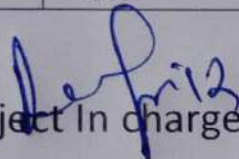


MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA			
GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING AND TECHNOLOGY			
DEPARTMENT OF TEXTILE ENGINEERING			
Academic Year	2022-23	Session	Jan-June 2023
Program	B.TECH (TEXT ENGG)	Semester	4th Sem
Course Code	BTEX1-605	Course Title	TCP 1
Course Coordinator	Er. Deepika Grewal		

Lecture Plan

S No	Unit and Topic	Lecture Plan (Hour)
1	Unit 1	11
	Introduction (Unit 1)	01
	Introduction: Process line for pretreatment, colouration and finishing of textiles	02
	Singeing: Object of the process, types of singeing, details of various singeing methods, drawbacks and advantages. Process and quality control aspects involved	02
	. Desizing: Object, types, method details and mechanism of removal of starch in various methods. Efficiency of desizing.	02
	Scouring: Objectives, mechanism of removal of impurities, recipe and controlling parameters involved. Scouring of coloured textiles. Scouring of natural, manmade and blended textiles. Evaluation of scouring efficiency.	04
2	Unit 2	12
	Bleaching: Objectives of bleaching. Hypochlorite, peroxide, chlorite and per-acetic acid bleaching methods and their effectiveness on various textiles. Controlling parameters and mechanism involved in each method. Efficiency of bleaching	03
	. Mercerization: Objectives, mechanism related to various physical and chemical changes in cotton during mercerization. Process parameters and operation details. Causticization. Wet and hot mercerization. Ammonia treatment of cotton. Performance of various mercerization /alkali treatment processes..	03
	Assessment of efficiency of mercerization: Barium activity number, its determination and interpretation	03
	Pretreatment Machineries: Singeing m/c, J-box, kier, mercerizing machine	03
3	Unit 3	11
	Objectives and mechanism of setting. Different methods of heat setting and their effectiveness on various man made textiles and blends.	02
	Objectives and mechanism of setting. Different methods of heat setting and their effectiveness on various man made textiles and blends.	02
	Heat setting conditions and controls. Heat setting of polyester, nylon, acetate and their blends. Evaluation of degree of heat setting.	03
	Mechanical Finishes: Physical and chemical softening processes, selection	03

	of chemical and evaluation of softening. Calendaring	
4	Unit 4	11
	Carbonization: Objectives, selection of chemical, process details, trouble shoots, precautionary measures and efficiency of carbonization Measures to reduce release of formaldehyde.	03
	Functional Finishes: Problem of creasing, anti-crease finish on cotton. Choice of chemical, catalyst and process parameters	03
	Drawback and advantages associated with use of various antcrease chemicals.	03
	Water repellency and water repellent finishes on cotton. Evaluation of water repellency.	02
	Total	45


Subject In charge

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA
 GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING AND TECHNOLOGY
 DEPARTMENT OF TEXTILE ENGINEERING

Academic Year 2022-23
 Program B.TECH (TEXT ENGG)
 Course Code BTEXS1-403
 Course Coordinator Er. Parikshit Paul

Session
 Semester
 Course Title

Jan-June 2023
 4th Sem
 Fabric Manufacturing –II

Lecture Plan

S No	Unit and Topic	Lecture Plan (Hour)
1	Unit 1	13
	Introduction (Unit 1)	1
	Tappet shedding: Mechanisms & principles	2
	Positive & negative shedding	2
	Heald reversing motions	2
	under picking	2
	over picking	2
	parallel picking	2
2	Unit 2	10
	Movement of sley	2
	Beat-up	2
	sley eccentricity	2
	Calculation related to sley eccentricity	2
	Reed and reed counting systems	2
3	Unit 3	15
	Different types of let-off systems	4
	long term, short term and medium term variations'	2
	Relation between beam diameter and tension of warp	2
	Principles of modern positive Let-off systems	3
	Sulzer Let-off	1
	Hunt Let-off	1
	Bertlett Let-off	2
3	Unit 3	7
	Types of take-up	2
	Periodicity in Take - up	2
	Modern continuous take up	1
	Sulzer Take-up	1
	Saurer Take-up	1
4	Unit 4	7
	Mechanical warp stop motions	1
	Electrical stop motion	1
	Study of Loose reed warp protector motion	1
	Study of fast reed warp protector motion	1
	Functions of different types of Weft feelers	3
	Total	52

Giani Zail Singh Campus College of Engineering & Technology, MRSPTU, Bathinda

Department of Textile Engineering

Proposed Lecture Plan

Subject: YARN MANUFACTURE LAB- II

Subject Code: BTEXS1-406

Course: B. Tech. (Textile Engg.)

