

2020-23

#### SEMESTER-III

#### MBAI301C ADVANCED HUMAN VALUES AND PROFESSIONAL ETHICS

SUBJECT CODE		TEACHING & EVALUATION SCHEME										
		Т	HEORY		PRACT	ICAL						
CODE	SUBJECT NAME	END SEM University Exam	Two Term Exam	l cachers Assessment*	END SEM University Exam	l cachers Assessment*	L	Т	Р	CREDITS		
MBA1301C	Advanced Human Values and Professional Ethics	60	20	20	-	ц.	4	-	-	4		

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

#### Course Objective

The objective of the course is to disseminate the theory and practice of moral code of conduct and familiarize the students with the concepts of "right" and "good" in individual, social and professional context

#### Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

#### Course Outcomes

- 1. Help the students to understand right conduct in life.
- 2. To equip students with understanding of the ethical philosophies, principles, models that directly and indirectly affect personal and professional life.

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#### COURSE CONTENT

#### Unit I: Inculcating Values at Workplace

- 1. Values: Concept, Sources, Essence
- 2. Classification of Values.

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- 3. Values in Indian Culture and Management: Four False Views, Value Tree
- 4. Eastern and Western Values; Values for Global Managers

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#### Unit II: Professional Ethics

- 1. Ethics: Concept, Five P's of Ethical Power, Organisational Tools to Cultivate Ethics
- 2. Theories of Ethics: Teleological and Deontological
- 3. Benefits of Managing Ethics in an Organisation
- 4. Ethical Leadership

#### Unit III: Indian Ethos and Management Style

- 1. Indian Ethos and Workplace
- 2. Emerging Managerial Practices
- 3. Ethical Considerations in Decision Making and Indian Management Model
- 4. Core Strategies in Indian Wisdom and Ethical Constraints

#### Unit IV: Human Behavior -- Indian Thoughts

- 1. Guna Theory
- 2. Sanskara Theory
- 3. Nishkama Karma
- 4. Yoga: Types, Gains; Stress and Yoga

#### Unit V: Spirituality and Corporate World

- 1. Spirituality: Concept, Paths to Spirituality
- 2. Instruments to achieve spirituality
- 3. Vedantic Approach to Spiritual and Ethical Development
- 4. Indian Spiritual Tradition.

#### Suggested Readings

- Kausahl, Shyam L. (2006). Business Ethics Concepts, Crisis and Solutions. New Delhi: Deep and Deep Publications Pvt. Limited
- 2. Murthy, C.S.V. (2012). Business Ethics -Text and Cases. Himalaya Publishing House: Mumbai
- 3. Chakraborty, S. K. (1999). Values and Ethics for Organizations. Oxford university press
- D.Senthil Kumar and A. SenthilRajan (2008). Business Ethics and Values. Himalaya Publishing House: Mumbai

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## Shri Vaishnav Institute of Technology

				TEACHING & EVALUATION SCHEME										
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COURSE CODE	Category	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*							
MTMATX101	BS	Advanced Mathematics and Computer Methods	60	20	20	-	-	3	1	0	4			

## Master of Technology (Textile Engineering) SEMESTER I

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):

Course Objectives: - The course is designed to enable students to: • enhance ability to think in a critical manner • formulate and develop mathematical arguments in a logical manner • improve their skills in acquiring new understanding and experience • acquire an understanding of advanced mathematical analysis.

#### Course Outcomes (COs):

After the successful completion of this course students will be able to:

- A. demonstrate the ability to obtain numerical solution of PDF.
- B. understand the concept of integral transform and apply it solve B.V.P.
- C. provide an overview of discovering the experimental aspect of modern applied mathematics.
- D. solve finite element problems to related fluid flow and heat transfer problems.
- E. apply digital computer to solutions of problems in mechanical engineering, square, and develop the techniques of simulation.

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Vishwavidyalaya, Indore

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			<b>TEACHING &amp; EVALUATION SCHEME</b>										
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COURSE CODE	Category	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*						
MTMATX101	BS	Advanced Mathematics and Computer Methods	60	20	20	-	-	3	1	0	4		

#### Syllabus

#### Unit I

Contraction of the local division of the loc

Boundary Value Problems and Applications: Linear second order partial differential equation in two independent variables – Normal forms hyperbolic, parabolic and elliptic equations – Cauchy problem. Wave equations –Solution of initial value problem – Significance of characteristic curves, Laplace transform solutions – Displacements in a long string – long string under its weight – a bar with prescribed force on one end – Free vibrations of a string. Un-damped free vibration of 2 degrees of freedom and Principal modes of vibration; torsion vibrations; Forced, Un-damped vibrations with harmonic excitation.

