

NPTEL : Theory of Yarn Structures (Textile Engineering)

Co-ordinators : Prof. Bohuslav Neckar

Lecture 1 - Fibers and Yarns : Terms, Definitions and Relations

Lecture 2 - Fibers and Yarns : Terms, Definitions and Relations

Lecture 3 - Compression of Fibrous Assemblies

Lecture 4 - Compression of Fibrous Assemblies (Continued...)

Lecture 5 - Pores Among Fibers

Lecture 6 - Pores Among Fibers (Continued...)

Lecture 7 - Orientation of Fibers

Lecture 8 - Orientation of Fibers (Continued...)

Lecture 9 - Mechanics of Parallel Fiber Bundles

Lecture 10 - Mechanics of Parallel Fiber Bundles (Continued...)

Lecture 11 - Modelling of Internal Yarn Geometry

Lecture 12 - Modelling of Internal Yarn Geometry

Lecture 13 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D

Lecture 14 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 15 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 16 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 17 - Bundle Theory of Yarn Unevenness

Lecture 18 - Bundle Theory of Yarn Unevenness (Continued...)

Lecture 19 - Yarn Strength as a Stochastic Process

Lecture 20 - Yarn Strength as a Stochastic Process (Continued...)

[Lecture 1 - Science of Clothing Comfort-Outline](#)

[Lecture 2 - Understanding Clothing and Clothing Comfort](#)

[Lecture 3 - Understanding Clothing and Clothing Comfort \(Continued...\)](#)

[Lecture 4 - Understanding Clothing and Clothing Comfort \(Continued...\)](#)

[Lecture 5 - Psychology and Comfort](#)

[Lecture 6 - Psychology and Comfort \(Continued...\)](#)

[Lecture 7 - Psychology and Comfort \(Continued...\)](#)

[Lecture 8 - Psychology and Comfort \(Continued...\)](#)

[Lecture 9 - Neurophysiological Processes in Clothing Comfort](#)

[Lecture 10 - Neurophysiological Processes in Clothing Comfort \(Continued...\)](#)

[Lecture 11 - Neurophysiological Processes in Clothing Comfort \(Continued...\)](#)

[Lecture 12 - Neurophysiological Processes in Clothing Comfort \(Continued...\)](#)

[Lecture 13 - Neurophysiological Processes in Clothing Comfort \(Continued...\)](#)

[Lecture 14 - Neurophysiological Processes in Clothing Comfort \(Continued...\)](#)

[Lecture 15 - Tactile Aspects of Clothing Comfort](#)

[Lecture 16 - Tactile Aspects of Clothing Comfort \(Continued...\)](#)

[Lecture 17 - Tactile Aspects of Clothing Comfort \(Continued...\)](#)

[Lecture 18 - Tactile Aspects of Clothing Comfort \(Continued...\)](#)

[Lecture 19 - Understanding Clothing and Clothing Comfort \(Continued...\)](#)

[Lecture 20 - Tactile Aspects of Clothing Comfort \(Continued...\)](#)

[Lecture 21 - Tactile Aspects of Clothing Comfort \(Continued...\)](#)

[Lecture 22 - Clothing Comfort Related to Thermal Transmission](#)

[Lecture 23 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 24 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 25 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 26 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 27 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 28 - Clothing Comfort Related to Thermal Transmission \(Continued...\)](#)

[Lecture 29 - Moisture Transmission and Clothing Comfort](#)

[Lecture 30 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 31 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 32 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 33 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 34 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 35 - Moisture Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 36 - Combined Heat and Mass Transmission and Clothing Comfort](#)

[Lecture 37 - Combined Heat and Mass Transmission and Clothing Comfort \(Continued...\)](#)

[Lecture 38 - Thermo-Physiological Comfort of Functional Clothing](#)

[Lecture 39 - Garment Fit and Comfort](#)

[Lecture 40 - Garment Fit and Comfort \(Continued...\)](#)

