Subject Code	Subject Name	Period per Week		Credit
21364	Textile Finishing	T	P	C
		2	3	3

Rationale	This course is designed to enrich students with the knowledge of different textile Finishing processes, chemicals, auxiliaries and machineries used in the field of Textile Finishing. Textile Finishing is very important sector considering the aesthetic and functional finishes to meet the requirement of buyers. Yarns, knitted and woven fabric needs some of mandatory mechanical and chemical finishes for consumer satisfaction. To increase the market demand and attraction of textile goods, finishing is getting widespread for textile factories day by day. That's why, various mechanical and chemical finishing process of yarn, fabric and garments are included in this course.
Learning Outcome (Theoretical)	**After completing the course, students will be able to:** 1. Illustrate different mechanical and chemical finishing processing 2. Interpret the process sequence of textile finishing process. 3. Illustrate different textile finishing machines 4. State different functional finishing chemicals and compatible auxiliaries for various textiles process 5. Explain working Procedure of various textile finishing machines 6. Describe Controlling parameters of various textile finishing machines 7. State the necessity of special finishing process
Learning Outcome (Practical)	**After completing the course, students will be able to:** 1. Identify different finishing chemicals and auxiliaries 2. Identify the process sequence and passage diagram for particular finishing machine 3. Recognize changes brought about after finishing 4. Calculate the amount relevant finishing agent, chemicals and auxiliaries to carry out efficient finishing operation 5. Point out the different parts of finishing machines

Detailed Syllabus (Theory)

Unit	Topics with Contents	Class (3 Period)	Final Marks
1	**Textile Finishing** 1.8 Define Textile Finishing 1.9 State the significance of Textile Finishing 1.10 Classify textile finishing 1.11 Describe the types of Mechanical & Chemical finishing 1.12 Distinguish between aesthetic & functional finishes	**2**	**4**
2	**Dyed Yarn Finishing** 2.8 State the significance of dyed yarn finishing 2.9 Mention the objectives of Hydro extraction, Drying & Hard winding 2.10 Describe the working procedure & controlling parameters of Hydro extractor machine 2.11 Discuss the working procedure & controlling parameters of RF Dryer & steam Dryer. 2.12 Explain the working procedure & controlling parameters of hard winding machine.	**3**	**6**
3	**Mercerization & Calendaring** 3.1 Define Mercerization 3.2 Mention the objective of mercerization 3.3 Define Tension, Slack & Ammonia Mercerization 3.4 Distinguish between cold & hot mercerization. 3.5 Describe the physical & chemical changes caused by mercerization 3.6 Discuss the factors to be considered for mercerization 3.7 Describe the working procedure of mercerization process 3.8 Define Calendaring process 3.9 Point out the objective of Calendaring process 3.10 Describe the types of Calendaring process	**3**	**6**
4	**Sanforizing** 4.1 Define Sanforizing 4.2 State the importance of Sanforizing 4.3 Describe the working procedure of sanforizing machine 4.4 Discuss the controlling parameters of Sanforizing process 4.5 Mention the advantages of Sanforizing.	**2**	**4**

5	**Knit fabric finishing in Tube line** 5.1 Define Squeezing, Drying and Tube Compacting 5.2 Mention the objectives of Squeezing, Drying and Compacting 5.3 Describe the working procedure and controlling parameters of Squeezer Machine 5.4 Discuss the working procedure and controlling parameters of Drying Machine 5.5 Illustrate the working procedure and controlling parameters of tube compacting Machine	**4**	**8**
6	**Knit fabric finishing in open line** 6.1 Define slitting & dewatering 6.2 Define open compacting 6.3 Mention the objectives of slitting & dewatering and open compacting 6.4 Describe the working procedure and controlling parameters of slitting and dewatering machine. 6.5 Discuss the working procedure and controlling parameters of open compacting. 6.6 Explain GSM, shrinkage and diameter control by open compactor	**4**	**8**
7	**Stentering** 7.1 Define Stentering 7.2 Define curing, drying, steaming and heat setting 7.3 Mention the objectives of Stentering 7.4 Explain working principle and procedure of stenter 7.5 Discuss the drying parameters of stenter 7.6 Describe the heat setting parameters of stenter 7.7 Describe the curing parameters of stenter 7.8 Explain bias, bowing and skewness controlling process by stenter 7.9 Mention the utilities required for stenter	**3**	**6**
8	**Functional Finish** 8.1 Define Functional finish 8.2 List the objectives of functional finish 8.3 Define wrinkle free, water repellent, soil release and anti-microbial finish 8.4 Define fire retardant, GSM improver, anti- static finish and resin finish 8.5 Explain the working mechanism of wrinkle free resin finish and fire-retardant finishing chemicals 8.6 Distinguish between mechanical and functional finish 8.7 Define Plasma Finish	**3**	**6**

