Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS)
Diploma in Textile Engineering
(2021-2023)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BBAI501	**AECC**	**Human Values and Professional Ethics**	60	20	20	0	0	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

To download detailed syllabus of this

Subject visit web link

of

Shri Vaishnav School of Management

at

SVVV website.

Shri Vaishnav Vidyapeeth Vishwavidylaya, Indore
Shri Vaishnav Institute of Textile Technology
Diploma in Textile Engineering
(2020-2023)

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTTX501	DCC	Garment Manufacturing Technology	60	20	20	-	50	3	1	2	5

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Course Educational Objectives (CEOs):

1. To provide the preliminary knowledge about the Garment Manufacturing Process
2. To impart conceptual knowledge for the pattern making, garment stitching
3. To understand cutting & stitching process & other garment making process
4. To understand fusing process

Course Outcomes (COs):

Student will be able:

1. To apply their knowledge on the Garment Manufacturing Process
2. To make different Garment pattern
3. To identify the seams & stitches.
4. To apply different types of seams & stitches
5. To use their knowledge for complete garment making process

Course Contents:

Unit-I Marker planning **10 HOURS**

Marker Planning Process, marker utilization, Manual Marker Planning. Computerized Marker Planning. Introducing to grading – Definition, Basic size chart, Grading methodology .Drafting of men's shirt block. Introduction of CAD

Unit-II Spreading and cutting **12 HOURS**

Spreading, Methods of spreading ,shade sorting of cloth pieces, correct ply direction and adequate lay stability, Alignment of piles, ply tension, fabric faults elimination. Objectives of Cutting, Methods of cutting, Manual & computer controlled cutting

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Unit-III Stitching **10 HOURS**

Seam-Definition, types, superimposed seam, Lapped seam, Bound seam, Flat and fell seam, French seam, decorative stitching, edge neatening. Stitch types, Lockstitches, Chain stitches, hand stitches, Multithread chain stitches, over edge chain stitches, covering chain stitches, Sewing Machinery- different types & machine parts, Feed mechanism, thread packages.

Unit-IV Garment finishing and packing **7 HOURS**

Components for the construction of garments-Lables, lace, snaps etc. Garment Finishing, Garment Pressing-Means of pressing, equipments and methods, Methods of folding, Garment Packing – packing materials, packaging instructions.

Unit-V Fusing process and quality parameters **6 HOURS**

Fusing Process-object, application. Types of resins, methods of applying resins, Methods of fusing, fusing equipments, Quality parameters for fusing .Garment Defects.

List of practical's (Expand it if needed):

1. To Study Garment Process flow chart
2. To Study Pattern making and Grading process with tools
3. To prepare the Pattern of Men's Shirt with measurement
4. To study the Spreading process with related parameters
5. To study the Different cutting methods for Garment
6. To study the different parts of sewing machine with their functions
7. To study different types of seams with their uses
8. To study different types of stitches with their uses
9. To study pressing & packing procedure for garment
10. To study Fusing Process
11. To Study different garment sewing defects with their remedies

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Text Book:

1. Garment Technology for Fashion Design – Gerry Cooklin
2. Introduction to clothing manufacture –Gerry Cooklin
3. Technology of Clothing manufacture – Carr & Lathem
4. Introduction to clothing production management - Chuter A.J.
5. Clothing Technology - R.L. Friend
6. Pattern Making - Martin Shoben
7. Dress Fitting - Natalie Bray
8. Pattern Making - Armstrong, Helen Josep

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DTTX502	DCC	TEXTILE DYEING PROCESS	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Course Educational Objectives (CEOs):

1. Impart knowledge about principle of application of different dyes on different textile materials.
2. Increase understanding on chemistry of dyes, chemistry of textile fibers and interaction between dyes and textile fibers.

Course Outcomes (COs):

After completion of this course, the students will be able to

1. Understand chemical interaction between dyes and textile fibers.
2. Understand role of pH, temperature and different chemicals on dyeing of textile materials.
3. Apply correctly various dyes on different textile fibers.