- Lecture 1 - Impurities and Contaminants in Cotton
- Lecture 2 - Opening Principle and Opening Devices
- Lecture 3 - Cleaning Principle
- Lecture 4 - Machines and their Layout
- Lecture 5 - Bale Opening Machines
- Lecture 6 - Machines in Blow Room - Part II
- Lecture 7 - Opening Cleaning Machines - Part II
- Lecture 8 - Mixing/Blending
- Lecture 9 - Transportation of Tuft
- Lecture 10 - Lap formation and Material Flow Regulation
- Lecture 11 - Process Performance
- Lecture 12 - Introduction
- Lecture 13 - Card Feed Zone
- Lecture 14 - Carding Zone
- Lecture 15 - Analysis of flat action
- Lecture 16 - Sliver Formation
- Lecture 17 - Package Formation
- Lecture 18 - Card Clothing
- Lecture 19 - Card Setting, Draft, Production
- Lecture 20 - Fibre Configuration and Neps in Card sliver
- Lecture 21 - Carding Process
- Lecture 22 - Numerical Problems and Solution
- Lecture 23 - Introduction and Drafting principle
- Lecture 24 - Design Features and operating principle of drawframe
- Lecture 25 - Drafting Rolles, Web Condensation and Packaging
- Lecture 26 - Drafting Roller Arrangement
- Lecture 27 - Drafting Theory, Wave Fromation and Control
- Lecture 28 - Drafting Force and Roller Slip
- Lecture 29 - Significance of Process Parameters
- Lecture 30 - Draft and production Calculation
- Lecture 31 - Blending on Drawframe

[Lecture 32 - Process Monitoring and Control](#)

[Lecture 33 - Drawframe Autoleveller](#)

[Lecture 34 - Card Autoleveller](#)

[Lecture 35 - Numericals on Drawing](#)

[Lecture 1 - Evaluation of Textile Materials - Outline](#)

[Lecture 2 - Evaluation of Textile Materials - Outline \(Continued...\)](#)

[Lecture 3 - Sampling Methods and Sample Size](#)

[Lecture 4 - Sampling Methods and Sample Size \(Continued...\)](#)

[Lecture 5 - Sampling Methods and Sample Size \(Continued...\)](#)

[Lecture 6 - Sampling Methods and Sample Size: Practical Statistics](#)

[Lecture 7 - Sampling Methods and Sample Size: Practical Statistics \(Continued...\)](#)

[Lecture 8 - Sampling Methods and Sample Size: Practical Statistics \(Continued...\)](#)

[Lecture 9 - Evaluation of Fibre Length](#)

[Lecture 10 - Evaluation of Fibre Length \(Continued...\)](#)

[Lecture 11 - Evaluation of Fibre Length \(Continued...\)](#)

[Lecture 12 - Evaluation of Fibre Fineness](#)

[Lecture 13 - Evaluation of Fibre Fineness - 1](#)

[Lecture 14 - Evaluation of Cotton Fibre Maturity](#)

[Lecture 15 - Evaluation of Cotton Fibre Properties: \(HVI and AFIS\)](#)

[Lecture 16 - Evaluation of Linear Density of Textile Materials](#)

[Lecture 17 - Evaluation of Linear Density of Textile Materials \(Continued...\)](#)

[Lecture 18 - Evaluation of Tensile Properties of Textile Materials](#)

[Lecture 19 - Evaluation of Tensile Properties of Textile Materials \(Continued...\)](#)

[Lecture 20 - Evaluation of Tensile Properties of Textile Materials-1 \(Continued...\)](#)

[Lecture 21 - Evaluation of Tensile Properties of Textile Materials-2 \(Continued...\)](#)

[Lecture 22 - Evaluation of Tensile Properties of Textile Materials-3 \(Continued...\)](#)

[Lecture 23 - Evaluation of Tensile Properties of Textile Materials-4 \(Continued...\)](#)

[Lecture 24 - Evaluation of Tensile Properties of Textile Materials-5 \(Continued...\)](#)

[Lecture 25 - Evaluation of Yarn and Fabric Hairiness](#)

[Lecture 26 - Evaluation of Yarn and Fabric Hairiness \(Continued...\)](#)

[Lecture 27 - Evaluation of Yarn Twist](#)

[Lecture 28 - Evaluation of Yarn Twist \(Continued...\)](#)

[Lecture 29 - Evaluation of Moisture in Textiles](#)

[Lecture 30 - Evaluation of Moisture in Textiles \(Continued...\)](#)

[Lecture 31 - Evaluation of Yarn Evenness](#)

[Lecture 32 - Evaluation of Yarn Evenness-1 \(Continued...\)](#)

[Lecture 33 - Evaluation of Yarn Evenness-2 \(Continued...\)](#)

[Lecture 34 - Evaluation of Yarn Evenness-3 \(Continued...\)](#)

[Lecture 35 - Evaluation of Yarn Evenness-3 \(Continued...\)](#)