9	**Softener and brightener** 9.1 Define softener and brightener 9.2 Mention the purposes of softening and brightening 9.3 State the necessity of softening 9.4 Describe the various type of softener 9.5 Discuss the type of optical brightening agent 9.6 Explain softener selection for textile finish	**4**	**6**
10	**Special mechanical finishing** 10.1 Define brushing/raising, shearing, sueding/peach finish and embossing, 10.2 Mention the objectives of brushing/raising, shearing, sueding/peach/carbon finish and embossing 10.3 Describe working procedure and controlling parameters of brushing/raising machine 10.4 Explain working procedure and controlling parameters of sueding machine 10.5 Explain working procedure and controlling parameters of Shearing machine	**4**	**6**
	Total	**32**	**60**

Detailed Syllabus (Practical)

Sl. No	Experiment Name with procedure	Class (3 Period)	Continuous Marks
1	**Demonstrate Hydro extractor and dewatering machine for water removal** 1.5 Sketch the passage diagram of dewatering machine. 1.6 Identify different parts of Hydro extractor and dewatering machine 1.7 Perform calculation of water extraction percentage 1.8 Maintain the record of performed experiment	2	2.5
2	**Demonstrate of tumble dryer, RF dryer and drying machine** **2.1** Sketch the passage diagram of RF dryer and drying machine **2.2** Identify different parts of tumble dryer, RF dryer and drying machine 2.3 Perform calculation of moisture content to asses drying performance 2.4 Maintain the record of performed experiment	2	2.5
3	**Demonstrate Mercerizing and Calendaring Machine** 3.1 Sketch the passage diagram of Mercerizing and Calendaring Machine 3.2 Perform slack mercerization of cotton sample by open bath process 3.3 Identify different parts of mercerizing and calendaring machine 3.4 Perform assessment of NaOH concentration by Twaddell scale/ Baumé scale 3.5 Prepare estimate of the mercerization efficiency by Barium Activity Number (BAN) 3.6 Maintain the record of performed experiment	2	2.5

4	**Demonstrate Sanforizing and Compacting machine** 4.1 Sketch the passage diagram of Sanforizing and Compacting machine 4.2 Identify different parts of Sanforizing and Compacting machine 4.3 Observe changes occurred after sanforizing and compacting 4.4 Maintain the record of performed experiment	2	2.5
5	**Demonstrate the Stenter Machine** 5.1 Sketch the passage diagram of stenter machine 5.2 Identify different parts of stenter machine 5.3 Observe chemical finishes application process in padder of stenter 5.4 Maintain the record of performed experiment	2	2.5
6	**Demonstrate Brushing/Raising Machine and Sueding Machine** 6.1 Sketch the passage diagram of Brushing and Sueding machine 6.2 Identify different parts of Brushing and Sueding machine 6.3 Perform necessary calculation to obtain a required shade 6.4 Observe changes occurred after Brushing and Sueding 6.5 Maintain the record of performed experiment	2	2.5
7	**Perform application of Softeners** 7.1 Perform necessary calculation as per recipe 7.2 Perform necessary preparatory process 7.3 Apply chemicals and auxiliaries for softening process 7.4 Observe changes occurred after softening 7.5 Maintain the record of performed experiment	1	2.5

