: Wet Spinning, Dry Spinning, Melt Spinning. Drawing of fibers. Application of Spin Finish. Texturizing Importance of texturising process. Types of texturising process. Manufacturing process of viscose fiber, Cellulose acetate, Lyocell; Physical and Chemical properties of Viscose, cellulose acetate and Lyocell.

#### **UNIT 5**

Manufacturing process of polyester fiber, Physical and chemical properties of polyester fiber. Manufacturing process of Nylon-6 & Nylon-66, Physical and Chemical properties of Polyamide fibers. Manufacturing process of Acrylonitrile fibers, Physical and Chemical properties of acrylonitrile fiber. Manufacturing process of PE & PP fibers, Physical and Chemical properties of PE & PP fibers. Concept of low density & high density polyethylene fibres.

**OUTCOMES:** Upon completion of the course the student will be able to know about:-

- Definitions and Technical terms used in processing of Textile fibers.
- Various essential and desirable properties of Textile fibers.
- Morphology of various natural fibers.
- Physical, Chemical properties and production process of various man-made fiber.

#### **REFERENCES:**

1. WE Morton & JWS Hearle, Physical properties of textile fibres, Textile Institute, U.K.
2. Progress in textiles: Science and technology Vol.-2 by Dr. VK Kothari, IIT Delhi.
3. Hand book of textile fibres by J. Gordon Cook.
4. Fibre Science and Technology, S.P. Mishra.

# HANDLOOM & TEXTILE TECHNOLOGY

## KHT-351: YARN MANUFACTURE LABORATORY

### LIST OF EXPERIMENTS:

1. Practice in handling and operation of blow room.
2. Study of constructional details of machinery in blow room.
3. Production calculation of blow room.
4. Study of carding machine with technical details.
5. Study of the 'NEP -COUNT' in a card.
6. Study of drafting arrangement and top roller weighting system of draw frame machine.
7. Calculation of the total draft and its distribution in draw frame machine.
8. To study the drafting, twisting and winding zone of speed frame.
9. To study the drafting, twisting and winding zone in ring frame.
10. To study the building motion in ring frame.
11. Calculation of draft constants, twist constant, coils per inch and production of ring frame.
12. To study the timing diagram of a comber.
13. To study the function of top comb and its depth of penetration with reference to noil extraction and fractionating efficiency (mill based study).



# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-352: WEAVING TECHNOLOGY - I LABORATORY**

### **LIST OF EXPERIMENTS:**

1. Study of weaving preparatory and weaving Processes.
2. Study in Drawing-in, Denting and gaiting-up process.
3. Study of loom drive, loom timing, passage of material and primary motions.
4. Study of precision and drum winding machine.
5. Study of cheese winding machine.
6. Study of auto-coner its functions.
7. Study of pirn winding machine.
8. Study of sectional warping machine.
9. Study of beam warping machine.
10. Study of Sizing process.

**HANDLOOM & TEXTILE TECHNOLOGY**  
**KHT-353: IDENTIFICATION OF TEXTILE FIBER LABORATORY**

**LIST OF EXPERIMENTS:**

1. Analysis of water sample for assessment of various types of hardness.
2. Estimation of Soda Ash sample for assessment of its percentage purity.
3. Estimation of Caustic Soda sample for assessment of its percentage purity.
4. Estimation of Bleaching powder sample for assessment of its percentage purity.
5. Estimation of Hydrogen peroxide sample for assessment of its percentage purity.
6. Estimation of Sulphuric acid sample for assessment of its percentage purity.
7. Estimation of Hydrochloric acid sample for assessment of its percentage purity.
8. Estimation of Sodium hydrosulphite sample for assessment of its percentage purity.
9. Identification of textile fibres by microscopic test.
10. Identification of textile fibres by burning test.
11. Identification of textile fibres by solubility test.
12. Analysis of blended yarn and fabric comprising of cotton, viscose and polyester.