[Lecture 36 - Evaluation of Yarn Evenness-4 \(Continued...\)](#)

[Lecture 37 - Evaluation of Bursting and Tear Strength of Fabrics](#)

[Lecture 38 - Evaluation of Pilling and Abrasion Properties of Fabrics](#)

[Lecture 39 - Evaluation of Low Stress Mechanical Properties of Textile Materials](#)

[Lecture 40 - Evaluation of Low Stress Mechanical Properties of Textile Materials \(Continued...\)](#)

- Lecture 1 - Testing of Low Stress mechanical Properties of Textile Fabrics
- Lecture 2 - Testing of Low Stress mechanical Properties of Textile Fabrics (Continued...)
- Lecture 3 - Testing of Low Stress mechanical Properties of Textile Fabrics (Continued...)
- Lecture 4 - Testing of Transmission Characteristics of Textile Fabrics
- Lecture 5 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 6 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 7 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 8 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 9 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 10 - Testing of Fibre Reinforced Composite Materials
- Lecture 11 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 12 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 13 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 14 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 15 - Testing of Fibre Fabrics
- Lecture 16 - Testing of Fibre Fabrics (Continued...)
- Lecture 17 - Testing of Fibre Fabrics (Continued...)
- Lecture 18 - Testing of Geotextiles
- Lecture 19 - Testing of Geotextiles (Continued...)
- Lecture 20 - Testing of Geotextiles (Continued...)
- Lecture 21 - Testing of Ballistics Protective Clothing
- Lecture 22 - Testing of UV Radiation Protective Textiles
- Lecture 23 - Testing of Compression Bandages
- Lecture 24 - Testing of Electromagnetic Shielding Textiles

- [Lecture 1 - The Building Block of Yarns](#)
- [Lecture 2 - The Building Block of Yarns \(Continued...\)](#)
- [Lecture 3 - Basic Characteristics of Yarns](#)
- [Lecture 4 - Basic Characteristics of Yarns \(Continued...\)](#)
- [Lecture 5 - Basic Characteristics of Yarns \(Continued...\)](#)
- [Lecture 6 - Relations Among Yarn Count, Twist, and Diameter](#)
- [Lecture 7 - Relations Among Yarn Count, Twist, and Diameter \(Continued...\)](#)
- [Lecture 8 - Helical Model of Fibers in Yarns](#)
- [Lecture 9 - Helical Model of Fibers in Yarns \(Continued...\)](#)
- [Lecture 10 - Helical Model of Fibers in Yarns \(Continued...\)](#)
- [Lecture 11 - Helical Model of Fibers in Yarns \(Continued...\)](#)
- [Lecture 12 - Mass Irregularity of Yarns](#)
- [Lecture 13 - Mass Irregularity of Yarns \(Continued...\)](#)
- [Lecture 14 - Mass Irregularity of Yarns \(Continued...\)](#)
- [Lecture 15 - Mass Irregularity of Yarns \(Continued...\)](#)
- [Lecture 16 - Radial Migration of Fibres in Yarns](#)
- [Lecture 17 - Radial Migration of Fibres in Yarns \(Continued...\)](#)
- [Lecture 18 - Radial Migration of Fibres in Yarns \(Continued...\)](#)
- [Lecture 19 - Yarn Shrinkage due to Washing](#)
- [Lecture 20 - Tensile Mechanics of Yarns](#)
- [Lecture 21 - Tensile Mechanics of Yarns \(Continued...\)](#)
- [Lecture 22 - Tensile Mechanics of Yarns \(Continued...\)](#)
- [Lecture 23 - Tensile Mechanics of Yarns \(Continued...\)](#)
- [Lecture 24 - Tensile Mechanics of Yarns \(Continued...\)](#)

Lecture 1 - Conventional Printing

Lecture 2 - Colourants

Lecture 3 - Dyes and pigments

Lecture 4 - Thickeners

Lecture 5 - Measurement of viscosity

Lecture 6 - Discharge and resist printing

Lecture 7 - Transfer Printing

Lecture 8 - Sublimation Transfer Printing : Paper Printing

Lecture 9 - Sublimation Transfer Printing : Dyes and inks

Lecture 10 - Free path length and mechanism of transfer

Lecture 11 - Transfer Printing Machines and Other Transfer Methods

Lecture 12 - Introduction to Digital Textile Printing

Lecture 13 - Revision and Doubt Clarification Session - 1

Lecture 14 - Digital Textile Printing: Inkjet Technologies

Lecture 15 - Inkjet Technologies: drop-on-demand

Lecture 16 - Revision and Doubt Clarification Session - 2

Lecture 17 - Inkjet Technologies: Machines

Lecture 18 - Inkjet Printing

Lecture 19 - Printing inks

Lecture 20 - Water-based inks

Lecture 21 - Water-based inks (Continued...)

