

Syllabus For_Power loom Weaver

Course Name	Power loom Weaver
Course Code	TXT/2024/POLW/397
Sector	Textiles & Handlooms
Sub-sector	Weaving
Level	3
Occupation	Power loom Weaver
Job Description	A Power loom Weaver is the one who weaves various types of fabrics using a Power loom. The weaver will weave structures, using different kinds of yarns as per requirement. Weaver have to run the power loom efficiently to get maximum output with minimum fabric defects.
Course Duration	Total Duration 390 Hours (T- 90, P- 180 , OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 OR Grade 8 with two year of (NTC/ NAC) after 8th 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
Trainers Qualification	B. Tech 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 AICTE recognized College / Institute with two years experience in the relevant field.

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs) [Multiple of 30]
1	Weaving basics and Roles & Responsibilities	Demonstrate the objectives of Power loom weaving and identify the roles & responsibilities of the weaver.	20	40		60
2	Power loom operation	Perform the pre-weaving activities and weave fabrics by operating the Power loom.	30	60		90
3	Maintenance	Maintain tools and ensure good maintenance of the loom	20	40		60
4	Maintain occupational safety hazards at work place	Apply safe working practices at work place.	10	20		30
5	Workplace communication strategies	Demonstrate a comprehensive effective workplace communication strategies.	10	20		30
6	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	-	-	60	60
7	Employability Skills	As per guided curriculum	60	-		60
TOTAL			150	180	60	390

SYLLABUS:**Module No. 1: Weaving basics and Roles & Responsibilities.**

Outcome : Demonstrate the objectives of Power loom weaving and identify the roles & responsibilities of the weaver.

Theory Content:

- Definition & objectives of Weaving.
- Power loom Industry and its significance in domestic and global markets.
- Principles of fabric formation in a Power loom.

- Basic weaving terms such as **Warp, weft, shed, shuttle, end, pick, EPI, PPI, gaiting, mending, shedding, picking, beat-up, let-off, take-up** etc.
- Brief on various motions of loom.
- Introduction to different woven fabric structures: **Plain, Satin, Sateen, Damask, Matt, Huck-a-back, Honey comb** etc.
- Roles and responsibility of the Power loom Weaver.
- Sequences of work in Power loom.

Practical Content:

- Identify motions of Power loom .
- Demonstrate Power loom weaving operation.
- Drawing of the schematic diagram of path of yarns inside Power loom.
- Make sure the required amount of warp sheet is prepared.
- Performing beaming process.
- Demonstrate the procedures of fabric formation in Power loom.
- Identify and inspect the tools and equipment.
- Become familiar in faults identification.
- Handing over/taking over documentation preparation.

Classroom Aids:

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

Tools & Equipment needed : A Power loom, Suitable yarn package, Empty fabric roller, Pirns, Shuttle, Creel, Warping drum, Yarns, Needles, Apron, head cap, shoe, Work method posters, pictures, videos. Pen, pencil, Marker, Drawing hook, Magnifying glass, Scissors etc.

Module No. 2: Power loom operation

Outcome: Perform the pre-weaving activities and weave fabrics by operating the Power loom.

Theory Content:

- Objectives of Power loom weaving process.
- Description of different components of a Power loom.
- Different types of power loom namely- **Tappet loom/ cam loom/ crank loom, doobby loom, jacquard loom.**
- Functions of the parts of Power loom.
- Principles of fabric formation on a Power loom .
- Types of yarn and fabric.
- Types of faults - Yarn faults, Sizing faults, Weaving faults.
- Process flow & Pre-weaving activities before starting weaving on power loom.
- Brief on **Winding, Warping, Sizing.**
- Process parameters effecting performance of Power loom such as **Warp count, Weft count, EPI, PPI, Tension of warp, no. of ends per dent, reed width** etc.

Practical Content:

- Identify different components of a Power loom and demonstration of their functions.
- Demonstrate functions of **Loom shaft, Crank shaft, Cam arrangement, Cam shaft, Shuttle, Reed,**

Cloth beam, Warp beam, Picker, Heald shaft, Sley, Harness, Let-off roll, Take up Roll etc. of the Power loom.

- Change different settings of the Power loom and notice the effects on EPI & PPI of woven fabric.
- Demonstrate the Pre-weaving activities of Power loom weaving namely- **Preparation of Warp and weft, filling pirns, loading of warp beam onto Power loom, setting the tension of the rollers, drawing of warps through the healds, drafting & denting, connecting the yarns with cloth beam.**
- Checking the starting position of loom parts like loom shaft, Crank shaft, Cam shaft, Sley, shuttle.
- Perform primary, secondary and auxiliary weaving operations on the power loom.
- Demonstrate starting switch and various stop motions of the power loom.
- Weaving technique of the fabric as per design specifications.
- Maintaining required thread tension during weaving.
- Changing of pirn and shuttle as per the design.
- Mending techniques of warp and weft breaks.
- Doffing process of woven fabric and store the cloth roller.
- Demonstrate the techniques to make adjustments to ensure the quality of the fabric.
- Ensure safety during loom operation.
- Adjust loom settings to meet the production/quality requirements.

Classroom Aids:

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

Tools & Equipment needed: A Power loom, Suitable yarn package, Empty fabric roller, Pirns, Shuttle, Creel, Warping drum, Yarns, Needles, Apron, head cap, shoe, Work method posters, pictures, videos. Pen, pencil, Marker, Drawing hook, Magnifying glass, Scissors etc.

Module No. 3: Maintenance

Outcome : Maintain tools and ensure good maintenance of the loom

Theory Content:

- Cleaning procedures of power loom components.
- Functions of basic hand tools.
- Brief on Maintenance activities of power loom parts.
- Different material handling equipment.
- Possible hazards when performing maintenance.
- Safety guidelines to be followed.