# **HANDLOOM & TEXTILE TECHNOLOGY**

## **SEMESTER-IV**

# HANDLOOM & TEXTILE TECHNOLOGY

## KHT-401: CHEMICAL PROCESSING OF TEXTILE-I

### COURSE OBJECTIVES:

- To enable the students to understand about the concepts of preparatory process of Chemical Processing of Textile.

### UNIT 1

Role of water & its quality for wet processing, Principle and application of surfactant in textile processing, Sequence of chemical processing, of textiles, natural and added impurities in textiles, Various preparatory processes for cotton, wool, silk, nylon, polyester, acrylic and blends including optical whitening.

### UNIT 2

Objectives of desizing, scouring, bleaching and mercerization of textile materials, Different types of desizing and bleaching agents, methods of desizing, singeing, scouring and bleaching of textile material, various faults in bleaching and their remedies and removal.

Total Lectures required

### UNIT 3

Objective of heat setting, Objective of mercerization, physical and chemical aspects of mercerization, method and types of heat setting and mercerizing, yarn and fabric mercerizing, Optical brightening agents, and their application.

### UNIT 4

Brief introduction to processing machinery and new processes development in machinery for preparatory and dyeing.

### UNIT 5

General Consideration and classification of textile auxiliaries, Physical principles involved in detergency conditions for efficient detergency, Preparation of detergents.

**OUTCOMES:** Upon completion of the course the student will be able to know about:-

- Process sequence of chemical processing of textiles.
- Desizing, Scouring, Bleaching and Mercerization of Textile materials.
- Concept of heat setting.
- Machine used in preparatory of chemical processing.

### REFERANCE:

1. Chemical processing of cotton and p/c blends – ATIRA
2. A glimps on the chemical technology and textile fibres by R.R. Chackrawartty
3. Technology of bleaching and mercerization by V.A. Shenai
4. Technology of finishing by V.A. Shenai

# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-402: HANDLOOM WEAVING TECHNOLOGY**

### **COURSE OBJECTIVES:**

- To enable the students to understand about the concepts of various techniques and process used in Handloom weaving technology.

### **UNIT 1**

Yarn packages - hanks, cones, cheeses, and spools - Characteristics and use; essential characteristic of warp and weft, Objectives of winding and warping, peg warping, vertical warping and sectional warping; objectives and importance of sizing of cotton yarn, ingredients used in size mixture for handloom industry and their functions, various forms of sizing- hank sizing and street warp sizing; Characteristics of ideal sizing, common defects during sizing- causes and remedies.

### **UNIT 2**

Evolution of handlooms, Various parts of a handloom and their functions, types of handlooms- Throw shuttle handloom, Fly shuttle pit loom and frame loom; Relationship between type of handloom and the product, passage of warp in frame loom; motions of a handloom; definitions of primary, secondary & auxiliary, motions; Types of shed formations– centre closed shed, bottom closed shed, top closed shed, open shed and semi open shed - advantages, disadvantages and shedding devices; shedding mechanism of a handloom using treadles and heald reversing motions – roller system, pulley reversing system and jack and lam rod system.

### **UNIT 3**

Picking mechanism of a handloom, types of shuttles – throw shuttle, fly shuttle and roller shuttle, design and suitability; beat-up- open shed beat-up, closed shed beat up and crossed shed beat-up in handlooms, different types of reed – bamboo reed, steel reed and all metal steel reed, suitability for various fabrics; let off motion in handlooms – ratchet wheel and pawl, rope and weight, rope lever and weight motions; take up motion in handloom – poker rod, ratchet wheel & pawl; auxiliary motions of a handloom – temple motion and terry motion; handloom dobbies – lattice doobby, barrel doobby and vertical doobby.

### **UNIT 4**

Traditional Design Weaving Techniques of Handlooms - Adai (Warp & Weft) of Kancheepuram, Jala Weaving of Varanasi, Jamdani Weaving of West Bengal, Paithani Weaving of Aurangabad.

