

## Syllabus For Balloon Padder Machine Operator

<b>Course Name</b>	Balloon Padder Machine Operator
<b>Course Code</b>	TXT/2024/BPMO/366
<b>Sector</b>	Textiles & Handlooms
<b>Level</b>	3
<b>Occupation</b>	Balloon Padder Machine Operator
<b>Job Description</b>	Balloon Padder Machine Operator is responsible to carry out the process of de-twisting, spreading and squeezing of knitted fabric in tubular or open width form with proper control of parameters to get the desired effect on a balloon squeezer machine, as per instructions. The operator is also responsible for performing maintenance activities of the machine.
<b>Course Duration</b>	<b>Total Duration 390 Hrs (T- 90, P- 180 including OJT-60 and ES-60)</b>
<b>Trainees' Entry Qualification</b>	Grade 10 OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 yrs relevant experience OR Previous relevant Qualification of NSQF Level 2 with one year experience OR Previous relevant Qualification of NSQF Level 2.5 with 6 months experience
<b>Trainers Qualification</b>	B. Tech/B.E. in Textile Technology/ Textile Chemical Processing/ Textile Engineering from AICTE/UGC recognized Engineering College/ university with one-year experience in the relevant field. OR 03 years Diploma in Textile Technology/ Textile Engineering/ Chemical Processing from AICTE recognized board of technical education with two years' experience in the relevant field.

**Structure of Course:**

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs)
1	<b>Overview and Roles &amp; Responsibility</b>	Familiarize with the role of Balloon squeezing process and role of a Balloon Padder operator.	20	40		60
2	<b>Function &amp; Operation</b>	Operate Balloon Squeezer machine adjusting various process parameters	30	60		90
3	<b>Preparatory activities and Quality checking</b>	Perform pre-processing activities as well as assessing quality of finished product	20	40		60
4	<b>Occupational safety</b>	Apply safe working practices at work place	10	20		30

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs)
5	<b>Workplace communication</b>	Demonstrate a comprehensive effective workplace communication strategy	10	20		30
6	<b>OJT</b>	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	-	-	60	60
7	<b>Employability Skills</b>	As per guided curriculum	60	-		60
<b>TOTAL</b>			<b>150</b>	<b>180</b>	<b>60</b>	<b>390</b>

**SYLLABUS:****Module No. 1: Overview and Roles & Responsibility**

**Outcome:** Familiarize with the role of Balloon squeezing process and role of a Balloon Padder operator.

**Theory Content:**

- Introduction to textile processing & finishing techniques.
- Primary objectives of balloon squeezing process.
- Requirement of squeezing operation.
- Familiarization of processing terms such as DE-TWISTING, SPREADING, SQUEEZING, FINISHING , ABSORBENCY , etc.
- Principles of balloon squeezing technique.
- Different processes involved in Balloon squeezing machine.
- Identify the role and responsibility of the Balloon squeezing machine operator.
- Step wise process flow of Balloon squeezing machine.

**Practical Content:**

- Identify different type of Balloon squeezing machine based on its application.
- Demonstrate squeezing operation on Balloon squeezing machine.
- Drawing of the schematic diagram of material flow on Balloon squeezing machine.
- Demonstrate PLC functions.
- Operation and monitoring of production process.
- Practice in maintaining shift logbook and preparation of report.
- Preparation of shift handover/takeover process.
- Load raw materials onto the machine and unload finished products, ensuring a continuous and organized production flow.
- Perform routine maintenance of the machine, including cleaning, lubrication and minor repairs to get optimal performance

**Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Pen pencil.

**Tools & Equipment needed:** Balloon Squeezer Machine, Apron, head cap, mask, shoe, Fabric rolls, Fabric trolley, Work method posters, pictures, videos. temperature sensor, width measuring device, pen, pencil,

marker.

### **Module No. 2: Function & Operation**

**Outcome:** Operate Balloon Squeezer machine adjusting various process parameters

#### **Theory Content:**

- Objectives of Balloon Squeezer machine.
- Description of different components of a Balloon Squeezer machine.
- Different machine parts like **Squeezer roller, Padder, stretcher, motorized expander, sensors, Turn Table, auto de twister, Plaiter** etc.
- Functions of the components of Balloon Squeezer machine.
- Fabric dewatering and squeezing process.
- Controlling and monitoring electronic equipment (PLC) of the machine.
- Process parameters such as **Working width, Roller surface width, Mechanical Speed, Moisture retention, Fabric width, Applicable compressed air pressure, Padder pressures, Air weight** etc.