Semester: 4th (Jan-Jun2023)

Batch: 2021

S. No.	Week	Topic	No. of Lectures to be delivered (L+T)	Cumulative lectures
1	1 st	Exp.1: To study the function of top comb and its depth of penetration with reference to noil extraction and fractionating efficiency.	2	2
2	2 nd	Exp.2: To study the nature of movement of nipper assembly.	2	4
3	3 rd	Exp.3: To estimate the noil percentage in comber.	2	6
4	4 th	Exp.4: To study the effect of type of feed and detachment setting on noil percentage and fractionating efficiency.	2	8
5	5 th	Exp.5: To study the construction and working of speed frame.	2	10
6	6 th	Exp.6: To study the differential motion of speed frame and calculation of Bobbin speed.	2	12
7	7 th	Exp.7: To study the gearing diagram of speed frame and calculation of break draft constant, draft constant, twist constant and production.	2	14
8	8 th	Exp.8: To study the construction and working of Ring Frame (To Explain the drafting Twisting & Winding in ring frame).	2	16
9	9 th	Exp.9: To study the gearing diagram of Ring frame and calculation of Draft constants, Twist constant, Coils per inch and production.	2	18
10	10 th	Exp.10: To study the construction and working of Rotor Spinning.	2	20



Giani Zail Singh Campus College of Engineering & Technology, MRSPTU, Bathinda
Department of Textile Engineering
Proposed Lecture Plan

Subject: YARN MANUFACTURE – II
 Course: B. Tech. (Textile Engg.)

Semester: 4th

Subject Code: BTEXS1-402
 Batch: 2021

S. No.	Week	Topic	No. of Lectures to be delivered (L+T)	Cumulative lectures
1	1 st	Brief idea about short staple spinning technology, Combing Process: Objectives,	4	4
2	2 nd	combing for shorter and medium varieties of cotton, cottons suitable for combing, preparation of stock for combing	4	8
3	3 rd	combing cycle, role of machine components and settings, noil extraction at backward feed and forward feed comber, norms and assessment and	4	12
4	4 th	production calculations. Recent developments, Roving Process: Process related to roving formation: Objectives,	4	16
5	5 th	functions of different machine components and high drafting system, roving twist in speed frame,	4	20
6	6 th	winding principles and equations related to bobbin leading and flyer leading, building motion,	4	24
7	7 th	production calculations, norms, and performance assessment. Developments in speed frame	4	28
8	8 th	Ring Spinning Process: Function and mode of operation of ring frame, role of drafting system, yarn guiding devices,	4	32
9	9 th	forces acting between ring and traveler, yarn tension variation, angle of yarn pull, tasks of traveler, limiting speed, classification, form of traveller,	4	36
10	10 th	traveler mass and material, different ring-traveler combinations, fiber lubrication, running on new-ring, winding process, cop building, cylinder and conical tip,	4	40
11	11 th	spinning geometry, causes of end breaks, production calculations, norms, performance assessment. Latest developments including compact spinning.	4	44
12	12 th	Non-Conventional Spinning Processes: Brief idea about principle of open-end spinning,	4	48
13	13 th	rotors pinning, chief organs and their functions, yarn properties in comparison with ring-spun yarn,	4	52
14	14 th	principle of friction spinning, function of chief organs, yarn properties,	4	56
15	15 th	basic principle to air jet spun yarn, functions of chief organs, yarn properties.	4	60

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GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING AND TECHNOLOGY			
DEPARTMENT OF TEXTILE ENGINEERING			
Academic Year	2022-23	Session	Jan-June 2023
Program	B.TECH (TEXT ENGG)	Semester	6th Sem 4th
Course Code	BTEXI-408 BTEXI-401	Course Title	TF II
Course Coordinator	Deepika		

Lecture Plan

S No	Unit and Topic	Lecture Plan (Hour)
1	Unit 1	05
	Introduction to man-made fibres	01
	Idea about fine structure of man-made fibres	02
	Detailed study of crystallinity,	01
	orientation and its effects on fibreproperties.	01
2	Unit 2	15
	Melt Spinning with special reference to Polyester & Nylon	03
	Melting of polymerchips	01
	extrusion, spinning	01
	drawing, heat setting	01
	cuttingof melt spunfilaments/fibre.	01
	Wet and dry spinning with special reference to acrylic	01
	Relative merits& demerits of the wet & dry spinning systems.	02
	Preparation of polymer solution	02
	extrusion,spinning,filamentformation drawing,heat setting,	02
	cuttingofwet & dryspunfilaments/fibre.	01
		10
3	Unit 3	
	Introduction about heat setting	02
	Important parameters of heat setting & their effectonfibreproperties	02
	Introductionaboutdrawing	03
	Drawingcondition,phenomenonofnecking	01
	Machines for stretching continuous, filamentyarns, Drawing, heat setting, crimping ofstaplefibres.	02
		10
4	Unit 4	
	Detail study of the production, physical,chemical structures & Properties of polyester	03
	nylon 6 & 66 Polypropylene, acrylic	02
	elementaryideaabout high speed spinning.	02
	introduction to high performance fibres	02
	Elementary idea aboutaramid,carbon&glass fibres	01
	Total	45

