

## Syllabus For\_Calendaring Machine Minder

<b>Course Name</b>	Calendaring Machine Minder
<b>Course Code</b>	TXT/2024/CAMM/367
<b>Sector</b>	Textiles & Handlooms
<b>Level</b>	2.5
<b>Occupation</b>	Calendaring Machine Minder
<b>Job Description</b>	The operator will be responsible to carry out the process of Calendaring, compacting, smoothing and texturing of fabric using a calendar machine, as per specified instructions. The operator will be also responsible for the quality checking of calendared fabric and basic machine maintenance.
<b>Course Duration</b>	<b>Total Duration 270 Hrs (T- 60, P- 120, OJT-60 and ES-30)</b>
<b>Trainees' Entry Qualification</b>	<ul style="list-style-type: none"> <li>No formal education</li> <li>May require ability to read and write for some qualifications</li> </ul> Previous relevant Qualification of NSQF Level 1
<b>Trainers Qualification</b>	B. Tech/B.E. in Textile Technology/ 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 from 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>Roles &amp; Responsibilities</b>	Work with Calendaring machine following prescribed roles & responsibilities	10	20		30
2	<b>Calendar machine operation</b>	Operate Calendaring machine maintaining all process parameters	20	40		60
3	<b>Fabric quality assessment &amp; machine maintenance</b>	Perform machine maintenance to ensure quality control of fabric as per norms	10	20		30
4	<b>Maintain occupational safety hazards at work place</b>	Apply safe working practices at work place.	10	20		30
5	<b>Workplace communication strategies</b>	Demonstrate a comprehensive effective workplace communication strategies.	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	30	-		30
<b>TOTAL</b>			<b>90</b>	<b>120</b>	<b>60</b>	<b>270</b>

**SYLLABUS:****Module No. 1: Roles & Responsibilities**

**Outcome:** Work with Calendaring machine following prescribed roles & responsibilities

**Theory Content:**

- Details of various Calendaring techniques.
- Requirement of Calendaring process.
- Definition of fabric finishing terms such as **Calendaring, Flattening, Lustre, Compacting, Glazing, Moire, Schreiner, Smoothing, Texturing and Embossing** etc.
- Principles of mechanical finish technique.
- Different processes involved in Calendar machine.
- Various Types of Calendar machine.
- Roles and responsibility of the Calendar Machine Minder.
- Step wise process flow of Calendar machine.

**Practical Content:**

- Identify different type of Calendar machine based on its application.
- Demonstrate Calendaring operation.
- Drawing of the schematic diagram of fabric flow inside Calendar machine.
- Identify the operating control systems of the machine.
- Demonstrate of Controlling and monitoring systems of the Calendar machine.
- Practice in maintaining shift logbook and preparation of report.
- Preparation of shift handover/takeover process.
- Detection of fabric faults.

**Classroom Aids:**

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

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

**Module No. 2: Calendar machine operation**

**Outcome:** Operate Calendaring machine maintaining all process parameters.

**Theory Content:**

- Objectives of Calendaring process.
- Description of different components of a Calendar machine.
- Functions of the parts of Calendar machine
- Details of fabric Calendaring process.

- Identify electronic equipment of the machine.
- Process parameters effecting performance of Calendar machine such as **Temperatures, Nip pressures, Speed, Moisture, Damping, Fabric width, Fabric weight** etc.

#### **Practical Content:**

- Identify different components of a Calendar machine and demonstration of their functions.
- Demonstrate functions of **Winder, Rotary Tensioner, Break Roll, Metal detector, Heating cylinder, Seam, detector Rollers, Anti-static rod, Cotton Roll, Oscillating roll, Batcher sensor, Cooling drum** of the machine.
- Change different settings of the Calendar machine and notice the effects on efficiency / quality.
- Demonstrate the process sequence of Calendar machine.
- Demonstrate of step-by-step operating procedure of Calendar machine such as - Switching on the Power, Opening of Thermic oil and steam valve, Checking the passage of fabric, Operating Main panel, Adjusting the temperature, stitching of two ends, feeding of fabric without crease and Checking defects and final width of the fabric.
- Keep even tension on fabric and throughout the process.
- Set the required temp and pressure of calendaring rolls.
- Ensure that all safety devices are operational.
- Control the parameters of the machine during the Calendaring process.
- Operate main panel & adjust machine settings to meet the production/quality requirements.
- Follow the Instructions during shift change.

#### **Classroom Aids:**

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

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

#### **Module No. 3: Fabric quality assessment & machine maintenance**

**Outcome:** Perform machine maintenance to ensure quality control of fabric as per norms

#### **Theory Content:**

- Different quality related terminologies of Calendaring process.
- Important factors of Calendaring, different process control parameters.
- Fabric faults after Calendaring and its remedies.
- Control point setting of Calendaring machine.
- Different check-points before starting of machine operation.
- Machine maintenance schedule.
- Various preventive maintenance activities of Calendar Machine.
- Safety guidelines to be followed.
- Actions to be taken in emergency conditions.

**Practical Content:**

- Cut the sample after calendaring near the stitch and compare the sample with the standard.
- Check by feel the outlet fabric by hand and if it is not matching with the standard specified inform to supervisor.
- Demonstrate how to perform adjusting settings based on required fabric quality.
- Adjust the roller pressure, temp or machine speed to match the required feel & finish.
- Checking of various process damages in the finished fabric like stains – dust, chemicals, rust, stains, crease, water droppings, oil etc.
- Use of proper cutting tools for taking the sample.
- Cleaning the machine on a regular basis and carrying out preventive maintenance activities.
- Check wheather all controls are functioning properly.
- Demonstrate the cleaning operation of the machine properly before loading, while running & after unloading the fabric.