Course Contents:

Unit-I Introduction to Dyes and Dyeing **10 HOURS**

Introduction of dyeing; Properties of dyes; Additive and subtractive colours, Different terms associated with dyeing; Classification of dyes according to solubility; Classification of dyes according to chemical constitution; Classification of dyes according to application; Different stages of dyeing; calculations relating to dyeing

Unit II Dyeing of Cellulosic Textile Materials **10 HOURS**

Direct dye: Properties, class A, class B and class C direct dye, application process; Reactive dye: Properties, monofunctional and bifunctional reactive dye, application process; Vat dye: Properties, Indigoid and anthraquinonoid vat dye, principle of application; application process; Sulfur dye; azoic dye

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DTTX502	DCC	TEXTILE DYEING PROCESS	60	20	20	30	20	3	0	2	4

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Unit-III Dyeing of Wool and Silk **8 HOURS**

Acid dye: Properties, leveling, fast, milling and super milling acid dye, application process; Metal complex dye: 1:1 metal complex dye, 1:2 metal complex dye, application process; Basic dye; application process of reactive dye on wool and silk; application of solubilized vat dye on wool and silk

Unit-IV Dyeing of Synthetic Textile Materials and Blends **9 HOURS**

Disperse dye: Properties, different methods of dyeing polyester and other synthetics fibers using disperse dye: carrier dyeing, high temperature high pressure (HTHP) dyeing and Thermosol dyeing; dyeing of nylon with acid dye, metal complex dye and reactive dye; dyeing of acrylic with basic dye

Unit-V Dyeing Machines **8 HOURS**

Fiber dyeing machine; Yarn dyeing machine: Hank dyeing machine, cone/cheese dyeing machine, rope dyeing machine, warp dyeing machine; Fabric dyeing machine: Winch, jigger, Jet dyeing machine; Garment dyeing machine; batch, semicontinuous and continuous dyeing

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DTTX502	DCC	TEXTILE DYEING PROCESS	60	20	20	30	20	3	0	2	4

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List of practicals:

1. Dyeing of cotton fabric sample with direct dye
2. Dyeing of cotton fabric sample with reactive dye
3. Dyeing of cotton fabric sample with vat dye
4. Dyeing of cotton fabric sample with sulfur dye
5. Dyeing of silk fabric sample with reactive dye
6. Dyeing of silk fabric sample with acid dye
7. Dyeing of wool fabric sample with reactive dye
8. Dyeing of wool fabric sample with acid dye
9. Dyeing of polyester fabric sample with disperse dye
10. Study of construction and working of soft overflow jet dyeing machine

Text Books:

1. Technology of Dyeing; V. A. Shenai, Sevak Publications, Mumbai, 1996
2. Dyeing and Chemical Technology of Textile Fibers; E. R. Trotman, Hodder Stoughton, 1984
3. Textile Preparation and Dyeing; Asim Kumar Roy Choudhury, Science publishers, 2006
4. Handbook of textile and industrial dyeing; M. Clerk(Editor); Woodhead publishers, 2011
5. Cellulosic Dyeing; John Shore; Bradford : Society of Dyers and Colourists, 1995
6. C M Car book

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DTTX503	DCC	Fabric Testing	60	20	20	30	20	3	0	2	4

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Course Educational Objectives (CEOs):

1. Students will have knowledge of various fabric properties.
2. Student will able to know tensile testing and its Principle
3. Graduate will accurately assess and test the fabric properties (functional and aesthetic) according to their application & requirement.

Course Outcomes (COs):

Student will be able
1. Measure evenness and irregularity techniques of textile testing.
2. Describe tensile properties and its principle.
3. Demonstrate the methods to evaluate fabric properties
4. Asses the fabric properties and its importance in real life situations.

Syllabus

Unit I Physical Parameters Testing of Fabric **10HRS**

Fabric parameters and dimensions:
Ends per inch, Picks per inch in woven fabric ends spacing, picks spacing, count of warp and count of weft, warp and weft crimp analysis, Physical parameters analysis of fabric e.g., fabric weight per unit length, Fabric weight per unit area fabric thickness measurement, Fabric width, , Course per inch and wales per inch in knitted fabric, etc.

