

**PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY**

**Department of Textile Engineering**

Faculty Name: - Ms Agya Preet

Subject Name: - Nonwoven Technology

Year/Semester: - 4<sup>th</sup> /8<sup>th</sup>

Subject Code: - TT- 420N

Unit No.	Topic of the Lecture	Hours	Total Hours
Unit 1	Introduction to nonwoven. Comparison between nonwoven woven and knitted process and products.	1	10
	Definition, manufacturing steps of nonwoven and application area of nonwoven.	1	
	Major fibres used for nonwoven and their properties.	1	
	Classification of nonwovens.	1	
	Parallel laying technique of web formation, its advantages and drawbacks.	1	
	Cross laying technique of web preparation.	1	
	Aero dynamic and wet laying techniques.	1	
	Spun-bond technique of batt preparation.	1	
	Meltblown technology for web formation.	1	
	Revision	1	
Unit II	Techniques of Reinforcement of nonwoven fabric.	1	11
	Mechanical bonding – Introduction, Needle punching – working principle	1	
	Needle punching – basic operations & elementary idea of function of different components.	1	
	Needle board, needle board parameters.	1	
	Needle design, Types, needle parameter, and needle	1	
	Needled fabric structure and properties	1	
	Factors affecting fabric structure and fabric mechanical	1	
	Stitch bonding technique – Introduction, Types, Application	1	
	Maliwat & Malivlies Stitch Bonding	1	
	Calculation of machine production	1	
Revision	1		
Unit III	Introduction to Chemical Bonding, Bonding agents, forms and classes of adhesives or binders.	1	10
	Characteristics of bonding agent , bonding mechanism,	1	
	Factors affecting adhesion	1	
	Various bonding techniques such as impregnation, spraying,	1	
	Thermal Bonding – Introduction, advantages of thermal bonding over chemical bonding	1	
	Different types of binders, bonding methods: Hot calendaring, belt calendaring.	1	
	Factors - affect the properties of calendar bonded products.	1	
	Fusion bonding – Introduction, elementary idea, types of fusion bonding – through perforated drum & perforated	1	
	Revision	2	
Unit IV	Introduction to nonwoven finishing. Classification of finishing.	2	11
	Different shrinkage finishing technique.	1	
	Wrenching and glazing finishing of nonwoven textiles.	1	
	Creeping finishing of nonwovens.	1	
	Washing, dyeing and printing of nonwovens.	1	
	Special finishes on nonwoven and application technique.	1	
	Defects of nonwoven fabric, their sources and remedies.	1	
	Standard testing process of nonwoven textiles.	1	
	Application of nonwoven materials in different technical textile	1	
	Revision	1	