Subject in charge I

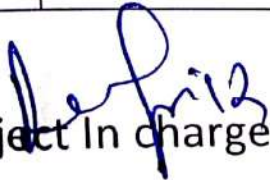
MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA			
GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING AND TECHNOLOGY			
DEPARTMENT OF TEXTILE ENGINEERING			
Academic Year	2022-23	Session	Jan-June 2023
Program	B.TECH (TEXT ENGG)	Semester	4th Sem
Course Code	BTEXS1-404	Course Title	TCP 1
Course Coordinator	Er. Deepika Grewal		

Lecture Plan

S No	Unit and Topic	Lecture Plan (Hour)
1	Unit 1	11
	Introduction (Unit 1)	01
	Introduction: Process line for pretreatment, colouration and finishing of textiles	02
	Singeing: Object of the process, types of singeing, details of various singeing methods, drawbacks and advantages. Process and quality control aspects involved	02
	. Desizing: Object, types, method details and mechanism of removal of starch in various methods. Efficiency of desizing.	02
	Scouring: Objectives, mechanism of removal of impurities, recipe and controlling parameters involved. Scouring of coloured textiles. Scouring of natural, manmade and blended textiles. Evaluation of scouring efficiency.	04
2	Unit 2	12
	Bleaching: Objectives of bleaching. Hypochlorite, peroxide, chlorite and per-acetic acid bleaching methods and their effectiveness on various textiles. Controlling parameters and mechanism involved in each method. Efficiency of bleaching	03
	. Mercerization: Objectives, mechanism related to various physical and chemical changes in cotton during mercerization. Process parameters and operation details. Causticization. Wet and hot mercerization. Ammonia treatment of cotton. Performance of various mercerization /alkali treatment processes..	03
	Assessment of efficiency of mercerization: Barium activity number, its determination and interpretation	03
	Pretreatment Machineries: Singeing m/c, J-box, kier, mercerizing machine	03
3	Unit 3	11
	Objectives and mechanism of setting. Different methods of heat setting and their effectiveness on various man made textiles and blends.	02
	Objectives and mechanism of setting. Different methods of heat setting and their effectiveness on various man made textiles and blends.	02
	Heat setting conditions and controls. Heat setting of polyester, nylon, acetate and their blends. Evaluation of degree of heat setting.	03
	Mechanical Finishes: Physical and chemical softening processes, selection	03



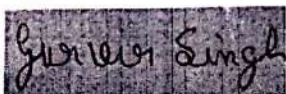
	of chemical and evaluation of softening. Calendaring	
4	Unit 4	
	Carbonization: Objectives, selection of chemical, process details, trouble shoots, precautionary measures and efficiency of carbonization	11
	Measures to reduce release of formaldehyde.	03
	Functional Finishes: Problem of creasing, anti-crease finish on cotton. Choice of chemical, catalyst and process parameters	03
	Drawback and advantages associated with use of various anticrease chemicals.	03
	Water repellency and water repellent finishes on cotton. Evaluation of water repellency.	02
	Total	45


Subject In charge

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA			
GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING AND TECHNOLOGY			
DEPARTMENT OF TEXTILE ENGINEERING			
Academic Year	2022-23	Session	Jan-June 2023
Program	B.TECH (TEXT ENGG)	Semester	4th Sem
Course Code	BTEXS1-405	Course Title	FS&A
Course Coordinator	Gurvir Singh		

Lecture Plan

S No	Unit and Topic	Lecture Plan (Hour)
1	Unit 1	12
	Introduction (Unit 1)	01
	Formation of Fabric.	02
	Fabric cover and crimp	02
	Detection of directions of warp and weft	01
	Weaving plan	02
	Methods of its preparation	02
		01
2	Unit 2	12
	Detailed study of various weaves for their reproduction	01
	Plain weave & its derivatives	01
	Twill weave & its derivatives	01
	Satin/sateen weave & its derivatives	01
	Diamond and diaper	01
	Honeycomb	01
	Huck-a-back	01
	Mock leno	02
3	Unit 3	10
	Welt/pique	02
	Bedford cord	02
	crepe weaves	01
	Stripe & check effects Its types	01
	Different methods to produce these weaves	02
	Color and weave effect	02
4	Unit 4	11
	Terry weaves,...	03
	Backed fabric	02
	Doubled fabric	03
	Technical specification of important weaves	02
	Calculation relating to raw material required to produce different weaves	01
	Total	45



Subject Incharge

Gurvir Singh