GUJARAT TECHNOLOGICAL UNIVERSITY

TEXTILE TECHNOLOGY (29)
SUBJECT NAME: PRODUCTION PLANNING & MAINTENANCE
SUBJECT CODE: 2172903
B.E. 7th SEMESTER

Type of course: Engineering

Prerequisite: Students should have thorough knowledge of all the textile processes and machineries.

Rationale: This course covers production planning of different departments of yarn and fabric formation and their maintenance schedules.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
				Theory Marks			Practical Marks			
L	T	P	C	ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
4	2	0	6	70	20	10	20	10	20	150

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.	Introduction to production planning equations for weaving department. Formula for production calculation in winding, warping, sizing and pirn winding departments.	5	8.93
2.	Formula for reed and ends calculation. Production calculation for shuttle and shuttleless weaving machines.	3	5.36
3.	Production planning for the weaving department. Multi sort working in the weaving shed, allocation of looms. Production planning for winding, warping, sizing and pirn winding department. Preparation of Production Schedules for warp and weft yarns.	14	25.00
4.	Creel arrangement for coloured warp on sectional warping and related numerical.	3	5.36
5.	Introduction to production planning equations for ring spinning department. Formula for production calculation in ring frame, speed frame, draws frame, comber, carding and blow room.	5	8.93
6.	Production planning for the ring spinning department. Production planning for ring frame, speed frame, draws frame, comber, carding and blow room.	14	25.00
7.	Production planning for the OE spinning department. Production planning for OE Spinning, draws frame, carding and blow room.	4	7.14

8.	Production planning for the texturising department. Production planning for texturising and TFO.	4	7.14
9.	Theory of Maintenance. Various types of maintenance. Maintenance check points for all departments from Blow room to loom shed.	4	7.14

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	15	15	5	20	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. Weaving Calculations- Sengupta
2. Spinning Calculations - H.V.Sreenivas Murthy
3. TABLETS on all department of Spinning and weaving - Textile Association (India)

Course Outcome:

After learning the course the students should be able to:

1. Carry out production calculation of all Spinning and Weaving Machines.
2. Prepare production schedule for Spinning and weaving department.
3. Calculate number of machines required as per production schedule.
4. Prepare Spin plan and Weave plan for department.
5. Carry out Maintenance of various spinning and weaving machines.

List of Tutorial Work:

1. To prepare spin plan for cotton spinnig unit.
2. To prepare spin plan for blend spinning unit.
3. To prepare spin plan for polyester spinning unit.
4. To prepare weave plan for weaving unit having plain powe looms.
5. To prepare weave plan for weaving unit having automatic looms
6. To prepare weave plan for weaving unit having shuttleless looms.
7. To prepare layout of spinning unit
8. To prepare layout of yarn preparatory unit.
9. To prepare layout of weaving unit having plain power looms
10. To prepare layout of weaving unit having automatic looms.
11. To prepare layout of weaving unit having shuttleless looms.
12. To prepare plan and layout for a composite unit.
13. To calculate cost of yarn and fabric

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.