#### **Practical Content:**

- Identify different components of a Balloon Squeezer machine and demonstrate their functions.
- Demonstrate on working of **Squeezer roller, Padder, stretcher, motorized expander, sensors, Turn Table, auto de twister, Plaiter** of the machine.
- Execute different setting point of Balloon Squeezer machine.
- Operate the process sequence of Balloon Squeezer machine.
- Perform Starting and feeding operation.
- Demonstrate conducting **de-twisting, spreading and squeezing** of knitted fabric in tubular or open width form with proper control of parameters to get the desired effect.
- Adjust roller pressure as per the fabric construction.
- Ensure the machine is properly connected to the power source
- Set the machine controls according to the desired operation parameters
- Load the necessary materials to the machine
- Adjust squeezer roller pressure, machine speed.
- Check the width of fabric & adjust the expander according to that.
- Execute the PLC functions.
- Change machine settings as per required processing parameters.
- Carry out maintenance activities with regards to work area, tools and machines.
- Ensure all safety devices are working properly and follow preventive maintenance schedule.

#### **Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Pen pencil.

**Tools & Equipment needed:** Balloon Squeezer Machine, Apron, head cap, mask, shoe, **knitted fabric rolls**, Fabric trolley, Work method posters, pictures, videos. Pressure sensor, temperature sensor, width measuring device, pen, pencil, marker.

### **Module No. 3: Preparatory activities and Quality checking**

**Outcome:** Perform pre-processing activities as well as assessing quality of finished product.

#### **Theory Content:**

- Different terminologies related to textile Finishing,
- Function of different finishing chemicals and auxiliaries.

- Study about the finishing chemicals. Understanding mixing & dissolving techniques.
- Different quality check-points of machine.
- Sample cutting & checking the feel of fabric after squeezing.
- Use of various mixing tools.
- Procedures for safe handling of various chemicals.
- Effect of process parameter on the finish of fabric.

#### **Practical Content:**

- Perform preparatory activities for operation of the Balloon squeezing machine.
- Place fabric trolley properly, setting de-twisting unit & squeezing rolls.
- Demonstrate to dissolve & mix the finishing chemicals as per the recipe.
- Adjust the pH of finishing mixture.
- Demonstration of filling chemicals into mangle trough.
- Identify the finishing defects in fabric and actions needed to correct them.
- Adjust mangle pressure to get the right feel of fabric.
- Schedule the inspection process of fabric faults.
- Demonstrate sample cutting & checking the feel of fabric after squeezer.

#### **Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook, Pen pencil.

**Tools & Equipment needed:** Balloon Squeezer Machine, Apron, head cap, mask, shoe, knitted fabric rolls, Fabric trolley, Work method posters, pictures, videos. **Pressure sensor, temperature sensor,** width measuring device, pen, pencil, marker, weighing balance, **finishing chemicals.**

#### **Module No. 4: Occupational safety**

**Outcome:** Apply safe working practices at work place

#### **Theory Content:**

- Significance of routine cleaning activities of machine maintenance
- Identifying potential hazards associated with a lack of regular cleaning on tools, machines and work areas.
- Types of cleaning agents and tools
- Introduction of Occupational safety
- Overview of relevant occupational safety regulations and standards
- The responsibility of technician in compliance with safety guidelines
- Identification of Occupational safety hazards
- Identification of common hazards in the machine
- Describe types of hazards
- Application of PPE (Personal protective equipment)
- Selection and use of PPE
- Safe work practices with electrical systems
- Applications of electrical tools
- Describe the importance of immediate response during emergencies
- Fire prevention measures and firefighting equipment's

#### **Practical Content:**

- Demonstration of cleaning techniques
- Create a check list for routine cleaning tasks and their frequency

- Demonstrate the use protective clothing/equipment for specific tasks and work conditions
- Identify PPE application and its maintenance procedure
- Demonstrate the correct use of safety glasses, gloves and hearing protection
- Simulate an emergency scenario require the use of PPE
- Identify electrical hazards (power supply and points, loose and naked cables and wires, equipment malfunctions, etc.)
- Apply electrical precautions like insulated clothing, adequate equipment insulation, use dry work area etc.
- Identify safety features and emergency stop locations
- Present proper method of rescue techniques applied during fire hazard and other accidental situation.

**Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

**Tools, Equipment and Other Requirements:**

Protective Gloves, Head Caps, Safety Goggles, Safety Boots, Mouth Masks, coats and aprons; ear plugs or muffs; eye and facial protection; head-wear; lifting assistance;

**Module No. 5: Workplace communication**

**Outcome:** Demonstrate a comprehensive effective workplace communication strategy

**Theory Content:**

- Explain purpose or common goals of each member in a group of willing to work toward. Members feel that they played a role in determining these goals and the methods used to achieve them.
- Describe the task between each member in group, but also with its own processes and operating procedures.
- Maintain Communication is clear and direct manner.
- Interpret machine performance data and metrics
- Explain key indicators of machine health and efficiency
- Establish clear reporting procedures for machine running and performance
- Generate machine performance reports and sharing them with the team
- Discuss supervision policy as a leader who can bring the group together and build an environment in which the team can work together effectively.

**Practical Content:**

- Demonstrate the purpose or common goals of each member in a group of willing to work toward. Members feel that they played a role in determining these goals and the methods used to achieve them.
- Identify the task between each member in group, but also with its own processes and operating procedures. The group periodically evaluates its performance.
- Exhibit the accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required.
- Apply Communication is clear and direct manner.
- Apply good communication environmental practices in workplace.
- Simulate/role play of ethical dilemmas in the workplace
- Illustrate organizational policies and procedures

**Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's

Handbook

**Tools, Equipment and Other Requirements:**

Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual, communication tools, communication manual, On-task Communication, Instant Chats , Video Conferencing, Voice Calls, Audio Recording, Discussion Forums, Instant File Sharing, External Communication

**Module No. 6: OJT**

**Outcome:** Work in real job situation with special emphasis on basic safety and hazards in this domain

**Practical Content:**

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours.**)

**Module 7 : Employability Skills (60 Hrs)**

**Introduction to Employability Skills**

Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

**Constitutional values - Citizenship**

Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

**Becoming a Professional in the 21st Century**

Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

**Basic English Skills**

Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

**Career Development & Goal Setting**

Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

**Communication Skills**

Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

**Diversity & Inclusion**

Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

**Financial and Legal Literacy**

Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

**Essential Digital Skills**

Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

**Entrepreneurship**

Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

**Customer Service**

Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

**Getting Ready for apprenticeship & Jobs**

Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

**Learning Outcome – Assessment Criteria**

Module No.	Outcome	Assessment Criteria
1	Familiarize with the role of Balloon squeezing process and role of a Balloon Padder operator.	<p><b>After completion of this module students will be able to:</b></p> <ol style="list-style-type: none"> <li>1.1. Demonstrate the Principles of balloon squeezing process.</li> <li>1.2. Explain Requirement of squeezing operation.</li> <li>1.3. Explain the roles and responsibility of the Balloon squeezer operator.</li> <li>1.4. Explain process flow of Balloon squeezer machine.</li> <li>1.5. Demonstrate the squeezing operation on Balloon squeezing machine.</li> <li>1.6. Demonstrate different PLC functions.</li> <li>1.7. Demonstrate maintaining shift logbook and preparation of report.</li> <li>1.8. Explain the shift handover/takeover process.</li> </ol>
2	Operate Balloon Squeezer machine adjusting various process parameters	<p><b>After completion of this module students will be able to:</b></p> <ol style="list-style-type: none"> <li>2.1. Describe different components of a Balloon Squeezer machine.</li> <li>2.2. Explain the functions of Squeezer roller, Padder, stretcher, motorized expander, sensors, Turn Table, auto de twister, Plaiter of Balloon squeezer.</li> <li>2.3. Demonstrate the fabric dewatering and squeezing process.</li> <li>2.4. Demonstrate the different setting points of Balloon Squeezer machine.</li> <li>2.5. Demonstrate how to Perform Starting and feeding operation of the machine.</li> <li>2.6. Demonstrate process of de-twisting, spreading and squeezing.</li> <li>2.7. Demonstrate how to adjust roller pressure as per the fabric construction.</li> <li>2.8. Demonstrate the use of magnetic stretcher/ expander basket.</li> <li>2.9. Demonstrate how to set the overfeed.</li> <li>2.10. Demonstrate how to Adjust the machine settings using PLC functions.</li> <li>2.11. Demonstrate how to adjust squeezer roller pressure, machine speed.</li> <li>2.12. Demonstrate how to check the width of fabric &amp; adjust the expander according to that.</li> <li>2.13. Demonstrate how to change machine settings as per required processing parameters.</li> <li>2.14. Carry out maintenance activities with regards to work area, tools and machines.</li> </ol>