### **UNIT 5**

Warp Tie&Dye Technique – Design preparation, design transfer to warp, weaving.

Weft Tie&Dye Technique – Design preparation, design transfer to weft, weaving.

Combined Warp and weft Tie&Dye Technique – Design preparation, design transfer to warp and weft, weaving.

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**OUTCOMES:** Upon completion of the course, the student will be able to know about-

- i.** Various yarn packages and sizing ingredients
- ii.** Various parts of handloom, their function and working.
- iii.** Concepts of various traditional designs and their weaving techniques.

## **REFERENCES:**

1. Yarn preparation by R. Sengupta
2. An introduction to winding & warping by M.K. Talukdar
3. Modern preparation & weaving machinery by A Ormerod, Textile Institute, U.K.
4. Sizing by Prof. D. B. Ajgaonkar, Dr. M. K. Talukdar & V. R. Wadekar.
5. The Technology of Warp Sizing by J.B. Smith.
6. Modern Preparation & Weaving by A. Ormerod

# HANDLOOM & TEXTILE TECHNOLOGY

## **COURSE OBJECTIVES:**

- To enable the students to understand about the manufacturing/construction process of various types of weaves used in Handloom and modern Textile industries.

## **UNIT 1**

Classification of textile fabrics; classification of woven fabrics- simple, compound and complex; fundamental aspects of woven fabrics - count of graph paper, factors influencing the selection of appropriate count of graph paper, graphical representation of structure of a woven fabric- warp way and weft way; study of plain weave, ornamentation of plain weaves; study of derivative structures of plain weave – regular and irregular warp rib, weft rib, hopsack weaves. catch-cord technique for weaving warp rib and hop-sack; design, draft, denting, peg/tie-up plan and thread interlacing diagram of above weaves.

## **UNIT 2**

Study of twill weaves up to 12 threads, classification of twills - warp faced twill, weft faced twill and equal faced twill; angle of inclination of twill diagonals, influence of the twist direction of yarn over prominence of twill lines; study of derivatives of twill weaves - wavy twill, herringbone, transposed twill, broken twill and curved twill, elongated twill, combined twill, shaded twill and figured twill; diamond, diaper; regular and irregular sateen and satin up to 12 threads, dice check using twill and satin weaves; design, draft, denting, peg/tie-up plan and thread interlacing diagram of above weaves.

## **UNIT 3**

Study of honey comb weaves - Ordinary honey comb and Brighton honey comb – cell formation; study of Huck-a-Back, mock leno and corkscrew weaves. Crepe weaves – construction upon sateen base, by combination of floating weaves with plain thread, by reversing and by insertion of one weave over another; design, draft, and peg/tie-up plan and thread interlacing diagram of above weaves. Colour and weave effect- simple colour and weave effect, continuous line effects, hound's tooth patterns, bird's eye and spot effects, hairline stripes, step patterns, and all over effects; combination of weaves – twill and plain, mock leno and plain, honey comb and plain, stripe and check effect by these combinations; distorted thread effects – salient feature, warp and weft distortion.

## **UNIT 4**

Bedford cord weaves – salient features, plain faced Bedford cord (regular and alternate pick principle), twill faced bed ford cord, wadded bed ford cord, and crepon Bedford cords; welt structures – salient features and manufacturing techniques, ordinary welts, wadded welts (loose back and fast back); design, draft, denting, peg/tie-up plan and thread interlacing diagram of above weaves.

## **UNIT 5**

Backed cloths- warp & weft backed cloths using twill, sateen and satin.; weft wadded warp backed

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cloth, reversible and non-reversible fabrics using twill, satin and sateen, weft backed cloth - reversible and non-reversible weft backed cloth using twill, satin and sateen, warp wadded weft backed cloth – reversible and non-reversible fabrics using twill, satin and sateen -Imitation backed cloth, imitation warp and weft backed cloths; design, draft, denting, peg/tie-up and thread interlacing diagram of above weaves.

