PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Textile Engineering

Faculty Name: - Dr. Rajat Kumar Baldua **Subject Name: - Fabric Manufacturing-III**

Year/Semester: - 3rd/5th **Subject Code: - PCC-TEX-305A**

LESSON PLAN

Unit No.	Topic of the Lecture	Hours	Total Hours
Unit I	Introduction to shuttle-less weaving, advantages of shuttle-less weaving, comparison with shuttle weaving, Features of unconventional weaving	2	12
	Different Selvedge: Tucked-in, Leno, fused, Stitched. Their mechanism of formation, their characteristics and uses.	1	
	Projectile weaving machine: basic principle of projectile weaving, weft accumulator.	2	
	Feeding of yarn to projectile, Sequence of weft insertion, Cam driven shedding	1	
	Dwelling sley beat-up, torsion bar picking , torsion bar picking	3	
	Energy utilization during picking	3	
Unit II	Rapier Weaving Machine*:* Classification based on type of rapier, system of weft insertion and number of rapiers.	1	9
	Sequence of weft insertion for Gabler and Dewas system, their comparison, driving of flexible and rigid rapiers, A synchronized rapier timing, rapier buckling.	3	
	Air Jet Weaving Machine: Principle of weft insertion.	1	
	Air jet weaving machine: air requirements, path of the yarn on loom, sequence of weft insertion, control of air stream by relay nozzle, confuser profile reed and suction, design of air jet nozzle, air drag force, factors affecting drag force	4	
Unit III	Water Jet Weaving Machine: Principle of weft insertion, Water Jet Weaving Machine: Path of the yarn on loom. Quality of water required	2	8
	Water Jet Weaving Machine: Sequence of weft insertion, Water jet nozzle, Merits and demerits of water jet weaving. Fabric drying on loom.	2	
	Multiphase Weaving*:* Principle of multiphase weaving, Warp way and weft way multiphase looms. Circular loom	2	
	Positive Let-off*:* Hunt's let-off, electronic let-off, Positive Continuous Take-up: Sulzer take-up and Shirley take-up.	2	
Unit IV	Nonwoven: Definition and classification, Fiber properties requirements, Parallel laid technique of web formation	3	9
	Nonwoven: Cross laid technique of web formation, aerodynamic, wet laid and Spunbonded technique of web formation, Web bonding techniques: Needle punching, Spunlace, Spunbonded	3	
	Web bonding techniques: Meltblown, Web bonding techniques: Thermal bond and Chemical bonding, application of various non-woven fabrics	3	