B E III Textile Technology: Semester –V

Subject Name: Woollen & Worsted Spinning **Subject Code: BTTT14501**

Type of course: Professional Elective Course 1

Prerequisite (if any): Basic knowledge of wool fibre

List of Courses where this course will be prerequisite:

Rationale: (should also include Description of the relevance of this course in the Program)
The subject looks at the worsted & woollen spinning & post spinning operations. It reviews the worsted & woollen production systems before covering the preparation of top for worsted spinning, worsted ring-spinning & variations & alternatives for worsted ring-spinning. It explores preparation for woollen spinning, worsted spinning & post spinning operations. Discussion of quality assurance in both worsted & woollen spinning operations.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	2	4	60	25	15	30	20	150

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

Content:

Sr. No.	Content	Total Hrs
1	Introduction	1
2	Review of the Woollen & Worsted production systems: the wool yarn manufacturing processes, principal wool blends, preparation for spinning	10
3	Preparation of Cops for Spinning: Specification of top, preparing top for spinning, worsted roving	8
4	Worsted Spinning: the worsted spinning operation, setting in ring spinning, spinning breaks, limits on spinning, yarn hairiness & worsted ring spinning, the influence of trends on worsted spinning	10
5	Variations & alternatives to ring spinning: Variations on ring spinning, alternatives to ring spinning, comparing various spinning systems.	5
6	Preparation for Woollen Spinning: Specifying wool for woollen processing, the Carbonising process, the opening process, Dyeing in woollen processing, the woollen carding process	8
7	Post Spinning Operations: Yarn relaxation, winding & clearing, folding, twisting & plying	2
8	Quality assurance in Spinning	1

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	**15**	**10**	**5**	**5**	**5**

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	Woolen Spinning, Weaving, Knitting, Dyeing, Bleaching and Printing Technology Handbook	NPCS Board of Consultants & Engineers	Asia Pacific Business Press Inc. 9788178331171	2009	
2	Wool: Science and technology	W S Simpson and G H Crawshaw	Woodhead Publishing Limited in association with The	2000	

			Textile Institute ISBN 1 85573 574 1		
3	Advances in wool technology	N. A. G. Johnson and I. M. Russell	Woodhead Publishing Limited in association with The Textile Institute ISBN 978-1-84569-332-9	2009	

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Describe the operations required to prepare top for spinning, including finisher gilling & roving	13
CO-2	Describe the aim & the operation of the ring spinning frame	15
CO-3	Outline alternative spinning technologies that can be used for worsted spinning of wool	20
CO-4	Describe the operation of a woollen card & the preparation of the slubbing for spinning	22

CO-5	Describe post spinning operations	20
CO-6	Describe the role & technique in quality assurance	10

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	PSO1	PSO2	PSO3
CO-1	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3
CO-2	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3
CO-3	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3
CO-4	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3
CO-5	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3
Rationale*	2	3	0	1	0	1	1	0	1	2	2	2	1	1	3

Rationale* : Explaining why it is matching this particular program outcome

List of Open learning website:

List of Open Source Software:

FOR LAB SESSIONS:

List of Experiments:

1. Identification of wool fibres and their grading.
2. Layout of sequence of machines used for woollen yarn manufacturing.
3. Passage of material through different parts of machines used for woollen yarn manufacturing.
4. Detailed studies of all the machines used for woollen yarn manufacturing.
5. Layout of sequence of machines used for worsted yarn manufacturing.
6. Passage of material through different parts of machines used for worsted yarn manufacturing.
7. Detailed studies of all the machines used for worsted yarn manufacturing.

Major Equipment Needed: Woollen / Worsted Spinning Machines