Lecture 1 - Introduction to texturing

Lecture 2 - General principles involved in the manufacture of textured yarns

Lecture 3 - General principles involved in the manufacture of textured yarns (Continued...)

Lecture 4 - Bulked yarns

Lecture 5 - Mechanisms of setting and texturing

Lecture 6 - Thermo-mechanical texturing

Lecture 7 - Characterization and optimization

Lecture 8 - Influence of material and process parameters

Lecture 9 - Influence of process parameters

Lecture 10 - Influence of process parameters (Continued...)

Lecture 11 - Revision and clarification of doubts - Session 1

Lecture 12 - Influence of process parameters (Continued...)

Lecture 13 - Draw Texturing

Lecture 14 - Simultaneous draw texturing with POY

Lecture 15 - Draw Texturing (Continued...)

Lecture 16 - Draw Texturing Machines and Process Parameters

Lecture 17 - Draw Texturing : Effect of Process Parameters

Lecture 18 - Draw Texturing : Positorque System

Lecture 19 - Friction Draw Texturing

Lecture 20 - Friction Draw Texturing (Continued...)

Lecture 21 - Air-Jet Texturing

Lecture 22 - Air-Jet Texturing (Continued...)

Lecture 23 - Air-Jet Texturing (Continued...)

Lecture 24 - Air-Jet Texturing : Effect of Process parameters

Lecture 25 - Air-Jet Texturing : Effect of Water parameters

Lecture 26 - Air-Texturing Jets

Lecture 27 - Interlacement: need and jet design

Lecture 28 - Bulked continuous filament yarns

Lecture 29 - Hi-bulk yarns

Lecture 30 - Revision and Clarification of Doubts Session 2

Lecture 31 - Hi-bulk yarns (Continued...)

[Lecture 32 - Texturing of spun yarns](#)

[Lecture 33 - Texturing of spun yarns \(Continued...\)](#)

[Lecture 34 - Solvent texturing](#)

Lecture 1 - Introduction to Finishing

Lecture 2 - Wrinkle Resistant Finishing

Lecture 3 - Wrinkle Resistant Finishing (Continued...)

Lecture 4 - Wrinkle Resistant Finishing : Performance characteristics

Lecture 5 - Catalysis and Catalysts

Lecture 6 - Other Crosslinking agents

Lecture 7 - Non-nitrogenous Agents

Lecture 8 - Control of Formaldehyde Release

Lecture 9 - Stiff and Soft Finishing

Lecture 10 - Soft Finishing (Continued...)

Lecture 11 - Soft Finishing (Continued...)

Lecture 12 - Emulsion Softeners

Lecture 13 - Water Proofing and Water Repellency

Lecture 14 - Water Repellency (Continued...)

Lecture 15 - Water Repellency (Continued...)

Lecture 16 - Waterproof Breathable Textiles

Lecture 17 - Soil Repellency and Soil Release

Lecture 18 - Soil Release Finishing

Lecture 19 - Fire Retardant Finishing

Lecture 20 - Chemistry of Flame Retardants

Lecture 21 - More Flame retardants and evaluation of fire retardancy

Lecture 22 - Antimicrobial Finishing

Lecture 23 - Finishing of Wool

Lecture 24 - Shrink Resistant Wool

Lecture 25 - Wool Setting

Lecture 26 - Mothproofing of Wool

Lecture 27 - Biopolishing

Lecture 28 - Finishing of synthetics

Lecture 29 - Finishing of synthetics : Antistatic Finish

Lecture 30 - Low Liquor Application

Lecture 31 - Waste heat recovery

[Lecture 32 - Principles of some Finishing machines](#)