Unit II Tensile Properties Fabric **8HRS**

Tensile testing terms and definition fabric tensile testing, Gauge length, and various principle of tensile testing such as CRL, CRE and CRT. Fabric grab tensile test and Fabric strip tensile test. Load-elongation curve and its conversion to stress-strain curve.

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DTTX503	DCC	Fabric Testing	60	20	20	30	20	3	0	2	4

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Unit III Aesthetic Properties of Fabric **7HRS**

Aesthetic fabric properties e.g. drape, handle, stiffness, crease recovery and wrinkle behavior, pilling, wear and abrasion related to aesthetic appearance of fabric.

Unit IV Application and Serviceability Testing of Fabric **8HRS**

Bursting test, air permeability, water permeability, water-proofing, tearing strength, shrinkage, color fastness tests, washing fastness, rubbing fastness, sublimation fastness, perspirations fastness, dry cleaning, flammability test and its assessment

Unit V Advance testing methods **9 HRS**

Fabric hand analysis such as subjective and objective analysis. A brief introduction about advance fabric testing KAWABATA.

List of practicals:

1. To Study and analysis of woven fabric EPI and PPI
2. To Study and analyse warp and weft yarn count of given woven fabric sample.
3. To study and analyse course/inch and wales/inch in knitted fabric sample.
4. To estimate grams per square meter (GSM) of a given fabric sample.
5. To estimate Fabric tensile strength by using fabric tensile tester (Strip method).
6. To study and test fabric tearing strength for woven fabric
7. To estimate bursting strength of woven/knitted fabric sample.
8. To Study and analyse woven fabric stiffness properties.

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DTTX503	DCC	Fabric Testing	60	20	20	30	20	3	0	2	4

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9. To analyse knitted fabric of pilling resistance properties.
10. To analyse Abrasion resistance properties of woven fabric sample.
11. To analyse Colour fastness properties of dyed woven fabric sample.
12. To analyse washing fastness of woven fabric sample
13. To study stretch and recovery property of fabric.

Text Books:

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, E. B. Grover and D. S. Hamby. A
5. Handbook of Technical Textiles, Volume 1: Technical Textile Processes, A. Richard Horrocks and Subhash C. Anand Woodhead Publishing (2016).

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DTTX504	AECC	CAD IN TEXTILE	0	0	0	0	50	0	1	2	2

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Course Educational Objectives (CEOs):

1. To provide the knowledge about the preliminary functions of CAD in Textile
2. To impart conceptual knowledge for the Industry as a Fabric Designer.
3. To understand fabric structure, figure designing for mass production.

Course Outcomes (COs):

Student will be able:

1. To apply their knowledge on the various functions of the CAD in textile
2. To make different Fabric designing
3.. To identify the fabric making process, print designing for fabric.
4. To use their knowledge for different tools of CAD in Textile

List of Practical's (Expand it if needed):

1. To Study Overview of CAD in Textile
2. To Study woven design structure
3. To Study hardware requirement & Installation of CAD software
4. To Study Various menu commands
5. To prepare design on dobby CAD software with proper parameters and color effects. Take a printout.
6. To manage dobby design library with twill and honey comb.
7. To study Knit design structure on software.

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DTTX504	AECC	CAD IN TEXTILE	0	0	0	0	50	0	1	2	2

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8. To draw figured pattern on graph paper and apply to Jacquard CAD software with proper parameters and color effects. Take a printout.
9. To manage jacquard design with same figure to different weaves.
10. To draw figured pattern on graph paper and apply to printex CAD software with proper parameters and color effects. Take a printout.
11. To manage printex design with color specification.

