

# PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

## Department of Textile Engineering

Faculty Name: - Ms Agya Preet

Subject Name: - Structure and Properties of Fibers

Year/Semester: - 3rd/5th

Subject Code: - PEC-TEX-318LA

### LESSON PLAN

Unit No.	Topic of the Lecture	Hours	Total Hours
<b>Unit I</b>	Morphology and Order in Fibre Structure	1	<b>16</b>
	Concept and Theories of Orientation	3	
	Crystallization and its Measurement Technique such as X-ray	2	
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	Chemical and physical structure of fibres such as cotton	1	
	Chemical and physical structure of fibres such as wool	1	
	Chemical and physical structure of fibres such as silk	1	
	Chemical and physical structure of fibres such as jute	1	
	Chemical and physical structure of fibres such as nylon	1	
	Chemical and physical structure of fibre such as PET	1	
	Chemical and physical structure of fibres such as Acrylic	1	
	Revision	1	
<b>Unit II</b>	Theory of Load-Elongation Curve	1	<b>11</b>
	Explanation of Load-Elongation Curve	1	
	Concept of stress-strain curve, modulus, elasticity and visco-elasticity, work of rupture/toughness, yield point	2	
	Creep and stress relaxation behavior of fibres	1	
	Simple spring and Dash Pot Models Simulating Textile Fibers	1	
	Frictional Properties of Fibers	2	
	Frictional Properties-Nature and measurements	2	
	Revision	1	
<b>Unit III</b>	Moisture Properties	1	<b>13</b>
	Moisture Regain and Relative Humidity	1	
	Hysteresis in moisture	1	
	Diffusion Theories of Moisture Absorption	2	
	Analysis of moisture absorption and swelling	1	
	Refractive index	1	
	Polarization of light	1	
	Birefringence and its measurement	2	
	Revision	1	
<b>Unit IV</b>	Thermal Properties	1	<b>11</b>
	Molecular Motion	1	
	Transition Phenomenon	1	
	Thermal Expansion Behaviour	1	
	First Order and Second order Transition Phenomenon	2	
	Introduction to electrical properties	1	
	Electric Properties of fibers	2	
	Static charge generation in fibers processing	1	
	Revision	1	