GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma Engineering

Level: Diploma

Branch: Textile Manufacturing Technology

Subject Code : DI04029021

Subject Name : Production Planning in Textiles

w. e. f. Academic Year:	2025-26
Semester:	4th
Category of the Course:	PCC

Prerequisite:	Adequate knowledge of spinning and weaving process
Rationale:	Due to rapid rate of change in technology, needs of industries have also changed so the industries require highly skilled technicians. Accordingly, production planning in spinning and weaving has also changed. This course will make the students able to understand production planning technique with respect to latest spinning and weaving technology. The students also will be able to plan production schedule for textile industries especially in the area of spinning and weaving with either conventional or sophisticated machines.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Interpret different yarn numbering system	RUA
02	Production Calculation of Spinning and weaving.	A
03	Compute various parameters of fabric.	A
04	Compute speed and draft in Textile machinery	UA

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+(PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE(E)	PA(M)	PA(I)	ESE(V)	
3	1	0	4	70	30	00	00	100

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	1.1 Computation of count, length and weight of yarn in both direct and indirect system. 1.2 Average count and resultant count in both direct and indirect system. 1.3 Different count system and their Relation. a) Tax Count. b) Denier Count. c) English Cotton Count Ne. d) Matric Count Nm.	7	16%
2.	2.1 Production efficiency, hank of lap, weight of lap, length of lap, time required to prepare lap, draft between C R and L R for Blow room. 2.2 Production efficiency, hank of sliver, draft, cleaning efficiency, time required to exhaust and fill up can from given data for carding machine, draw frame machine. comber machine, speed frame, ring frame, O.E machine, two for one twister 2.3 Production efficiency, time required to prepare one cone, time required to exhaust one ring bobbin for winding machine, warping machine, sizing Machine 2.4 production of loom, efficiency, waste of warp, waste of weft	22	50%
3.	3.1 Weight of warp, weight of weft, GSM, Heald count, Reed count for give data. 3.2 Contraction of warp, weft, cover factor for warp, weft, max. EPI and PPI for given data	11	24%
4.	4.1 Gearing calculation. 4.2 Calculation of draft from gearing, from hank fed and hank delivered.	5	10%
	Total	**45**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
6%	**10%**	**84%**	**0%**	**0%**	**0%**

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Weaving calculation by R. Sengupta. Publication - Imprint 1979, ISBN-13: 978-0906216613, ISBN-10: 0906216613
2. Textile mechanics and spinning calculation by R.Jagannathan . Publication - Mahajan Publication Ahmedabad ISBN: 8185401195.
3. Weaving Calculations: A Guide to Calculations Relating to Cotton Yarn and Cloth and All Processes of Cotton Weaving by Cristopher Parkinson Brooks. Publication - Forgotten Books (21 December 2018) ISBN-10: 1333850689 ISBN-13: 978-1333850685
4. The Young Man's Assistant to Cotton Spinning by A.Prestwich. Publication - Kessinger Publishing (10 December 2008) SBN-10: 1437349331 ISBN-13: 978-1437349337
5. Cotton Mill Machinery Calculations - A Complete, Comprehensive and Practical Treatment of All Necessary Calculations on Cotton Carding and Spinning Machines by B.M. Parker. Publication - Read Books (9 October 2007) SBN-10: 1406783137 ISBN-13: 978-1406783131

(b) Open source software and website:

1. http:// www.textileschool.com/.../spinning-form
2. http:// www.textilelearner.blogspot.com/.../calculation
3. http:// www.cs.arizona.edu/patterns/
4. http://www.textile.netal.net/spinning/spinning
5. http:// www.cs.arizona.edu/.../pea_calc.pdf
6. http://www.acedemia.edu/.../spinning_calculation
7. http://www.textileschool.com/.../weaving
8. http://www.weavetex.blogspot.com
9. http://www.acedemia.edu/.../textile_calculation
10. http://www.scribd.com/.../weaving_calculation
11. http://www.docstoc.com/.../spinning_calculation.

List of Laboratory/Learning Resources Required:

Suggested Project List:

a) Yarn Numbering System: Collect different yarn sample and calculate their yarn count in different numbering system.

b) Spinning Calculation: Collect data of spinning machinery available globally. Prepare a spinning plant using that machinery

c) Weaving Calculations : Collect data of Weaving machinery available globally. Prepare a Weaving Plant plant using that machinery

d) Spinning and weaving calculation: Prepare spinning and weaving plant using latest particulars of machinery.

e) Fabric Calculation: Collect sample of different fabric compare calculated and actual GSM of the fabric

Suggested Activities for Students:

a) Prepare report on weight of different package based on industrial visit.
b) Prepare report speed of different machine based on industrial visit.
c) Prepare report on different yarn count their % and average mill count
d) Collect data of warping and sizing particular from different mills.

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