Practical Content:

- Demonstrate the shuttle maintenance activities.
- Lifting tools/ equipment the correct way.
- Properly handle materials, machinery, equipment and tools.
- Ensure that the correct machine guards are in place.
- Identify machine & equipment faults and the process to rectify them.
- Use right cleaning equipment and methods.
- Keep the cleaning equipment in a safe place.
- Execute cleaning according to schedules.
- Maintain a clean and hazard free working area.

Classroom Aids:

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

Tools & Equipment needed: A Power loom, Suitable yarn package, Empty fabric roller, Pirns, Shuttle, Creel, Warping drum, Yarns, Needles, Apron, head cap, shoe, Work method posters, pictures, videos. Pen, pencil, Marker, Drawing hook, Magnifying glass, Scissors 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 (60 Hrs)

Introduction to Employability Skills

Duration: 2 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: 2 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: 3 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 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: 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: 6 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: 4 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: 9 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	Demonstrate the objectives of Power loom weaving and identify the roles & responsibilities of the weaver.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1.1. Demonstrate the Principles of Power loom weaving process. 1.2. Perform different processes involved in Power loom weaving. 1.3. Explain terms such as Warp, weft, shed, shuttle, end, pick, EPI, PPI, gaiting, mending, shedding, picking, beat-up, let-off, take-up etc. 1.4. Identify the role and responsibility of the Power loom Weaver. 1.5. Execute the process flow of Power loom Weaving. 1.6. Demonstrate various motions of loom. 1.7. Make sure the required amount of warp sheet & weft package is prepared. 1.8. Inspect the tools and equipment. 1.9. Identify faults & execute remedies.
2	Perform the pre-weaving activities and weave fabrics by operating the Power loom.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 2.1. Identify different components of a Power loom. 2.2. Perform fabric weaving on Power loom. 2.3. Explain process parameters such as Warp count, Weft count, EPI, PPI, Tension of warp, no. of ends per dent, reed width etc. 2.4. Demonstrate functions of Loom shaft, Crank shaft, Cam arrangement, Cam shaft, Shuttle, Reed, Cloth beam, Warp beam, Picker, Heald shaft, Sley, Harness, Let-off roll, Take up Roll etc. of the Power loom. 2.5. Perform Pre-weaving activities of Power loom weaving namely- Winding, Warping, Sizing, loading of warp beam onto Power loom, setting the tension of the rollers, drafting & denting, connecting the yarns with cloth beam. 2.6. Check the starting position of the Power loom parts. 2.7. Execute the primary, secondary and auxiliary weaving operations on the Power loom. 2.8. Use raw materials as per the specifications. 2.9. Demonstrate starting switch and various stop motions of the power loom. 2.10. Perform pirn and shuttle changes as per the

Module No.	Outcome	Assessment Criteria
		<p>design required.</p> <p>2.11. Maintain fabric width using temples.</p> <p>2.12. Maintain constant warp tension during weaving.</p> <p>2.13. Identify the broken warp & weft yarns.</p> <p>2.14. Mend the broken yarns.</p> <p>2.15. Doff the woven fabric and store the cloth roller.</p> <p>2.16. Adjust loom settings to meet the production/quality requirements.</p>
3	Maintain tools and ensure good maintenance of the loom.	<p>After completion of this module students will be able to:</p> <p>3.1. Demonstrate Cleaning procedures of power loom components.</p> <p>3.2. Properly use basic hand tools.</p> <p>3.3. Demonstrate the shuttle maintenance activities.</p> <p>3.4. Lift tools & equipment the correct way.</p> <p>3.5. Properly handle materials, machinery, equipment and tools.</p> <p>3.6. Ensure that the correct machine guards are in place.</p> <p>3.7. Identify machine & equipment faults and rectify them.</p> <p>3.8. Use right cleaning equipment and methods.</p> <p>3.9. Keep the cleaning equipment in a safe place.</p> <p>3.10. Execute cleaning according to schedules.</p> <p>3.11. Maintain a clean and hazard free working area.</p>
4	Apply safe working practices at work place	<p>After completion of this module students will be able to:</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>

Module No.	Outcome	Assessment Criteria
5	Demonstrate a comprehensive effective workplace communication strategies	<p>After completion of this module students will be able to:</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	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).
7	Employability Skill	As per guided curriculum

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

SI No	Items Name	Specification	Qty
1	Power loom		1
2	Creel		1
3	Warping drum		1
4	Suitable yarn package		As required
5	Empty fabric roller		2
6	Drawing hook		30
7	Weft Package		As required
8	Pirns		As required
9	Shuttle		5
10	PPE		30
11	Apron		30
12	Head cap		30
13	Shoe		30

Sl No	Items Name	Specification	Qty
14	Hand gloves		30
15	Yarn Drawing hook		30
16	Magnifying glass		5
17	Scissors		5
18	Meterage devices		5
19	Measuring scales, Inch Tape		5
20	Nose mask		30
21	Fabric markers		5
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
Demonstrate the objectives of Power loom weaving and identify the roles & responsibilities of the weaver.	TXT/3723/OC1	30	140	0
Perform the pre-weaving activities and weave fabrics by operating the Power loom.	TXT/3723/OC2	50	170	0
Maintain tools and ensure good maintenance of the loom	TXT/3723/OC3	30	140	0
Apply safe working practices at work place.	TXT/3723/OC4	20	100	0
Demonstrate comprehensive effective workplace communication strategies.	TXT/3723/OC5	20	100	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	TXT/3723/OC6	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0