- Lecture 1 - Pre-combing operation - Part 1
- Lecture 2 - Pre-combing operation - Part 2
- Lecture 3 - Introduction to Comber - Part 1
- Lecture 4 - Introduction to Comber - Part 2
- Lecture 5 - Sequence of Operation
- Lecture 6 - Combing Mechanism
- Lecture 7 - Timing Diagram
- Lecture 8 - Sliver Formation
- Lecture 9 - Theoretical Aspects in Combing - Part 1
- Lecture 10 - Theoretical Aspects in Combing - Part 2
- Lecture 11 - Parameters Influencing Combing Performance
- Lecture 12 - Analysis of Drive
- Lecture 13 - Calculation of Process Performance Parameters
- Lecture 14 - Introduction, Working Principle and Creel
- Lecture 15 - DRAFTING Unit - Part 1
- Lecture 16 - DRAFTING Unit - Part 2
- Lecture 17 - Flyer Twisting
- Lecture 18 - Package Formation
- Lecture 19 - Bobbin Speed Regulation
- Lecture 20 - Building Motion and Drive Analysis
- Lecture 21 - Calculation for Change Gears and Production
- Lecture 22 - Introduction and Working Principle
- Lecture 23 - Creel and Drafting Unit
- Lecture 24 - Twisting Process and Twisting Elements
- Lecture 25 - Bobbin Building
- Lecture 26 - Spinning Geometry
- Lecture 27 - Analysis of Forces on Traveller
- Lecture 28 - Analysis of Forces on Ballon
- Lecture 29 - Analysis of Drive, Production Calculation
- Lecture 30 - End Breaks

Lecture 1 - Introduction to Knitting

Lecture 2 - Knitting Glossary

Lecture 3 - Loop Formation in Weft Knitting

Lecture 4 - Lab Demo 1: Analysis of a Weft Knit Fabric

Lecture 5 - Automation in Loop Formation

Lecture 6 - Flat Bed Machine Needle/Cam Interaction

Lecture 7 - Circular Knitting

Lecture 8 - Single Bed Weft Knitting-Flat and Circular M/C

Lecture 9 - Lab Demo 2: Single Flat Bed Machine

Lecture 10 - Lab Demo 3: Single Bed Circular Machine

Lecture 11 - Single Bed Weft Knitting Fabric Curling

Lecture 12 - Weft Knitting Double Flat Beds

Lecture 13 - Weft Knitting Double Circular Beds

Lecture 14 - Weft Knitting V-Bed Machine

Lecture 15 - Analysis of a Double Jersey Fabric

Lecture 16 - Single and Double Jersey Construction

Lecture 17 - Weft Knit Stitches - Loop, Tuck and Float

Lecture 18 - Lab Demo 6 (Part 1) Knitting Notations

Lecture 19 - Lab Demo 6 (Part 2) Knitting Notations

Lecture 20 - Fabric Analysis - Influence of Loop Length

Lecture 21 - Fabric Design - Float and Tuck Formation

Lecture 22 - Fabric Analysis - Influence of Float and Tuck Stitches

Lecture 23 - Fabric Analysis - Shrinkage (Relaxation)

Lecture 24 - Fabric Analysis - Extensibility and Recovery

Lecture 25 - Knitting Calculation - Yarn Selection

Lecture 26 - Knitting Calculation - Production (Circular)

Lecture 27 - Knitting Calculation - Production (Flat)

Lecture 28 - Knitting Calculation - Fabric Calculations

Lecture 29 - Knitting Calculation - Geometrical Modeling

Lecture 30 - Knitting Calculation - Fabric Spirality in Single Jersey (Tubular)

Lecture 31 - Advancement in Knitting Technology

- Lecture 32 - Knitting Designs Possibilities
- Lecture 33 - Knitting Designs Possibilities - 1
- Lecture 34 - Design Software
- Lecture 35 - Weft Knitting- Revision
- Lecture 36 - Introduction to Warp Knitting
- Lecture 37 - Warp Knitting Technology- Loop Formation
- Lecture 38 - Swinging and Shogging Motions (Overlap and Underlap)
- Lecture 39 - Warp Knit - Structural Identification
- Lecture 40 - Warp Knit Fabric Notation - Lapping Diagram and Lapping Plan
- Lecture 41 - Warp Knit Structure - Design Principles
- Lecture 42 - Single Bar Warp Knit Constructions
- Lecture 43 - Double Bar Warp Knit Constructions
- Lecture 44 - Lapping Plan Execution - Pattern Disc and Pattern Drum
- Lecture 45 - Chain Links Arrangement - Single and Double Bar Constructions
- Lecture 46 - Warp Knits : Structure - Property Relationship
- Lecture 47 - Warp Knits : Multi-bar Structures and Double Bed Designs
- Lecture 48 - Weft and Warp Knitting - Summary
- Lecture 49 - Technical Applications of Knitting
- Lecture 50 - Technical Applications of Knitting (Continued...)