#### Unit II

Fourier Transform methods: one-dimensional heat conduction problems in infinite and semi-infinite rod – Laplace Equation – Poisson Equation. Concept of variation and its properties – Euler's equation – Functional dependent on first and higher order derivatives – Functional dependent on functions of several independent variables Variation problems with moving boundaries – Direct methods – Ritz and Kantorovich methods.

#### Unit III

Introduction to Finite Element Method: Introduction to Finite Element Method Rules for forming interpolation functions - Shape Functions Application to fluid flow and heat transfer problems **Unit – IV** 

Convection Computer Methods in Mechanical Engineering: Applications of digital computers to

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			TEACHING & EVALUATION SCHEME											
COURSE CODE	Category		Т	HEORY		PRAC	TICAL	Th	т	P	CRED ITS			
COURSE CODE	Category	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*							
MTMATX101	BS	Advanced Mathematics and Computer Methods	60	20	20	-	-	3	1	0	4			

solutions of problems in mechanical engineering, matrices, roots of equations, solution of simultaneous equations, curve fitting by least squares, differential and integration, differential and partial differential equations. Introduction to optimization methods: Local and global minima, Line searches, Steepest descent method, Conjugate gradient method, Quasi Newton method, Penalty function

#### Unit – V

FEM Simulations: 1d/2d/3d Poisson Equation Solver, Convection-Diffusion Solver, Heat Equation Solver, Efficient solutions of the Wave Equation, Non-Linear Finite Element Problems.

#### References

- 1. Mitchell A.R. and Griffith D.F., The Finite difference method in partial differential
- 2. equations, John Wiley and sons, New York (1980)
- Gupta, A.S., Calculus of Variations with Applications, Prentice Hall of India Pvt. Ltd., New Delhi (1997).
- 4. DESAI, C.S., and ABEL, J. P., Introduction to Finite Element Method, Van No strand Reinhold.
- 5. ELSEGOLTS, L., Differential Equations and the Calculus of Variations, Mir Publishers.
- 6. Probability and statistics for engineers Miller and Freund'

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COURSE				TE	ACHIN	G & EVAI	LUATIO	N SCI	HEME		
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CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	LT	Т	Р	CREDITS
MTTX101	DCC	THEORY OF YARN MANUFACTURING	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.

#### **Course Educational Objective (CEOs):**

The students will be able to gain knowledge of theories involved in the various manufacturing process of the yarn and to provide the basic knowledge on the various generation of faults/defects in the product and its remedies effectively.

#### **Course Outcomes (Cos):**

After the successful completion of this course students are expected to be able to demonstrate the following knowledge skill and attitudes

Students will be able to:

- 1. Identify and Analyze the problems in the processing of fibres .
- 2. Apply knowledge for designing of spinning machines.
- 3. Understand the fundamentals of blending and mixing.
- 4. Solve the complex problems occurring at the time of manufacturing process.

#### Syllabus : UNIT I FIBRE SELECTION MECHANISUM IN CARDING

Cotton fibre selection through bale management. Forces on fibres during opening and cleaning processes and its effect. Carding process, Multi licker-in opening and factors influencing the transfer ratio, Analysis of cylinder load and transfer efficiency. Technological considerations in the design of high production card. Card wire geometry.

#### UNIT II FIBRE GEOMETRY IN PRE SPINNING PROCESS

Fibre configuration in card and drawn sliver. Hook removal and its significance. Sliver irregularity. Fibre movement in drafting field. Suppression of drafting wave. Drafting force. Roller slip. Roller eccentricity and vibration. Fibre fractionation in comber. Combing performance. Principles of autolevelling. Agronomy in Textile Machineries.

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#### **10HOURS**



COURSE				TE	ACHIN	G & EVAI	LUATIO	N SCI	HEME		
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CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX101	DCC	THEORY OF YARN MANUFACTURING	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.

#### UNIT III SPINNING FORCES ON YARN

Blending of fibres, evaluation of blending efficiency. Analysis of forces on yarn and traveller. Spinning tension in ring and rotor spinning. Spinning geometry, Twist flow in ring and rotor spinning. End breaks during spinning. False twisting and friction spinning principles.