8	**Perform application of Wrinkle free Finish** 8.1 Perform necessary calculation as per recipe 8.2 Perform necessary preparatory process 8.3 Apply chemicals and auxiliaries for wrinkle free finishing 8.4 Observe changes occurred after application of Wrinkle free Finish 8.5 Maintain the record of performed experiment	1	2.5
9	**Perform application of Brightener** 9.1 Perform necessary calculation as per recipe 9.2 Perform necessary preparatory process 9.3 Apply chemicals and auxiliaries for brightening 9.4 Observe changes occurred after application of Brightener 9.5 Maintain the record of performed experiment	1	2.5
10	**Perform application of Resin Finish** 10.1 Perform necessary calculation as per recipe 10.2 Perform necessary preparatory process 10.3 Apply chemicals and auxiliaries for resin finish 10.4 Observe changes occurred after application of resin finish 10.5 Maintain the record of performed experiment	1	2.5
	Total	16	25

Necessary Resources (Tools, Equipment and Machinery):

Sl	Item Name	Quantity (piece/s)
01	Cotton Fabric	As Required
02	Blended Fabric (PC, CVC)	As Required
03	100% Polyester Fabric	As Required
04	Lycra Blended Cotton Fabric	As Required
05	Lycra Blended Polyester Fabric	As Required
06	Alkali (Soda Ash, Caustic soda)	As Required
07	Acid (Acetic acid, Formic Acid, Green Acid)	As Required
08	Wetting Agent	As Required
09	Sequestering Agent	As Required
10	Detergent	As Required
11	Softener	As Required
12	Brightener	As Required
12	GSM improver	As Required

13	Wrinkle free finish	As Required
14	Pipet, Conical flask, beaker, Funnel	As Required
15	Digital balance (up to three digit)	1 set
16	pH paper/ meter	1 set
17	Thermometer	1 set
18	Stopwatch	1 set
19	Tumble dryer	1 set
20	Mercerizing machine	1
21	Calendaring machine	1
22	Sanforizing machine	1
23	Hydro extractor	1
24	RF Dryer	1
25	Slitting and Dewatering Machine	1
26	Dryer	1
27	Stenter	1
28	Open Compactor	1
29	Tube Comapctor	1
30	Brushing/Raising machine	1
31	Sueding machine	1

Recommended Books:

Sl	Book Name	Writer Name	Publisher Name & Edition
01	Basic Principles of Textile Coloration	Arthur D Broadbent	Society of dyers and colourists
02	Textile Finishing	Edited by Derek Heywood	-
03	Principles of Textile Finishing	Asim Kumar Roy choudhury	Elsevier Science
04	Textile Finishing Chemicals: An Industrial Guide	Ernest W. Flick	Noyes Publications
05	Chemistry & Technology of Fabric Preparation & Finishing	By Dr. Charles Tomasino	North Carolina State University
06	Chemical Finishing of Textiles	W D Schindler and P J Hauser	Woodhead Publishing Series in Textiles Book
07	টেক্সটাইল ফিনিশিং	শাহজাহান ফিরোজ	-

Website References:

Sl	Web Link	Remarks
01	https://www.youtube.com/watch?v=DeEN-eytpeA	Mercerizing & Heat-setting
02	https://www.youtube.com/watch?v=rxMHvuIEmBE	Mercerizing Machine
03	https://www.youtube.com/watch?v=Gu5FDVwFWk8	Stenter Machine
04	https://www.youtube.com/watch?v=lNEwDMTnlWI	Shinner calendering machine
05	https://www.youtube.com/watch?v=EfbFGU-OrcA	5 Roller Calendar machine
06	https://www.youtube.com/watch?v=b9qPccCaOXU	Sanforization Process
07	https://www.youtube.com/watch?v=-BhzP-0Mha0&t=81s	Different Types of Textile Finishing Process: Peach Finishing, Sanforizing and Stentering Process
08	https://fiber2fashion.com/	
09	https://textilestudycenter .com/	
10	https://onlinegarmentsacademy.blogspot.com/	
11	https://textilefashionstudy .com/	
12	Online Publications	

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