SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Bachelor of Engineering

B E IV Textile Technology: Semester – VII

Subject Name:Process & Quality Control in Spinning & Weaving
Subject Code:BTTT13701

Type of course: PCC(Professional Core Course)

Prerequisite (if any): Students should have knowledge of spinning and weaving processes.

List of Courses where this course will be prerequisite: Nil

Rationale:
It is important to understand different theories used for controlling process and quality of spinning and weaving products and the audit of machineries, to ensure yarn and fabric quality, improve process efficiency and minimize process waste.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
4	0	0	0	60	25	15	-	-	100

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests CA2: Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

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Content:

Sr. No.	Content	Total Hrs
1	Scope of the process control in spinning. **Control of mixing quality and cost:** Instrumental evaluation, control of mixing quality through fibre characteristics, simultaneous control of mixing quality and cost.	4
2	**Yarn Realization :** record keeping & accounting	3
3	**Control of waste in spinning:** Control of blowroom waste, control of card waste, control of comber waste	8
4	**Productivity:** Measurement & Analysis of Productivity, Profitability, means to improve Productivity	6
5	**Control of yarn quality:** Control of count, strength and its variation, yarn unevenness & imperfection	6
6	**Yarn faults and package defects:** Slubs, Crackers, Spinner's Doubles, Bad Piecing, Slough off, Hairiness etc	3
7	**Introduction to process control in weaving:** Approach to process control, methodology of direct control, machinery audit, control of fabric quality.	3
8	**Process control in winding** Digital online systems for yarn clearing and quality control in modern winding, Optimising quality of preparation in winding, Control of Productivity in Winding, Approach to control of productivity, Winding package faults, Hard waste control: causes & remedies	5
9	**Process control in pirn winding** Scope &Approach,minimizing end breaks, Improving the build of pirn, productivity, control of speed, efficiency.	3
10	**Process control in warping:** Minimizing end breaks, process control programme in modern warping & sectional	4

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	Warping machines, quality of warping beams, Modern developments in warping troubleshooting in modern warping machines.	
11	**Process control in sizing:** Selection of size material, control of size add-on/pickup, sizing-weaving curve, control of yarn stretch, evaluation of size material and sized yarn, quality of sized beams, trouble shooting in modern sizing machines.	6
12	**Drawing in and warp tying:** Care in use and selection of healds and reeds. **Process control in weaving** Control of productivity in loomshed, control of loom speed and efficiency, loom performance, control of quality of fabrics in weaving, grey fabric inspection, control of fabric defects, hard waste control.	9
		60

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
8	8	10	12	12	10

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

Sr. no.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1.	Process Control in Textile Manufacturing	Abhijit Majumdar, ApurbaDas, R.Alagirusamyand V.K.Kothari,	Woodhead Publishing Limited	2013	
2	Process Control in Cotton Spinning,	A.R Garde and TA Subramanian,	ATIRA,Ahmedabad.	1978	
3	Process Control and Yarn Quality in Spinning.	Dr.G Thilagavathi and Dr.TKarthik,	Woodhead Publishing India Pvt Ltd	2015	
4	Process Control in Weaving	M.C.Paliwal & P.D.Kimothi,	ATIRA,Ahmedabad,	1974	
5	Handbook of Weaving	Sabit Adanur,	CRC Press Publication,	2001.	
6	Textile Sizing,	Anandjiwala, Goswami & Hall,	CRC Press Publication	2004	
7	Processing of Manmade and Blend on Cotton Spinning Systems	K.R.Salhotra		2004	

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Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Control &optimize mixing cost and quality.	7
CO-2	Calculate and control yarn realization	5
CO-3	Control & optimize spinning waste	13
CO-4	Analyze & improve productivity & profitability of machinery involve in the spinning process.	10
CO-5	Describe factors affecting yarn quality in terms of count, strength, uneveness, imperfection	10
CO-6	Describe factors affecting yarn quality in terms of yarn faults,and hairiness.	5
CO-7	Describe scope, approach and methodology of process control in weaving.	5
CO-8	Optimize process control parameters in winding, pirn winding, warping, sizing and loomshed.	25
CO-9	Control fabrics quality (fabric defects)inweaving.	20

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Mapping with POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO-1	3	3	3	2	2	2	1	1	1	2	1	1	3	3	3
CO-2	3	3	3	2	2	2	1	1	1	2	1	1	3	3	3
CO-3	3	3	3	2	2	1	1	1	1	2	1	1	3	3	3
CO-4	3	3	3	2	1	2	1	1	1	2	1	1	3	3	3
CO-5	3	3	3	2	1	2	1	1	1	2	1	1	3	3	3
CO-6	3	3	3	2	2	2	1	1	1	2	1	1	3	3	3
CO-7	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CO-8	3	3	3	3	2	1	2	3	3	3	3	3	3	3	3
CO-9	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3
Rationale*	3	3	3	2	2	2	1	1	2	2	2	2	3	3	3

Rationale* :
The knowledge of different theories used for controlling process and quality of spinning and weaving products and the audit of machineries, to ensure yarn and fabric quality, improve process efficiency and minimize process waste leads to the achievement of the various PO.

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List of Open learning website:https://nptel.ac.in, World Wide Web, Google Search Engine etc.