#### **Unit IV PROCESS OPTIMIZATION OF SPINNING SYSTEMS**

# Spinning of micro denier fibre. Synthetic fibre spinning on cotton spinning system. Influence of high draft on yarn quality. Optimization of production speeds. Energy conservation and saving through process optimization. Yarn conditioning. Selection criteria for aprons, cots and top rollers. Control systems in spinning machinery.

#### Unit V STRUCTURE-PROPERTIES RELATIONSHIP OF YARN

Types of yarn. Twisting forms and yarn contraction. Influence of fibre characteristics on yarn structure. Tensile behaviour of filament, spun, core spun and elastic yarns. Production and properties of textured yarn with emphasis on false twist and air-jet textured yarns. Analysis of structure-property relationship of rotor, air-jet and friction spun yarns.

#### **References:**

- 1. Grosberg P and Iype C, "Yarn Production-Theoretical Aspects", 1st Ed., The Textile Institute, UK, 1999.
- 2. Chattopadhyay R, "Advances in Technology of Yarn Production", 1st Ed., NCUTE, New Delhi,2002.
- 3. Rao M V S and Talele A B, "A Guide to Crimping / Texturing Technology", 1st Ed., Nasnal Printers and its associates, Surat, 1992.
- 4. Klein W, "Manual of Textile Technology- New spinning Systems", Vol.5, 1st Ed., The Textile Institute, UK, 1993.

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#### 8HOURS

**8HOURS** 



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COURSE CODE	RSE OO DE OURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS	
MTTX102	DCC	THEORY OF FABRIC MANUFACTURING	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.

#### **Course Educational Objective (CEOs):**

The students will be able to gain knowledge of theories involved in the various manufacturing process of the fabric and understand the various generation of faults/defects in the woven fabric and its remedies.

#### **Course Outcomes (Cos):**

Students will be able to:

- 1. Identify and Analyze the problems in the manufacturing of woven fabrics .
- 2. Apply knowledge for designing of weaving and preparatory machines.
- 3. Understand the fundamentals of yarn/fabric faults.
- 4. Solve the complex problems occurring at the time of fabric manufacturing process.

#### Syllabus

#### UNIT I YARN QUALITY REQUIRMENTS IN WEAVING

Yarn quality requirements - weaving and winding - yarn faults, quality of splice/knot, knot factor and clearing efficiency, Optimum clearing of yarn; Classimate Faults, Wound yarn package requirements for different weft insertion system,

#### UNIT II DEVELOMENTS IN WEAVING PREPERATOTY PRESSES

Control of ends break in warping, warp beam quality requirements; quality control in size recipe, size pick-up control, quality requirements of sized beam. Waste control in winding, warping and sizing. Development trends in winding, warping and sizing machines for improving quality of preparation and cost reduction.

#### UNIT III RECENT TRENDS IN LOOM DEVELOPMENT

Loom development trends and objectives. Beat-up force and pick spacing. Kinematics of sley with reference to shuttle loom. Electronic control of different motions of loom. Loom shed productivity control, fabric defects and their causes and remedies,

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**10HOURS** 

**10HOURS** 



				TE	ACHIN	G & EVAI	LUATIO	N SCI	HEME		
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COURSE CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX102	DCC	THEORY OF FABRIC MANUFACTURING	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,

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#### UNIT IV THEORETICAL ANALYSIS OF WEFT INSERTION IN SHUTTLELESS LOOMS 8 HOURS

Theoretical analysis of weft insertion in shuttleless loom. Fabric quality on Sulzer Projectile loom, Rapier looms, Air jet and Water jet looms. Air quality with respect to air jet loom, different propulsion aid used in air jet loom, flying stability of weft inserted by water jet loom, Different types of selvedges used in shuttleless weaving machines; Techno-economics of different shuttleless looms.

#### UNIT V DEVELOPMENT OF SPECIALITY LOOMS

#### **12 HOURS**

Multiphase loom, types – warp way and weft way multiphase loom, limitations and advantages of multiphase loom, rotatory beat up mechanism, Introduction to circular weaving; Weft velocity curves and comparison of different weft insertion system.