**Classroom Aids:**

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

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

**Module No. 4: Maintain occupational safety hazards at work place**

**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 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 strategies**

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

**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 members 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 members 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 No. 7: : Employability Skills (30 Hrs)****Introduction to Employability Skills**

Duration: 1 Hour

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 Hour

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: 1.5 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: 5 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: 1 Hours

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

**Communication Skills**

Duration: 2.5 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: 1 Hour

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: 2.5 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: 5Hours

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: 3 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: 2 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: 4.5 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	Work with Calendaring machine following prescribed roles & responsibilities	<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 Calendaring process.</li> <li>1.2. Explain different processes involved in calendar machine.</li> <li>1.3. Identify the role and responsibility of the Calendar Machinist.</li> <li>1.4. Execute the process flow of calendar machine.</li> <li>1.5. Perform the Calendaring process.</li> <li>1.6. Demonstrate different functions of control systems of the machine.</li> <li>1.7. Maintain shift logbook.</li> <li>1.8. Perform the shift handover/takeover process.</li> </ol>
2	Operate Calendaring machine maintaining all 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. Identify different components of a Calendar machine.</li> <li>2.2. Explain the the functions of the components of Calendar machine.</li> <li>2.3. Demonstrate the fabric Calendaring process.</li> <li>2.4. Change process parameters such as Temperatures, Nip pressures , Speed , Moisture , Damping etc.</li> <li>2.5. Demonstrate working of Rotary Tensioner, Break Roll, Metal detector, Heating cylinder, Seam, Anti-static rod, Cotton Roll, Oscillating roll, Cooling drum etc.</li> <li>2.6. Execute Process sequence of Calendar machine.</li> <li>2.7. Demonstrate the Opening of Thermic oil and steam valve, Checking the passage of fabric, Adjusting the temperature, Stitching of two ends, Feeding of fabric without crease etc.</li> <li>2.8. Check the parameters of the machine.</li> </ol>



Module No.	Outcome	Assessment Criteria
		2.9. Check defects and final width of the fabric. 2.10. Keep even tension on fabric throughout the process. 2.11. Adjust the machine settings using Main panel. 2.12. Set the required roller pressure. 2.13. Set the required temp. of calendaring rolls. 2.14. Ensure that all safety devices are operational. 2.15. Explain the Instructions during shift change.
3	Perform machine maintenance to ensure quality control of fabric as per norms	<b>After completion of this module students will be able to:</b> 3.1. Explain Important factors of Calendaring , different process control parameters. 3.2. Detect Fabric faults after Calendaring and perform its remedies. 3.3. Change different control point setting of Calendaring machine as per requirement. 3.4. Demonstrate different check-points before starting of machine operation. 3.5. Explain the machine maintenance schedule. 3.6. Perform various preventive maintenance activities of Calendar Machine. 3.7. Cut the sample after calendaring near the stitch and compare the sample with the standard. 3.8. Perform adjusting settings based on required fabric process parameters. 3.9. Adjust the roller pressure, temp or machine speed to match the required feel & finish. 3.10. Clean the machine on a regular basis and carry out preventive maintenance activities. 3.11. Check all controls are functioning properly.
4	Apply safe working practices at work place	<b>After completion of this module students will be able to:</b> 4.1 Demonstrate of effective cleaning techniques 4.2 Execute machine specific cleaning procedures 4.3 Create a checklist for routine cleaning tasks 4.4 Demonstrate the use of protective clothing/equipment for the specific tasks and work conditions 4.5 Describe the importance of PPE kit 4.6 Demonstrate the correct use of safety gear. 4.7 Identify electrical hazards, including power supply issues, loose cables and equipment malfunctioning 4.8 Detect health hazards (such as untreated injuries)

Module No.	Outcome	Assessment Criteria
		<p>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 strategies	<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 workplace</p> <p>5.6 Simulate/Role play ethical dilemmas in the workplace</p> <p>5.7 Illustrate familiarity with relevant industry standards and regulations.</p> <p>5.8 Explain the organizational policies and procedures</p>
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)**

SI No	Items Name	Specification	Qty
1	Calendar Machine		1
2	Sewing machine		1
3	Sewing thread		As required
4	Head cap		30
5	Shoe		30
6	Hand gloves		30
7	Fabric rolls		As required
8	Fabric trolley		As required
9	Scissors		5
10	Meterage devices		30
11	Measuring scales, Inch Tape		30
12	Nose mask		30
13	Ear plug		30
14	Thermometer		2
15	Fabric markers		10
16	Pressure gauge		2
17	Fire extinguishers		2
18	Fire Alarm		2
19	First aid equipment		5

**Marks Distribution**

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Work with Calendaring machine following prescribed roles & responsibilities	TXT/3714/OC1	30	120	0
Operate Calendaring machine maintaining all process parameters	TXT/3714/OC2	40	170	0
Perform machine maintenance to ensure quality control of fabric as per norms	TXT/3714/OC3	30	120	0
Apply safe working practices at work place.	TXT/3714/OC4	20	120	0
Demonstrate a comprehensive effective workplace communication strategies.	TXT/3714/OC5	30	120	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	TXT/3714/OC6	0	0	150
Employability Skills – 30 Hrs	DGT/VSQ/N0101	50	0	0