GUJARAT TECHNOLOGICAL UNIVERSITY

TEXTILE TECHNOLOGY (29)
SUBJECT NAME: PROCESS & QUALITY CONTROL IN SPINNING
SUBJECT CODE: 2182907
B.E. 8th SEMESTER

Type of course: Engineering

Prerequisite: Knowledge of spinning of yarn and various unconventional spinning methods.

Rationale: This subject provides framework for the undergraduate students to plan process parameters and to carry out various spinning calculations.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	0	0	3	70	20	10	00	00	00	100

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment; AL-Active learning assignments; OEP-Open Ended problem

Content:

Sr. No.	Content	Total Hrs	% Weightage
1.	Consideration in evolving a system for process control	03	7.14
2.	Control of mixing quality and cost	04	9.5
3.	Control of Yarn Realization: records & accounting	04	9.5
4.	Control of waste & cleaning in blow room & carding	04	9.5
5.	Control of comber waste	04	9.5
6.	Measurement & analysis of productivity	03	7.14
7.	Means to improve productivity	04	9.5
8.	Control of Yarn Quality: Count, strength, & their variability, RKM, Elongation and Classimat faults.	04	9.5
9.	Control of Yarn Quality: Yarn unevenness & imperfection.	04	9.5
10.	Yarn faults & package defects e.g. hairiness and Implementation of process control in cotton spinning	02	4.76

11.	Use of modern instruments in process control. Introduction to High Volume Instrumentation- AFIS ,HVI, concept of Bale Management etc.	04	9.5
12.	Machinery Audit	02	4.76

Suggested Specification table with Marks (Theory):

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

1. Processing of manmade and blend on cotton spinning systems-K.R. Salhotra
2. ATIRA : Process Control in Spinning, ATIRA, 1987.
3. ATIRA/BTRA: Combined norms for Textile Industry, NITRA,/SITRA/NITRA.
4. BTRA :Spinning Productivity & methods of evaluation,1990
5. SITRA : Norms for the spinning mills, 1996
6. Spinning tablets of Blow-room, carding, comber, speed frame, ring-frame and rotor by R.G.Owalekar published by TAI
7. Cotton Fibre Selection & Grading BY SITRA

Course Outcome:

After learning the course the students should be able to:

1. Carry out Calculations regarding mixing
2. Calculate Yarn Realization
3. Carry out machinery audit to keep the product fault free.
4. Carry out Productivity Analysis and causes of shortfall in productivity, Means to improve productivity.
5. Describe Factors affecting Yarn Quality in terms of Count , Strength , Unevenness , Classimat faults.
6. Describe various Yarn faults and Package defects.

List of Open Source Software/learning website: http://nptel.iitm.ac.in, World Wide Web, Google Search Engine etc.

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.