#### **References:**

- 1. Shuttleless Weaving Dr. M. K. Talukdar
- 2. Principle of Weaving Marks & Robinson
- 3. Textile Science & Technology Shuttleless Weaving Machines Oldrich, Talavasek & Vladimir Svaty
- 4. Modern Preparation and Weaving Machinery A. Ormerod.
- 5. Hndbook of Weaving, Sabit Adanur, Ph. D.
- 6. Weaving Technology & Operation A. Ormerod & Walter S. Sondhelm
- 7. Rapier Loom WIRA
- 8. Filament Weaving NCUTE HRD Programme Coordinator Prof. P.A.Khatwani, Mr. S. S. Yardi,
- 9. Innovations in Weaving Machinery (The Course of Loom Development) Dr. Teruo Ishila
- 10. Modern Weaving Theory & Practice- R. B. Singh

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			TEACHING & EVALUATION SCHEME									
COURSE	JRY		T	HEORY		PRACTICAL						
COURSE CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS	
MTTX105	SEC	ADVANCED CAD IN TEXTILES	0	0	0	30	20	0	0	2	1	

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 Objective (CEOs):**

Student will expose to the functions of Advanced CAD in Textile and conceptual knowledge to the Industry as a Pattern Designer.

#### **Course Outcomes (Cos):**

Students will be able to:

- 1. Apply their knowledge on the various functions of the Advanced CAD in textile
- 2. Make different patterns for garment
- 3. Understand the garment process & knit, woven designing.
- 4. Use their knowledge for different tools of ADV.CAD in Textile

#### **Syllabus**

#### **28 HOURS**

Principles of design, elements of design, marker planning, grading system, size chart, silhoueltes, shape and sizes, relationship to fashion, different dart system, black measurement, basic information regarding software, study latest software system.

Practice block making on garment software, variant file, adjustment of different view of garment components, making of different patterns with seam allowances, different techniques of pattern making, notches, curve, etc. marker creation.

Mood board, story board making, simulation, use of yarn library, knit and weave structure, weave library.

Vector, use of different drawing tools, bitmap pictures, different studios, color pallatte.

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COURSE CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX105	SEC	ADVANCED CAD IN TEXTILES	0	0	0	30	20	0	0	2	1

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.

#### **References:**

- 1. Mens wear pattern making, Alam Parwez Khan, Punkaj Pub. Delhi, 2007
- 2. Ten steps to fashion freedom, Mayfield

#### **List of Practicals:**

- 1. To study the basic terminologies of Design.
- 2. To study the basic terminologies of Pattern Making.
- 3. Introduction & installation of Lectra s/w.
- 4. To prepare a Draft of men's shirt. (According to Specification)
- 5. To prepare Marka Plan of shirt on graph paper & calculate the consumption of material.
- 6. To Grade the shirt pattern in 3 sizes (S, M, L- 40, 42, 44-on graph paper).
- 7. To study the Modaris s/w in detail with their tools.
- 8. To prepare a Draft of a men's shirt. (According to Specification) on Modaris s/w.
- 9. To Grade the shirt pattern in 3 sizes (S, M, L- 40, 42, 44) on Modaris s/w.
- 10. To study the Diamino s/w in detail with their tools
- 11. To prepare efficient Marka Plan of shirt on Diamino s/w. (Take the print out).
- 12. To study the Weave s/w in detail with their tools.

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#### MTTX 103 (Elective 1)

COURSE CODE				TE	ACHIN	G & EVAI	LUATIO	N SCI	HEME		
	RY		T	HEORY		PRACT	ICAL				
	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX113	DSE	STRUCTURE AND PROPERTIES OF FIBRES	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.

#### **Course Educational Objective (CEOs):**

The students will be able to gain knowledge on structural properties of fibres and also to explain the mechanical, electrical and thermal behaviour of fibre and its measurement correctly.

#### **Course Outcomes (Cos):**

Students will be able to:

- 1. Understand and Analyze basic structure of fibres.
- 2. Apply knowledge and analyze to solve the complex behaviour of fibre.
- 3. Understand the Dielectric and frictional fundamentals of fibres.
- 4. Illustrate basic knowledge about the structural behaviour of fibre.
- 5. Remember the working Principles of various measuring instruments.

#### **Syllabus**

#### **UNIT I STRUCTURE OF TEXTILE FIBRES**

Study of fibre structure by X-rays, IR Spectroscopy, optical and electron microscopy (SEM). Determination of degree of crystallinity, orientation, crystal size and morphology. Structure of fibres, morphology and order in fibre structure. Theories of fine structures of fibres.

#### **UNIT II MECHANIAL PROPERTIES OF TEXTILE FIBRES**

#### The Mechanical properties of fibres. Theories of elasticity. Visco elastic properties of fibres, various models like Maxwell, Irings etc, Thermodynamics analysis of deformation. Stress relaxation, creep, stress-strain relations, Temperature of visco-elasticity as applied to natural fibres. The Boltzman supervision principle and Nutting's Power Law, their application to fibres.