Module No.	Outcome	Assessment Criteria
3	Perform pre-processing activities as well as assessing quality of finished product	<p><b>After completion of this module students will be able to:</b></p> <p>3.1. Explain Different terminologies related to textile Finishing.</p> <p>3.2 Explain the Function of different finishing chemicals and auxiliaries.</p> <p>3.3 Execute various mixing &amp; dissolving techniques.</p> <p>3.4 Inspect different quality check-points of machine.</p> <p>3.5 Demonstrate the process of Sample cutting &amp; checking the feel of fabric after squeezing.</p> <p>3.6 Explain the effect of process parameter on the finish of fabric.</p> <p>3.7 Recognize the use of various mixing tools.</p> <p>3.8 Display fabric trolley properly, set the de-twisting unit &amp; squeezing rolls.</p> <p>3.9 Adjust the pH of finishing mixture</p> <p>3.10 Process of chemical fill into machine.</p> <p>3.11. Demonstrate how to adjust mangle pressure to get the right feel of fabric.</p> <p>3.12. Carry out the inspection process of fabric faults.</p>
4	Apply safe working practices at work place	<p><b>After completion of this module students will be able to:</b></p> <p>4.1 Demonstrate of effective cleaning techniques</p> <p>4.2 Execute machine specific cleaning procedures</p> <p>4.3 Create a checklist for routine cleaning tasks</p> <p>4.4 Demonstrate the use of protective clothing/equipment for the specific tasks and work conditions</p> <p>4.5 Describe the importance of PPE kit</p> <p>4.6 Demonstrate the correct use of safety gear.</p> <p>4.7 Identify electrical hazards, including power supply issues, loose cables and equipment malfunctioning</p> <p>4.8 Detect health hazards (such as untreated injuries and contagious illness/ zoonotic diseases).</p> <p>4.9 Maintain Fire safety and prevention of fire hazards in workplace [fire extinguishers, fire Alarm, fire exits]</p> <p>4.10 Ensure use of general health and safety equipment and materials in the workplace first aid equipment</p>
5	Demonstrate a comprehensive effective workplace communication strategy	<p><b>After completion of this module students will be able to:</b></p> <p>5.1 Demonstrate the purpose of each team member and their involvement in determining goals</p> <p>5.2 Identify tasks between team members and their own processes</p> <p>5.3 Apply effective communication strategies in a practical context</p> <p>5.4 Exhibit enterprise ethical standards in workplace interactions</p> <p>5.5 Apply good communication environmental practices in practical</p>

Module No.	Outcome	Assessment Criteria
		workplace 5.6 Simulate/Role play ethical dilemmas in the work place 5.7 Illustrate familiarity with relevant industry standards and regulations. 5.8 Explain the organizational policies and procedures
6	<b>OJT</b>	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).
7	<b>Employability Skill</b>	As per guided curriculum

**List of Tools, Equipment & materials needed for 30 Trainees (Practical)**

Sl No	Items Name	Specification	Qty
1	Balloon Squeezer Machine		1
2	Fabric cutting machine		1
3	Pressure sensor		5
4	Temperature sensor		5
5	Width measuring device		5
6	Head cap		30
7	Apron		30
8	Shoe		30
9	Hand gloves		30
10	Knitted Fabric rolls		As required
11	Fabric trolley		As required
12	Scissors		5
13	Meterage devices		30
14	Measuring scales, Inch Tape		30
15	Glass reagent jars		5
16	Finishing chemicals		As required
17	Plastic beaker		5
18	Stirrer		5
19	Thermometer		2
20	Fabric markers		10
21	Auxiliary chemicals		As required
22	Fire extinguishers		2
23	Fire Alarm		2
24	First aid equipment		5

## Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr. marks	Total OJT marks
Familiarize with the role of Balloon squeezing process and role of a Balloon Padder operator.	TXT/3713/OC1	30	130	0
Operate Balloon Squeezer machine adjusting various process parameters	TXT/3713/OC2	50	160	0
Perform pre-processing activities as well as assessing quality of finished product	TXT/3713/OC3	30	130	0
Apply safe working practices at work place	TXT/3713/OC4	20	110	0
Demonstrate a comprehensive effective workplace communication strategy	TXT/3713/OC5	20	120	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	TXT/3713/OC6	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0