

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Diploma in Textile Manufacturing

### Semester: 3

**Subject Code** 332901

**Subject Name** YARN MANUFACTURING TECHNOLOGY – I

Sr. No.	Course content
1.	<b>INTRODUCTION OF SPINNING PROCESS :</b> 1.1 Definition of textile terms : Ginning, yarn, fibre, contamination, trash, fibres, Doubling, blending, Rove, sliver, Drafting , twisting. 1.2 Outline of spinning process and their objects i.e. from Blow room to Ring frame
2.	<b>BRIEF STUDY OF GINNING PROCESS :</b> 2.1 Roller gin. 2.2 Macarthy gin. 2.3 Saw roller gin. 2.4 Importance of pre-ginning & Post- ginning treatment.
3.	<b>DETAIL STUDY OF BLOW-ROOM :</b> 3.1 Necessity of Blow room process. 3.2 Classification of Blow room Machineries. 3.2.1 Feeding & blending machineries. 3.2.2 Opening & cleaning machines. 3.2.3 Auxiliary machines. 3.3 Contamination in cotton 3.4 Sequence of Blow room machineries. Beating points, selection of beating points for various mixings. 3.5 Brief study of following machines. 3.5.1 Hopper bale opener. 3.5.2 Hopper feeders. 3.5.3 Floc Feeder 3.5.4 Step cleaner. 3.5.5. Two / three bladed beaters. 3.5.6 Krischner beater. 3.6 Detail study of following machines. 3.6.1 Axi flow cleaner. 3.6.2 S R R L Opener. 3.6.3 Air stream cleaner /Super-jet cleaner 3.6.4 Mono Cylinder cleaner. 3.6.5 E R M cleaner. 3.7 Study of Mixing. 3.7.1 Types of mixing (A) Stack mixing (B) Mixing by hopper (C) Mixing at machine. 3.7.2 Detail study of Mixing methods.

	<p>3.7.3 Study of following m/cs.</p> <ul style="list-style-type: none"> <li>- Floc Blending m/c.</li> <li>- Auto mixer.</li> <li>- Bale plucker.</li> </ul> <p>3.8 Outline of Rieter vario-set- blow-room and Trutzschler cleanomat-blow-room system.</p> <p>3.9 Detail study of scutcher.</p> <p>3.9.1 Passage, parts &amp; their functions</p> <p>3.9.2 Lap measuring motion- Assalises measuring motion.</p> <p>3.9.3 Lap hardening motion (Pneumatic)</p> <p>3.9.4 Automatic Lap doffing.</p> <p>3.9.5 Two / three way distributors.</p> <p>3.9.6 Performance of Blow - Room.</p> <ul style="list-style-type: none"> <li>- Cleaning efficiency &amp; its method of estimation.</li> <li>- Norms for waste</li> <li>- Lap defects : causes &amp; remedies.</li> </ul> <p>3.9.7 Routine maintenance.</p>
<b>4.</b>	<p><b>DETAIL STUDY OF CARDING :</b></p> <p>4.1 Objectives of carding process, passage of material through carding m/c.</p> <p>4.2 Detail study of various parts of revolving flat card.</p> <p>4.3 Important settings &amp; their effects on quality and waste level.</p> <p>4.4 Study of stripping and grinding.</p> <p>4.5 Cleaning efficiency of card. Factors affecting the cleaning efficiency, causes of neps and their remedies.</p> <p>4.6 Carding product defects , causes &amp; remedies.</p> <p>4.7 Significance of modern development in carding.</p> <p>4.7.1 Licker in developments</p> <p>4.7.2 Chute feeding</p> <p>4.7.3 Uni directional feed</p> <p>4.7.4 Apron drafting</p> <p>4.7.5 Auto levelling</p> <p>4.7.6 Roller drafting</p> <p>4.7.7 Card clothing (Metalic)</p> <p>4.7.8 Carding Segment (Stationary flats)</p> <p>4.8 Routine maintenance in carding</p> <p>4.9 Outline off Micro processor control in card</p>
<b>5.</b>	<p><b>DETAIL STUDY OF DRAWING FRAME :</b></p> <p>5.1 Objectives of draw frame.</p> <p>5.2 Principles of drafting &amp; doubling, effects of drafting &amp; doubling on yarn quality.</p> <p>5.3 Detail study of draw frame.</p> <p>5.3.1 Passage of material &amp; functions of important parts.</p> <p>5.3.2 Different drafting systems.</p> <ul style="list-style-type: none"> <li>3 over 3, 4 over 5, 3 over 5 (polar)</li> </ul> <p>5.3.3 Different types of Top roller weighting systems (Pneumatic/spring)</p> <p>5.3.4 Electrical stop motion.</p> <p>5.3.5 Routine maintenance in draw frame.</p> <p>5.4 Technological design change in modern draw frame.</p>

	5.4.1 Drafting roller arrangement. 5.4.2 Top roller weighting arrangement. 5.4.3 Online monitoring and autoleveling. 5.4.4 Suction arrangement. 5.4.5 Automation in doffing. 5.4.6 Safety measures.
<b>6.</b>	<b>PRODUCTION CALCULATION FOR BLOWROOM, CARDING &amp; DRAWING :</b> 5.1 Calculate, yarn count-English, Metric, Tex and Denier. 5.2 Calculate production of B.R. from given data. 5.3 Calculate production of carding from given data. 5.4 Calculate draft of card from given data. 5.5 Calculate draft & production of Draw frame.

### **LABORATORY EXPERIENCES :**

<b>Sr No</b>	<b>Name of Topic</b>
<b>1</b>	Chart of Out line of Spinning Processes
<b>2</b>	Passage through ginning M/c
<b>3</b>	Passage of material through Blendomat, Bale plucker
<b>4</b>	Hopper Blender
<b>5</b>	Mono cylinder
<b>7</b>	Super jet cleaner
<b>8</b>	Chute feed Arrangement
<b>9</b>	Passage of material through Carding
<b>10</b>	Card setting
<b>11</b>	Setting of Wire mounting
<b>12</b>	Setting of Modern doffing
<b>13</b>	Passage of material through Draw frame process
<b>14</b>	Sketch of different drafting Systems
<b>15</b>	Setting of Electrical stop motion
<b>16</b>	Practical on Evener Motion
<b>17</b>	Industrial visit

### **REFERENCE BOOKS:**

1. Technology of yarn forming vol – I by S. Jayprakasam
2. Cotton spinning Butterworth series
3. “ Marril
4. “ Taggart
5. Spun yarn technology Subramani
6. Short staple spinning W.klein
7. Spinning calculation Pattabhiraman
8. Aritho spin weave T.C.Shah
9. NCUTE Training programme R.Chattopadhyay  
on B.R. and card. K.R.Salhotra