Text Books:

1. Fabric Structure & Design - Gokarneshnan, N
2. CAD Manuals
3. CAD-Cam Principles and applications - Rao; TMH

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DTTX506	AECC	Seminar and Group Discussion	0	0	0	0	50	0	0	2	1

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Course Educational Objectives (CEOs):

1. Learn to give a presentation.
2. Help student to develop knowledge.

Course Outcomes (COs):

Student will be able to
1. Demonstrate their skill of communications.
2. Create a presentations using ICT.
3. Collect various about latest development on some specific topics.

Course Contents:

Each Student is required to give four power point presentations on the various topics allotted to them separately.

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DTTX515	DSE	TECHNICAL TEXTILES	60	20	20	-	-	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. To provide the knowledge about the technical textiles along with technical fibers, technical yarns, and technical fabrics.
2. To provide the knowledge about the application of technical textiles in the filtration, Geotextiles, medical textiles etc.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills, and attitudes. The students will be able

1. To explain the requirements of technical textiles products.
2. To explain the different types of technical textile product and their applications in different domains.

Course Content:

Unit-I Technical Textiles Overview **8 HOURS**

Definition, Classification based on raw material, process and application area, Market overview, Application areas of technical textiles, Future scope to technical textile industry.

Unit-II High Performance Fiber **10 HOURS**

Conventional fibers, high performance fibers overview, properties, requirement, classification; applications and properties of carbon, Aramid, Basalt, HDPE, Glass, PTFE, Ceramics, etc.

Unit-III Technical Yarns **8 HOURS**

Requirements and applications of technical yarns, Types of technical yarns, their properties and applications, Modification of textile yarn structures for functional applications, Different Yarn formation methods, Hybrid yarns ,technical sewing threads.

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Shri Vaishnav Institute of Textile Technology
Diploma in Textile Engineering
(2020-2023)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTTX515	DSE	TECHNICAL TEXTILES	60	20	20	-	-	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Unit-IV Technical Fabric Structure **7 HOURS**

Warp Knitted, Nonwoven Fabrics, Nonwoven fabric production, Different web laying methods of nonwoven, different bonding methods of nonwoven, Application of nonwoven fabrics in technical textiles.

Unit-V Applications of Technical Textiles **12 HOURS**

Agro textiles, Filtration, Composite, Geotextiles, Medical Textiles, Automobiles, Protection, Sports, Environmental Protection, Packaging, Home textiles, etc.

Textbooks:

1. Handbook of Technical Textiles, Edited by A. R. Horrocks and S. C. Anand, CRC Press, 2000.
2. Technical Textile Yarns, Edited by R. Alagirusamy and A. Das,Woodhead Publishing Limited, 2010.
3. Handbook of Nonwovens, Edited by S. J. Russell, Woodhead Publishing Limited, 2007.
4. Technical Textiles, P.A.Khatwani and S.S.Yardi, NCUTE Programme Report, 2002.
5. High Performance Fibers, Edited by JWS Hearle, Woodhead Publishing Limited, 2001.
6. Handbook of Medical Textiles, Edited by V. T. Bartels, Woodhead Publishing Limited, 2011.
7. Progress in Textiles: Science & Technology (Vol: 3), Edited by V.K. Kothari, IAFL Publications, 2009.

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTTX525	DSE	Nonwoven Technology	60	20	20	-	-	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. The students will be able to get the basic knowledge about principle of manufacturing of nonwoven materials to the extent of their technical use.
2. The students will be able to get the basic knowledge about the applications of nonwoven materials to the extent of their technical use.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to

1. Understand the manufacturing process of nonwovens.
2. Illustrate basic knowledge about the various bonding process of nonwoven fabrics.

Course Content:

Unit-I Introduction to Nonwovens I **10 HOURS**

Definition of nonwoven fabric, general properties of nonwoven fabrics, particulars on which properties of nonwoven fabric depends, different fibrous matter used to manufacture nonwoven bonded fabric, fiber description considerations.

Unit-II Properties and Classifications **10 HOURS**

Properties of nonwoven fabric produced using different fibrous matter, Classification and areas of application of nonwoven fabrics, Bonding agent used in nonwovens; properties desired in bonding agent.