- Lecture 1 - Introduction to Technical Textiles
- Lecture 2 - Introduction to Technical Textiles (Continued...)
- Lecture 3 - Textile Reinforced Composites
- Lecture 4 - Textile Reinforced Composites (Continued...)
- Lecture 5 - Textile Reinforced Composites (Continued...)
- Lecture 6 - Textile Reinforced Composites (Continued...)
- Lecture 7 - Textile Reinforced Composites (Continued...)
- Lecture 8 - Textile Reinforced Composites (Continued...)
- Lecture 9 - Textile Reinforced Composites (Continued...)
- Lecture 10 - Textile Reinforced Composites (Continued...)
- Lecture 11 - Textile Reinforced Composites (Continued...)
- Lecture 12 - Textile Reinforced Composites (Continued...)
- Lecture 13 - Filter Fabrics
- Lecture 14 - Filter Fabrics (Continued...)
- Lecture 15 - Filter Fabrics (Continued...)
- Lecture 16 - Geotextiles
- Lecture 17 - Geotextiles (Continued...)
- Lecture 18 - Geotextiles (Continued...)
- Lecture 19 - Geotextiles (Continued...)
- Lecture 20 - Extreme Cold Protective Clothing
- Lecture 21 - Extreme Cold Protective Clothing (Continued...)
- Lecture 22 - Extreme Heat Protective Clothing
- Lecture 23 - Extreme Heat Protective Clothing (Continued...)
- Lecture 24 - Sports Textiles
- Lecture 25 - Sports Textiles (Continued...)
- Lecture 26 - Sports Textiles (Continued...)
- Lecture 27 - Ultraviolet Protective Textiles
- Lecture 28 - Ultraviolet Protective Textiles (Continued...)
- Lecture 29 - Ultraviolet Protective Textiles (Continued...)
- Lecture 30 - Ballistic Protective Textiles
- Lecture 31 - Compression Bandage

[Lecture 32 - Compression Bandage \(Continued...\)](#)

[Lecture 33 - Compression Bandage \(Continued...\)](#)

[Lecture 34 - Automotive Textiles](#)

[Lecture 35 - Textiles in Hygiene](#)

[Lecture 36 - Additional Lectuer on Geotextiles](#)

[Lecture 37 - Additional Lectuer on Geotextiles \(Continued...\)](#)

[Lecture 38 - Additional Lectuer on Composites](#)

[Lecture 39 - Additional Lectuer on Composites \(Continued...\)](#)

[Lecture 40 - Additional Lectuer on Composites \(Continued...\)](#)

NPTEL : Natural Dyes (Textile Engineering)

Co-ordinators : Dr. Padma S Vankar

- Lecture 1 - Natural Dyes
- Lecture 2 - Natural Dyes
- Lecture 3 - Natural Dyes
- Lecture 4 - Natural Dyes
- Lecture 5 - Natural Dyes
- Lecture 6 - Natural Dyes
- Lecture 7 - Natural Dyes
- Lecture 8 - Natural Dyes
- Lecture 9 - Natural Dyes
- Lecture 10 - Natural Dyes
- Lecture 11 - Natural Dyes
- Lecture 12 - Natural Dyes
- Lecture 13 - Natural Dyes
- Lecture 14 - Natural Dyes
- Lecture 15 - Natural Dyes
- Lecture 16 - Natural Dyes
- Lecture 17 - Natural Dyes
- Lecture 18 - Natural Dyes
- Lecture 19 - Natural Dyes
- Lecture 20 - Natural Dyes
- Lecture 21 - Natural Dyes
- Lecture 22 - Natural Dyes
- Lecture 23 - Natural Dyes
- Lecture 24 - Natural Dyes
- Lecture 25 - Natural Dyes
- Lecture 26 - Natural Dyes
- Lecture 27 - Natural Dyes
- Lecture 28 - Natural Dyes
- Lecture 29 - Natural Dyes
- Lecture 30 - Natural Dyes
- Lecture 31 - Natural Dyes

[Lecture 32 - Natural Dyes](#)

[Lecture 33 - Natural Dyes](#)

[Lecture 34 - Natural Dyes](#)

[Lecture 35 - Natural Dyes](#)

[Lecture 36 - Natural Dyes](#)

[Lecture 37 - Natural Dyes](#)

[Lecture 38 - Natural Dyes](#)

[Lecture 39 - Natural Dyes](#)

[Lecture 40 - Natural Dyes](#)