**OUTCOMES:** Upon completion of the course the student will be able to know about:-

- i. Classification of woven fabrics.
- ii. Construction of simple and compound woven fabrics.
- iii. Design, Draft, Denting, Peg planning of simple and compound woven fabrics.

## **REFERENCES:**

1. Grosicki Z. J., “Watson’s Advanced Textile Design and Colour”, Vol.II, Butterworths, London, 1989.
2. Wilson J., “Handbook of Textile Design”, Textile Institute, Manchester, 2001.
3. Horne C.E., “Geometric Symmetry in Patterns and Tilings”, Textile Institute, Manchester, 2000.
4. Seyam A. M., “Structural Design of Woven Fabrics, Theory and Practice”, Textile Institute, Manchester, 2002. Georner D,
5. “Woven Structure and Design, part 1: Single Cloth Construction”, WIRA, U.K., 1986.
6. Georner D, “Woven Structure and Design, Part 2: Compound Structures”, WIRA, U.K., 1989.

## **KHT-451: CHEMICAL PROCESSING OF TEXTILE-I LABORATORY**

### **LIST OF EXPERIMENTS:**



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1. Scouring of cotton.
  2. Scouring of polyester, nylon and acrylic.
  3. Scouring of blend.
  4. Scouring of wool.
  5. Degumming of silk.
  6. Bleaching of cotton with NaOCl.
  7. Bleaching of cotton with H<sub>2</sub>O<sub>2</sub>.
  8. Bleaching of cotton with NaClO<sub>2</sub>.
  9. Bleaching of polyester, Nylon and Acrylic.
  10. Bleaching of blend.
  11. Bleaching of wool and silk.
  12. Bleaching of jute yarns / fabric.
  13. Mercerization of cotton.
  14. Optical whitening agent treatment on Textile materials.
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# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-452: HANDLOOM WEAVING TECHNOLOGY LABORATORY**

### **LIST OF EXPERIMENTS:**

1. Drawing sketches of different parts of handlooms with specifications and joining threads
  2. by piecing and knotting.
  3. Study of drawing-in, denting and gaiting up.
  4. Study of winding of yarn on double flanged bobbins and pirns using charka.
  5. Study of warping on peg warping frame.
  6. Study of warping on sectional warping machine.
  7. Preparing JALA frame to produce extra weft buta design.
  8. Study of single Ikat and double Ikat design.
  9. Study of weave, peg/tie-up plan and loom setting on multi treadle frame loom.
  10. Development of fabric samples using Plain and its derivatives.
  11. Development of fabric samples using twill weave and its derivatives.
  12. Development of fabric samples using Mock-Leno weave.
  13. Development of fabric samples using Honey Comb weave.
  14. Development of fabric samples using Huck-A-Back weave.
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# **HANDLOOM & TEXTILE TECHNOLOGY**

## **KHT-453: FABRIC ANALYSIS LABORATORY**

### **LIST OF EXPERIMENTS:**

1. General principles of cloth analysis.
2. Extracting warp and weft pattern.
3. Analysis of derivatives of plain, twill and satin fabrics.
4. Extracting fundamental details like count of warp and weft, ends and picks per unit space; warp and weft crimp and weave repeat.
5. Deriving drafting, denting, peg-plan/ tie-up for the weave.
6. Preparation of Design, draft, denting plan and tie-up plan of all the weaves dealt in Fabric Structure – I.
7. Practicing to do drafting in the loom as per drafting order derived for the weaves dealt in Fabric Structure – I.
8. Developing sample without any defects as peg plan/ treadling order derived for the weaves dealt in Fabric Structure – I.
9. Preparing the album of the samples developed and writing their quality particulars.
10. To ascertain the G.S.M. of the fabrics.