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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTTX525	DSE	Nonwoven Technology	60	20	20	-	-	3	0	0	3

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Unit-III Production Process **9 HOURS**

Production steps for nonwoven fabric: General production steps for nonwoven fabric manufacturing, Dry bonded fabric production steps spun bonded fabric production steps, wet bonded fabric production steps.

Unit-IV Web Formation 1 **8 HOURS**

Types of webs and their forming techniques, staple fibre web – dry-laid web: parallel laid web and their advantages and disadvantages, cross laid web and their advantages and disadvantages and random laid web and their advantages and disadvantages.

Unit-V Bonding Process **8 HOURS**

Mechanical bonding processes - needle punching technology, Thermal bonding processes – hot calendaring method and adhesive bonding and chemical bonding processes.

Text Books:

1. Lunenschloss J and Albrecht W, "Non-Woven Bonded Fabric", Ellis and Horwood Ltd., UK, 1985.
2. Albrecht W, Fuchs H & Kittelmann, "Nonwoven Fabrics", Wiley-VCH Weinheim, 2003.
3. Mrstina V & Fejgal F, "Needle punching textile technology", Elsevier, 1990.
4. Krcma Radco, "Manual of nonwovens", Textile Trade Press, UK,1971
5. Gulrajani M L, "Book of Papers of International Conference on Nonwovens", The Textile Institute, UK, 1992,

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DTTX535	DSE	Textile Mill Planning and Management	60	20	20	-	-	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Course Educational Objectives (CEOs):

1. Student will be able to identify and evaluate the preliminary requirements for starting of a textile plant and project management.
2. Student will be able to demonstrate their conceptual knowledge to the pollution control of a textile mills.
3. Student will be able to investigate the correct reasons of various problems and their solution of a textile plant.

Course Outcomes (COs):

Student will be able to

1. Apply their knowledge on the various factors for setting up a Textile plant.
2. Calculate production and use it in balancing of machineries.
3. Solve the reason of various problems and their solution of a textile plant.
4. Use their conceptual knowledge to the pollution control of a textile mills.

Course Content:

Unit-I: Selection of Location and Construction **10 HOURS**

Selection of site for textile mills, Textile mill building structures, Principles and requirements of good foundation for machineries, Protection against noise and vibration. Planning of pnumafil trunches.

Unit-II: Spin Plan and Weave Plan **12 HOURS**

Spin plans for various counts and yarns, norms for production rates, waste, efficiency level of machines, Estimation of number of machines for the given production of yarn, Estimation of number of machines in preparatory and weaving mill.

Unit-III: Air Conditioning and Humidification **10 HOURS**

Air conditioning, humidification and ventilation for a textile mill - different systems of humidification and their efficiency, Temperature, relative humidity and ventilation requirement for different sections of a textile mill. Compressed air consumption

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DTTX535	DSE	Textile Mill Planning and Management	60	20	20	-	-	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Unit -IV: Dust Control and Lighting **8 HOURS**

Dust extraction in textile mills - methods and equipments used in dust extraction. Lighting - requirements and fittings, spacing of light fittings, illumination standards and measurements. Power requirements for the textile mills, transformers, distributors.

Unit-V: Labor Allocation **7 HOURS**

Machine lay-out, Labor allocation in different departments of a textile mill, Work study, method study and work measurement, Application of time study in a textile mill, Importance and use of snap study.

Text Books:

1. Air Conditioning in Textile Industry -ATIRA
2. Industrial Engineering & Management -Banga Sharma
3. Management of Textile Industry - V.D.Dudeja
4. Modern Preparation and Weaving Machinery - A. Ormerod
5. Humidification and ventilation management in textile industry, Purushottama B, Woodhead
6. Strategic approach for managing a textile, Karshanis A. V., 2009
7. Modern Technology Management in Textile - Prof. D. B. Ajgaonkar
8. Norms for the Textile Industry - ATIRA, BTRA, SITRA, NITRA
9. Time Study Manual - (For the Textile Industry) Norbert Lloyd Enrick

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