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#### 9 HOURS



#### MTTX 103 (Elective 1)

COURSE				TE	ACHIN	G & EVAI	LUATIO	N SCI	HEME		
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COURSE CODE	CATEGO	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX113	DSE	STRUCTURE AND PROPERTIES OF FIBRES	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.

#### **UNIT III HYDROPHILIC PROPERTIES OF FIBRES**

#### Sorption isotherms, heat of sorption, swelling and theories of moisture sorption. Hydrophilic and hydrophobic properties. Thermal Properties: Thermal expansion, Thermal conductivity;

#### **UNIT IV ELECTICAL PROPERTIES OF FIBRES**

Di-electric properties. Effects of frequency and temperature on dielectric constant and static electricity. Electrical resistance and its measurement, Static electricity and measurement of static charge in fibres.

#### **UNIT V FRICTIONAL PROPERTIES OF FIBRES**

Frictional properties – Theory of friction and lubrication and its application to fibres. Measurement of friction. Optical properties: Polarizability and refractive index. Birefringence and its measurement:

#### **References:**

- 1. Vaidya; Production of Synthetic Fibres.
- 2. Shennai VA; Technology of Textile Processing Vol.I, Textile Fibres.
- 3. Gupta, Kothari; Progress in TST Vol.II Textile Fibres Developments & Innovations
- 4. Murthy HVS; Introduction to Textile Fibre
- 5. Moncrieff Man Made Fibres.
- 6. Akira Nakamura; Fibre Science & Technology (Translated from Japanese).
- 7. Mishra SP; A Text Book of Fiber Science & Technology.
- 8. Tatsuya Hongu, Glyn O. Philips; New Fibers 2nd Edition.

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#### **8 HOURS**

**10 HOURS** 



#### MTTX 103 (Elective 1)

COURSE CODE		COURSE NAME	<b>TEACHING &amp; EVALUATION SCHEME</b>								
	CATEGORY		THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX123	DSE	APPAREL ENGINEERING AND QUALITY CONTROL	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.

#### **Course Educational Objective (CEOs):**

The students will be expose to the basic knowledge of the mechanism of sewing, quality parameters required for fabric and garment as per the customer requirement.

#### Course Outcomes (Cos):

Students will be able to:

- 1. Stitch the garment choosing the correct stitch and stitching machine
- 2. Assess the right quality of the fabric required as per the application.
- 3. Analyze and find the stitching defects produce during the stitching operation and provide the remedial solutions for the same
- 4. Select the correct thread, trim and accessories required in the garment

#### Syllabus

#### UNIT I MECHANICS OF SEWING OPERATION

Mechanics of sewing operation: Feeding mechanism, mechanism of generation of needle thread tension, feed dog setting mechanism, stresses and heat generated during sewing, interaction of feed and pressure, sewing dynamics. Measurement and controls in sewing operation: Pressure, sewing speed, thread tension, needle temperature, needle penetration force.

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#### MTTX 103 (Elective 1)

COURSE CODE		COURSE NAME	TEACHING & EVALUATION SCHEME								
	CATEGORY		THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
MTTX123	DSE	APPAREL ENGINEERING AND QUALITY CONTROL	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.

#### UNIT II FABRIC QUALITY ASSESSMENT FOR CLOTHING

Fabric quality assessment for clothing: Fabric quality requirement for high quality garments, low stress fabric mechanical properties and their effect on sewing operation. Use of FAST and KES system. Fabric mechanical properties and sewing operation interaction: Tailor ability and formability. Lindberg theory, optimization of sewing parameters by using fabric mechanical property, optimization of finishing parameters such as steam, pressure, vacuum, for getting desired effect.

#### UNIT III FABRIC DEFECT ANALYSIS FOR CLOTHING

Fabric defect analysis in clothing: Defect identification, bow and skewness, correlating defect with back process, value loss. Quality control in apparel manufacturing: Determination of sewability, seam pucker, seam slippage and needle cutting index, evaluation of cutting defect, fusing defect, sewing defect, inspection of dimension, appearance, drape, change in color, shape and spots.

#### UNIT IV SEWING THREAD PROPERTIES AND ANALYSIS

Measurement and selection of sewing thread properties for different fabrics: Optimization of sewing parameters such as ticket number, needle number, yarn tension, stitch density and stitch type for desired sew-ability.

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#### UNIT V SELECTION OF FASHION ASSESARIES

Selection of lining and interlining fabrics for various shell fabric: Evaluation of lining and interlining fabric, determination of compatibility. Packaging of finished garment, final random inspection of finished garments, packaging method, safety norms. Accessories: Buttons, hook and eye, jips, velcro.

#### **References:**

- 1. Garment Technology for fashion Design Gerry Cooklin
- 2. Introduction to clothing manufacture –Gerry Cooklin.
- 3. Technology of Clothing manufacture-Carr.
- 4. Technical Textiles, Shaleco E, Bradlock and Marce O'Hall cony
- 5. Introduction to clothing production management Chuter A.J
- 6. Managing Quality in the Apparel Industry Pradip V. Mehta, S. K. Bharadwaj
- 7. Progress in Textiles Science and Technology Vol.I Testing and QM; V. K. Kothari

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MTTX133	DSE	WOOL TECHNOLOGY	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

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#### **Course Educational Objective (CEOs):**

The course will introduce the students with the knowledge of processing wool fibres and worsted manufacturing process to the extent of understanding the difference of normal manufacturing process and woolen process.

#### **Course Outcomes (Cos):**

Students will be able to:

- 1. Graduates will be able to choose suitable raw wool with necessary properties for the manufacturing of desired quality of woolen/worsted yarn or fabric.
- 2. Graduates will be able to demonstrate their skills in maufacturing of different types of recycled, wollen, semi-worsted and worsted yarn of desired quality standards from a given variety of fibres.
- 3. Graduates will be able to design various types of woolen/worsted fabrics of required quality characteristics by manipulating constituting yarn properties and fabric constructions.
- 4. Graduates will be able to select suitable dyes, chemicals and auxiliaries and also perform different chemical processes of wool in fibre, yarn or fabric form.
- 5. Graduated will be able to demostrate their skills in carrying out different mechanical and chemcial finishing of woolen/worsted fabrics.

#### Syllabus UNIT I WOOL FIBRE AND ITS PROPERTIES

#### **10 HOURS**

Wool fibre and its properties: Morphological structure, components of fibre, fibre diameter, fibre contour, crimp, length, luster, specific gravity and refractive index, moisture relations, wet ability, fibre mechanical properties, gross composition of raw wool, molecular structures.

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<b>MTTX133</b>	DSE	WOOL TECHNOLOGY	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.

#### UNIT II BLENDING OF WOOL WITH MANMADE FIBRES

#### **6 HOURS**

**11 HOURS** 

**10 HOURS** 

Blending of wool with manmade fibres: Purpose of blending, effect of blend composition on performance of fabrics. Woolen or carded Yarns: Preliminary processes, blending or mixing, oiling of the stock, woolen carding, woolen spinning, yarn number and wool grade.

#### UNIT III WORSTED TOP MAKING AND SPINNING OF WORSTED YARN 8 HOURS

Worsted top making and spinning of worsted yarn: Worsted carding, backwashing, oiling, gilling or preparing, worsted combing, tow-to-top conversion systems, worsted drawing, worsted yarn spinning, norms and modern developments.

#### UNT IV MANUFACTURE OF WOOLEN FABRICS

# Manufacture of woolen fabrics: Woven Fabrics produced by projectile and rapier weaving machines, knitted and nonwoven woolen fabrics, use of FAST in worsted garment manufacturing.

#### UNT V CHEMICAL PROCESSING

Chemical Processing: Objects and different methods of carbonizing of wool batch and continuous methods of scouring fibre, yarn and fabric; peroxide and per-acetic acid bleach of wool; production of anti-shrink wool, basic principle of treatment and parameters; dyeing, printing and finishing, testing and quality control of woollen processing. Wool Dyeing: Chemistry of dyeing wool and blend with acid, mordant, metal-complex and reactive dyes, Top and tip dyeing of wool. Wool Finishing: Scooping, damping, decatising and paper pressing of wool, Testing and Quality Control.

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MTTX133	DSE	WOOL TECHNOLOGY	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

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#### **References:**

- 1. Blended Textiles, Textile Association (India), 1981.
- 2. Lepenkov Y, "Wool Spinning", Vol. 1and 2, 1st Ed. Mir Publisher, Moscow, 1983.
- 3. Bergen W V, "Wool Handbook," vol.1 and 2, 3rd Ed., Interscience publisher, London.
- 4. Teasdale D C, "The Wool Handbook", 4th Ed., 1996.
- 5. Trotman E R, "Dyeing and Chemical Technology of Textile Fibres", Charles Griffin and Co. Ltd., London, 1975

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